MANITOBA PUBLIC INSURANCE

2023 GENERAL RATE APPLICATION
Round 2 Information Requests
September 27, 2022

Public Utilities Board (PUB)

MANITOBA
PUBLIC INSURANCE

PUB (MPI) 2-1

Part and Chapter:	**PUB (MPI) 1-46** **PUB VII INV Attachment B**	**Page No.:**	**27**
PUB Approved Issue No:	**1. Indicated Rate** **7. Performance of the Investment Portfolio** **17. Interest Rate Forecast**		
Topic:	**Interest Rate Forecasting**		
Sub Topic:	**Provincial and Corporate Bond Spreads**		

Preamble to IR:

PUB (MPI) 1-46 indicates that MPI intends to incorporate Mercer's suggestion relating to incorporating historical spreads into the forecast methodology.

Question:

a) Please provide an alternative PUB (MPI) 1-2(d) and (e) Appendix 1-1 and 1-2 using the Mercer recommended spread approach.

b) Please provide an alternative PUB (MPI) 1-34 Appendix 1-1 and 1-35 Appendix 1-1 using the Mercer recommended spread approach.

c) Please provide an alternative PUB (MPI) 1-34 Appendix 1-1 and 1-35 Appendix 1-1 using the Mercer recommended spread approach, but based on August 31, 2022 yield rates.

Rationale for Question:

To understand the impact of Mercer's proposed spread approach.

RESPONSE:

a) Please see *PUB (MPI) 2-1(a) Appendix 1 Figure App 1-1*, for the alternative to PUB (MPI) 1-2(d) Appendix 1-1 which is the calculation of Marketable Bond Yields using the Mercer approach based on interest rates at July 31, 2022.

Please see *PUB (MPI) 2-1(a) Appendix 2 Figure App 2-1*, for the alternative to PUB (MPI) 1-2 (e) Appendix 1-2 which shows the calculation of the Claims Discount Rate using Mercer's recommended approach based on interest rates at July 31, 2022.

b) Please see *PUB (MPI) 2-1(b) Appendix 3 Figure App 3-1*, for the alternative to PUB(MPI) 1-34 Appendix 1-1 which is the Weight, Yield, Duration for each bond underlying Marketable Bond Yields using the Mercer recommended approach based on interest rates at March 31, 2022.

Please see *PUB (MPI) 2-1(b) Appendix 4 Figure App 4-1*, for the alternative to PUB (MPI) 1-35 Appendix 1-1 which is the Weight, Yield, Duration for each bond underlying the Claims Discount Rate using the Mercer recommended approach based on interest rates at March 31, 2022.

c) Please see *PUB (MPI) 2-1(c) Appendix 5 Figure App 5-1*, for the alternative to PUB(MPI) 1-34 Appendix 1-1 which is the Weight, Yield, Duration for each bond underlying Marketable Bond Yields using the Mercer recommended approach based on interest rates at August 31, 2022.

Please see *PUB (MPI) 2-1(c) Appendix 6 Figure App 6-1*, for the alternative to PUB (MPI) 1-35 Appendix 1-1 which is the Weight, Yield, Duration for each bond underlying the Claims Discount Rate using the Mercer recommended approach based on interest rates at August 31, 2022.

Figure App 1-1 Calculation of Marketable Bonds Yield using Mercer's recommended approach based on July 31, 2022 (Alternative to PUB (MPI) 1-2(d) Figure App 1-1)

Line No.		2022/23				2023/24				2024/25				2025/26			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Asset**																
2	**Government Bonds**	1,122,096	1,099,263	1,101,602	1,103,923	1,114,483	1,125,064	1,135,713	1,146,408	1,178,091	1,191,391	1,204,948	1,218,616	1,235,484	1,252,412	1,269,503	1,286,681
3	**Corporate Bonds**	518,139	508,128	509,333	510,552	514,516	518,450	522,405	526,401	537,407	542,259	547,194	552,149	558,222	564,292	570,400	576,568
4	**Percentage Allocations**																
5	**Government Bonds**	68.41%	68.39%	68.38%	68.38%	68.42%	68.45%	68.49%	68.53%	68.67%	68.72%	68.77%	68.82%	68.88%	68.94%	69.00%	69.06%
6	**Corporate Bonds**	31.59%	31.61%	31.62%	31.62%	31.58%	31.55%	31.51%	31.47%	31.33%	31.28%	31.23%	31.18%	31.12%	31.06%	31.00%	30.94%
7	**Yield**																
8	**Government Bonds**	3.28%	3.42%	3.39%	3.39%	3.38%	3.37%	3.37%	3.36%	3.35%	3.34%	3.34%	3.34%	3.32%	3.32%	3.32%	3.31%
9	**Corporate Bonds**	4.28%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%
10	**Marketable Bonds Yield**	3.60%	3.80%	3.79%	3.78%	3.77%	3.77%	3.77%	3.76%	3.75%	3.75%	3.74%	3.74%	3.73%	3.73%	3.72%	3.72%

Figure App 2-1 Calculation of Claims Discount Rate using Mercer's recommended approach based on July 31, 2022 (Alternative to PUB (MPI) 1-2(e) Figure App 1-2)

Line No.		2022/23				2023/24				2024/25				2025/26			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Government Bonds**	1,122,096	1,099,263	1,101,602	1,103,923	1,114,483	1,125,064	1,135,713	1,146,408	1,178,091	1,191,391	1,204,948	1,218,616	1,235,484	1,252,412	1,269,503	1,286,681
2	**Corporate Bonds**	518,139	508,128	509,333	510,552	514,516	518,450	522,405	526,401	537,407	542,259	547,194	552,149	558,222	564,292	570,400	576,568
3	**MUSH**	461,097	454,223	447,349	440,475	433,615	426,756	419,896	413,036	406,419	399,802	393,185	386,568	379,960	373,352	366,743	360,135
4	**Total Fixed Income Assets**	**2,101,331**	**2,061,614**	**2,058,285**	**2,054,951**	**2,062,614**	**2,070,270**	**2,078,013**	**2,085,845**	**2,121,917**	**2,133,452**	**2,145,327**	**2,157,334**	**2,173,667**	**2,190,056**	**2,206,646**	**2,223,383**
5	**Percentage Allocations**																
6	**Government Bonds**	53.40%	53.32%	53.52%	53.72%	54.03%	54.34%	54.65%	54.96%	55.52%	55.84%	56.17%	56.49%	56.84%	57.19%	57.53%	57.87%
7	**Corporate Bonds**	24.66%	24.65%	24.75%	24.84%	24.94%	25.04%	25.14%	25.24%	25.33%	25.42%	25.51%	25.59%	25.68%	25.77%	25.85%	25.93%
8	**MUSH**	21.94%	22.03%	21.73%	21.43%	21.02%	20.61%	20.21%	19.80%	19.15%	18.74%	18.33%	17.92%	17.48%	17.05%	16.62%	16.20%
9	**Total**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
10	**Yield**																
11	**Government Bonds**	3.28%	3.42%	3.39%	3.39%	3.38%	3.37%	3.37%	3.36%	3.35%	3.34%	3.34%	3.34%	3.32%	3.32%	3.32%	3.31%
12	**Corporate Bonds**	4.28%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%	4.63%
13	**MUSH**	4.28%	4.29%	4.30%	4.30%	4.31%	4.32%	4.33%	4.33%	4.34%	4.35%	4.36%	4.37%	4.38%	4.40%	4.42%	4.43%
14	**Portfolio Management Fee Adjustment**	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%
15	**Claims Discount Rate**	3.68%	3.84%	3.83%	3.83%	3.82%	3.81%	3.81%	3.81%	3.80%	3.79%	3.79%	3.78%	3.78%	3.77%	3.77%	3.77%

Figure App 3-1 Weight, Yield, Duration for each bond underlying Marketable Bond Yields using the Mercer recommended approach based on March 31, 2022 (Alternative to PUB (MPI) 1-34 Figure App 1-1)

Line No.		2022/23				2023/24				2024/25			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Government Bonds**												
2	**Weight**	68.41%	68.40%	68.39%	68.38%	68.41%	68.45%	68.48%	68.52%	68.70%	68.74%	68.79%	68.83%
3	**Yield**	3.28%	3.19%	3.20%	3.19%	3.17%	3.17%	3.16%	3.16%	3.15%	3.14%	3.14%	3.14%
4	**Duration**	11.69	10.45	10.52	10.49	10.26	10.25	10.22	10.19	10.07	10.02	10.00	9.97
5	**Corporate Bonds**												
6	**Weight**	31.59%	31.60%	31.61%	31.62%	31.59%	31.55%	31.52%	31.48%	31.30%	31.26%	31.21%	31.17%
7	**Yield**	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%
8	**Duration**	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22
9	**Government Bonds Weighted Yield**	2.25%	2.18%	2.19%	2.18%	2.17%	2.17%	2.17%	2.17%	2.16%	2.16%	2.16%	2.16%
10	**Corporate Bonds Weighted Yield**	1.35%	1.35%	1.35%	1.36%	1.35%	1.35%	1.35%	1.35%	1.34%	1.34%	1.34%	1.34%
11	**Marketable Bond Yield**	**3.60%**	**3.54%**	**3.54%**	**3.54%**	**3.52%**	**3.52%**	**3.52%**	**3.51%**	**3.50%**	**3.50%**	**3.50%**	**3.49%**

Figure App 4-1 Weight, Yield, Duration for each bond underlying the Claims Discount Rate using the Mercer recommended approach based on March 31, 2022 (Alternative to PUB (MPI) 1-35 Figure App 1-1)

Line No.		2022/23				2023/24				2024/25			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Government Bonds**												
2	**Weight**	53.40%	53.57%	53.76%	53.96%	54.25%	54.55%	54.84%	55.14%	55.80%	56.10%	56.41%	56.71%
3	**Yield**	3.28%	3.19%	3.20%	3.19%	3.17%	3.17%	3.16%	3.16%	3.15%	3.14%	3.14%	3.14%
4	**Duration**	11.69	10.45	10.52	10.49	10.26	10.25	10.22	10.19	10.07	10.02	10.00	9.97
5	**Corporate Bonds**												
6	**Weight**	24.66%	24.75%	24.85%	24.95%	25.05%	25.14%	25.24%	25.34%	25.42%	25.51%	25.60%	25.68%
7	**Yield**	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%	4.29%
8	**Duration**	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22
9	**MUSH**												
10	**Weight**	21.94%	21.67%	21.38%	21.10%	20.70%	20.31%	19.92%	19.53%	18.78%	18.39%	17.99%	17.60%
11	**Yield**	4.28%	4.29%	4.29%	4.30%	4.30%	4.31%	4.31%	4.32%	4.32%	4.33%	4.33%	4.34%
12	**Duration**	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88
13	**Government Bonds Weighted Yield**	1.75%	1.71%	1.72%	1.72%	1.72%	1.73%	1.73%	1.74%	1.76%	1.76%	1.77%	1.78%
14	**Corporate Bonds Weighted Yield**	1.06%	1.06%	1.07%	1.07%	1.07%	1.08%	1.08%	1.09%	1.09%	1.09%	1.10%	1.10%
15	**MUSH Weighted Yield**	0.94%	0.93%	0.92%	0.91%	0.89%	0.87%	0.86%	0.84%	0.81%	0.80%	0.78%	0.76%
16	**Portfolio Management Fee Adjustment**	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%
17	**Claims Discount Rate**	**3.68%**	**3.63%**	**3.63%**	**3.63%**	**3.61%**	**3.61%**	**3.61%**	**3.60%**	**3.59%**	**3.58%**	**3.58%**	**3.58%**

Figure App 5-1 Weight, Yield, Duration for each bond underlying Marketable Bond Yields using the Mercer recommended approach based on Augusut 31, 2022 (Alternative to PUB (MPI) 1-34 Figure App 1-1)

Line No.		2022/23				2023/24				2024/25			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Government Bonds**												
2	**Weight**	70.48%	70.55%	70.58%	70.61%	71.00%	71.03%	71.06%	71.09%	71.16%	71.19%	71.21%	71.24%
3	**Yield**	3.28%	3.44%	3.91%	3.85%	3.87%	3.84%	3.84%	3.83%	3.80%	3.80%	3.80%	3.79%
4	**Duration**	11.69	10.65	10.33	9.74	9.85	9.66	9.64	9.60	9.37	9.35	9.32	9.28
5	**Corporate Bonds**												
6	**Weight**	29.52%	29.45%	29.42%	29.39%	29.00%	28.97%	28.94%	28.91%	28.84%	28.81%	28.79%	28.76%
7	**Yield**	4.29%	4.63%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%
8	**Duration**	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22
9	**Government Bonds Weighted Yield**	2.32%	2.43%	2.76%	2.72%	2.74%	2.73%	2.73%	2.73%	2.71%	2.71%	2.70%	2.70%
10	**Corporate Bonds Weighted Yield**	1.27%	1.36%	1.49%	1.49%	1.47%	1.47%	1.47%	1.47%	1.46%	1.46%	1.46%	1.46%
11	**Marketable Bond Yield**	**3.58%**	**3.79%**	**4.25%**	**4.21%**	**4.21%**	**4.20%**	**4.20%**	**4.19%**	**4.17%**	**4.17%**	**4.16%**	**4.16%**

Figure App 6-1 Weight, Yield, Duration for each bond underlying the Claims Discount Rate using the Mercer recommended approach based on August 31, 2022 (Alternative to PUB (MPI) 1-35 Figure App 1-1

Line No.		2022/23				2023/24				2024/25			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Government Bonds**												
2	**Weight**	53.63%	53.87%	53.56%	53.92%	55.61%	55.95%	56.30%	56.65%	57.15%	57.46%	57.78%	58.09%
3	**Yield**	3.28%	3.44%	3.91%	3.85%	3.87%	3.84%	3.84%	3.83%	3.80%	3.80%	3.80%	3.79%
4	**Duration**	11.69	10.65	10.33	9.74	9.85	9.66	9.64	9.60	9.37	9.35	9.32	9.28
5	**Corporate Bonds**												
6	**Weight**	22.46%	22.49%	22.33%	22.44%	22.72%	22.82%	22.93%	23.04%	23.16%	23.26%	23.36%	23.45%
7	**Yield**	4.29%	4.63%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%	5.07%
8	**Duration**	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22	10.22
9	**MUSH**												
10	**Weight**	23.92%	23.64%	24.11%	23.63%	21.67%	21.22%	20.77%	20.32%	19.69%	19.28%	18.87%	18.46%
11	**Yield**	4.28%	4.29%	4.30%	4.31%	4.32%	4.34%	4.35%	4.37%	4.38%	4.40%	4.42%	4.43%
12	**Duration**	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88
13	**Government Bonds Weighted Yield**	1.76%	1.85%	2.10%	2.08%	2.15%	2.15%	2.16%	2.17%	2.17%	2.18%	2.19%	2.20%
14	**Corporate Bonds Weighted Yield**	0.96%	1.04%	1.13%	1.14%	1.15%	1.16%	1.16%	1.17%	1.17%	1.18%	1.18%	1.19%
15	**MUSH Weighted Yield**	1.02%	1.01%	1.04%	1.02%	0.94%	0.92%	0.90%	0.89%	0.86%	0.85%	0.83%	0.82%
16	**Portfolio Management Fee Adjustment**	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%
17	**Claims Discount Rate**	**3.68%**	**3.84%**	**4.20%**	**4.17%**	**4.17%**	**4.16%**	**4.16%**	**4.16%**	**4.14%**	**4.14%**	**4.14%**	**4.14%**

PUB (MPI) 2-2

Part and Chapter:	**PUB(MPI) 1-2 (f) Appendix 1 Part VI – Accepted Actuarial Practice – RM Ratemaking**	**Page No.:**	
PUB Approved Issue No:	**1. Requested Vehicle Rate and Any Changes to Other Fees and Discounts**		
Topic:	**Provisional Rate Request**		
Sub Topic:			

Preamble to IR:

Question:

a) Please file an update to the claims discount rate determination and Marketable Bond Yield as of August 31, 2022.

b) Please refile (a) using the SIRF.

Rationale for Question:

To monitor the impact on the rate requirements of changing market interest rates.

RESPONSE:

a) Please see *Appendix 1* for the Marketable Bond Yield as of August 31, 2022. Please see *Appendix 2* for the determination of the Claims Discount Rate as of August 31, 2022.

b) Please see *Appendix 3* for the Marketable Bond Yield as of August 31, 2022 using SIRF. Please see *Appendix 4* for the determination of the Claims Discount Rate as of August 31, 2022 using SIRF.

Figure App 1-1 Calculation of Marketable Bonds Yield as of August 31, 2022

Line No.	Asset	2022/23 Q1	2022/23 Q2	2022/23 Q3	2022/23 Q4	2023/24 Q1	2023/24 Q2	2023/24 Q3	2023/24 Q4	2024/25 Q1	2024/25 Q2	2024/25 Q3	2024/25 Q4	2025/26 Q1	2025/26 Q2	2025/26 Q3	2025/26 Q4
1	**Government Bonds**	1,067,860	1,092,244	1,025,373	1,037,136	1,147,228	1,160,458	1,174,802	1,189,363	1,217,947	1,231,100	1,244,565	1,258,227	1,270,365	1,282,619	1,295,038	1,307,554
2	**Corporate Bonds**	447,202	455,698	428,365	432,639	469,695	474,445	479,564	484,760	494,646	499,354	504,164	509,013	513,413	517,820	522,272	526,789
3	**Percentage Allocations**																
4	**Government Bonds**	70.48%	70.56%	70.53%	70.56%	70.95%	70.98%	71.01%	71.04%	71.12%	71.14%	71.17%	71.20%	71.22%	71.24%	71.26%	71.28%
5	**Corporate Bonds**	29.52%	29.44%	29.47%	29.44%	29.05%	29.02%	28.99%	28.96%	28.88%	28.86%	28.83%	28.80%	28.78%	28.76%	28.74%	28.72%
6	**Yield**																
7	**Government Bonds**	3.04%	3.14%	3.96%	3.93%	3.93%	3.93%	3.93%	3.92%	3.92%	3.92%	3.92%	3.92%	3.91%	3.91%	3.91%	3.91%
8	**Corporate Bonds**	4.13%	4.13%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%
9	**Marketable Bonds Yield**	3.36%	3.43%	4.27%	4.25%	4.24%	4.24%	4.24%	4.24%	4.23%	4.23%	4.23%	4.23%	4.23%	4.23%	4.23%	4.23%

Figure App 2-1 Calculation of Claims Discount Rate as of August 31, 2022

Line No.		2022/23				2023/24				2024/25				2025/26			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Government Bonds**	1,067,860	1,092,244	1,025,373	1,037,136	1,147,228	1,160,458	1,174,802	1,189,363	1,217,947	1,231,100	1,244,565	1,258,227	1,270,365	1,282,619	1,295,038	1,307,554
2	**Corporate Bonds**	447,202	455,698	428,365	432,639	469,695	474,445	479,564	484,760	494,646	499,354	504,164	509,013	513,413	517,820	522,272	526,789
3	**MUSH**	476,284	469,410	462,536	455,662	448,803	441,943	435,083	428,224	421,607	414,990	408,373	401,756	395,147	388,539	381,931	375,322
4	**Total Fixed Income Assets**	**1,991,346**	**2,017,352**	**1,916,274**	**1,925,437**	**2,065,726**	**2,076,846**	**2,089,449**	**2,102,347**	**2,134,200**	**2,145,443**	**2,157,101**	**2,168,995**	**2,178,926**	**2,188,978**	**2,199,240**	**2,209,665**
5	**Percentage Allocations**																
6	**Government Bonds**	53.63%	54.14%	53.51%	53.86%	55.54%	55.88%	56.23%	56.57%	57.07%	57.38%	57.70%	58.01%	58.30%	58.59%	58.89%	59.17%
7	**Corporate Bonds**	22.46%	22.59%	22.35%	22.47%	22.74%	22.84%	22.95%	23.06%	23.18%	23.28%	23.37%	23.47%	23.56%	23.66%	23.75%	23.84%
8	**MUSH**	23.92%	23.27%	24.14%	23.67%	21.73%	21.28%	20.82%	20.37%	19.75%	19.34%	18.93%	18.52%	18.13%	17.75%	17.37%	16.99%
9	**Total**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
10	**Yield**																
11	**Government Bonds**	3.04%	3.14%	3.96%	3.93%	3.93%	3.93%	3.93%	3.92%	3.92%	3.92%	3.92%	3.92%	3.91%	3.91%	3.91%	3.91%
12	**Corporate Bonds**	4.13%	4.13%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%
13	**MUSH**	4.28%	4.29%	4.29%	4.31%	4.32%	4.34%	4.35%	4.37%	4.38%	4.40%	4.41%	4.43%	4.45%	4.48%	4.50%	4.53%
14	**Portfolio Management Fee Adjustment**	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%
15	**Claims Discount Rate**	3.51%	3.56%	4.20%	4.19%	4.19%	4.19%	4.19%	4.19%	4.19%	4.19%	4.20%	4.20%	4.20%	4.20%	4.21%	4.21%

Figure App 3-1 Calculation of Marketable Bonds Yield as of August 31, 2022 using SIRF

Line No.	Asset	2022/23 Q1	2022/23 Q2	2022/23 Q3	2022/23 Q4	2023/24 Q1	2023/24 Q2	2023/24 Q3	2023/24 Q4	2024/25 Q1	2024/25 Q2	2024/25 Q3	2024/25 Q4	2025/26 Q1	2025/26 Q2	2025/26 Q3	2025/26 Q4
1	**Government Bonds**	1,067,860	1,092,244	1,045,411	1,055,878	1,166,547	1,183,907	1,207,923	1,231,303	1,251,164	1,263,814	1,275,521	1,286,003	1,335,274	1,345,062	1,355,446	1,366,057
2	**Corporate Bonds**	447,202	455,698	436,593	440,356	477,747	484,312	493,599	502,619	510,416	515,124	519,424	523,168	539,920	543,528	547,365	551,304
3	**Percentage Allocations**																
4	**Government Bonds**	70.48%	70.56%	70.54%	70.57%	70.95%	70.97%	70.99%	71.01%	71.03%	71.04%	71.06%	71.08%	71.21%	71.22%	71.23%	71.25%
5	**Corporate Bonds**	29.52%	29.44%	29.46%	29.43%	29.05%	29.03%	29.01%	28.99%	28.97%	28.96%	28.94%	28.92%	28.79%	28.78%	28.77%	28.75%
6	**Yield**																
7	**Government Bonds**	3.04%	3.14%	3.76%	3.75%	3.74%	3.69%	3.61%	3.53%	3.46%	3.45%	3.45%	3.46%	3.47%	3.47%	3.48%	3.48%
8	**Corporate Bonds**	4.13%	4.13%	4.81%	4.82%	4.81%	4.77%	4.68%	4.60%	4.54%	4.53%	4.53%	4.54%	4.55%	4.56%	4.56%	4.56%
9	**Marketable Bonds Yield**	3.36%	3.43%	4.07%	4.07%	4.05%	4.01%	3.92%	3.84%	3.77%	3.77%	3.77%	3.78%	3.78%	3.78%	3.79%	3.79%

Figure App 4-1 Calculation of Claims Discount Rate as of August 31, 2022 using SIRF

Line No.		2022/23				2023/24				2024/25				2025/26			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Government Bonds**	1,067,860	1,092,244	1,045,411	1,055,878	1,166,547	1,183,907	1,207,923	1,231,303	1,251,164	1,263,814	1,275,521	1,286,003	1,335,274	1,345,062	1,355,446	1,366,057
2	**Corporate Bonds**	447,202	455,698	436,593	440,356	477,747	484,312	493,599	502,619	510,416	515,124	519,424	523,168	539,920	543,528	547,365	551,304
3	**MUSH**	476,284	469,410	462,536	455,662	448,803	441,943	435,083	428,224	421,607	414,990	408,373	401,756	395,147	388,539	381,931	375,322
4	**Total Fixed Income Assets**	**1,991,346**	**2,017,352**	**1,944,540**	**1,951,897**	**2,093,097**	**2,110,162**	**2,136,606**	**2,162,145**	**2,183,187**	**2,193,928**	**2,203,317**	**2,210,927**	**2,270,342**	**2,277,128**	**2,284,742**	**2,292,683**
5	**Percentage Allocations**																
6	**Government Bonds**	53.63%	54.14%	53.76%	54.09%	55.73%	56.11%	56.53%	56.95%	57.31%	57.61%	57.89%	58.17%	58.81%	59.07%	59.33%	59.58%
7	**Corporate Bonds**	22.46%	22.59%	22.45%	22.56%	22.82%	22.95%	23.10%	23.25%	23.38%	23.48%	23.57%	23.66%	23.78%	23.87%	23.96%	24.05%
8	**MUSH**	23.92%	23.27%	23.79%	23.34%	21.44%	20.94%	20.36%	19.81%	19.31%	18.92%	18.53%	18.17%	17.40%	17.06%	16.72%	16.37%
9	**Total**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
10	**Yield**																
11	**Government Bonds**	3.04%	3.14%	3.76%	3.75%	3.74%	3.69%	3.61%	3.53%	3.46%	3.45%	3.45%	3.46%	3.47%	3.47%	3.48%	3.48%
12	**Corporate Bonds**	4.13%	4.13%	4.81%	4.82%	4.81%	4.77%	4.68%	4.60%	4.54%	4.53%	4.53%	4.54%	4.55%	4.56%	4.56%	4.56%
13	**MUSH**	4.28%	4.29%	4.29%	4.31%	4.32%	4.33%	4.34%	4.35%	4.36%	4.37%	4.38%	4.39%	4.40%	4.42%	4.44%	4.46%
14	**Portfolio Management Fee Adjustment**	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%
15	**Claims Discount Rate**	3.51%	3.56%	4.05%	4.05%	4.04%	4.00%	3.94%	3.87%	3.82%	3.81%	3.81%	3.82%	3.82%	3.82%	3.83%	3.83%

PUB (MPI) 2-3

Part and Chapter:	**PUB (MPI) 1-7(c)** **Part V Forecasting – REV Revenues**	**Page No.:**	**33**
PUB Approved Issue No:	**1. Requested Vehicle Rate and Any Changes to Other Fees and Discounts**		
Topic:	**Service Fees – Finance Plans**		
Sub Topic:			

Preamble to IR:

PUB (MPI) 1-7(c) enquired about the estimated increase in fees based on July 31, 2022 interest rates and the response was that the prime rate would increase from 2.7% to 4.7%, which would cause the $20 million in corporate interest financing revenue to increase by $400,000.

Question:

Please confirm that a near doubling of the prime rate would only increase the financing revenue by 2%, and please explain why the financing revenue is so little affected by changes in the prime rate. If incorrect, please correct response to PUB (MPI) 1-7 (c)

Rationale for Question:

To understand the impact of interest rate changes on financing fees.

RESPONSE:

This is confirmed.

As provided, the approach MPI has adopted to forecast interest revenue is to take the total prior year financing interest revenue (from monthly and quarterly financing arrangements) and grow it from expected premium and rate changes.

This can be found in *Revenue Chapter REV.4, page 33* and is also shown below:

> Prior year's interest revenue multiplied by
> Interest rate change multiplied by
> Volume factor multiplied by
> Upgrade factor multiplied by
> Expected rate change

This approach has been adopted (versus using financed premium as the basis) because there are various ways in which a change could occur during the term of the financing agreement. Once a financing arrangement has been entered into, MPI does not change the interest rate. In addition, MPI will allow lump sum payments against the outstanding balance at any time to pay off the financing arrangement. Agreements can be canceled, corrected, undone, etc. which would all affect the interest revenue received. For these reasons, MPI has decided, with its customers in mind, that the above method of forecasting interest revenue is better than using a declining balance premium approach.

PUB (MPI) 2-4

Part and Chapter:	**TC (MPI) 1-19(e)** **Part VI – RM Appendix 9 to 12**	**Page No.:**	
PUB Approved Issue No:	**2. Ratemaking**		
Topic:	**Indicated Rate Calculation**		
Sub Topic:			

Preamble to IR:

In TC (MPI) 1-19 e) MPI indicates that since the revised rate indications shown in PUB (MPI) 1-8 are similar, it does not intend to change the methodology it currently uses in its GRA filing to determine serious loss loading.

Question:

a) What would be the advantages and disadvantages that MPI sees with the alternative methodology versus the existing methodology?

b) Does MPI have any suggestions for how the alternative methodology could be improved to eliminate any of the disadvantages that MPI has seen?

c) Does MPI have any suggestions for how the existing methodology could be improved to eliminate any of the disadvantages that MPI has seen?

Rationale for Question:

To better understand the potential approaches to dealing with serious losses.

RESPONSE:

a) Advantage of Alternative Methodology: The alternative method allocates the serious losses across all segments of the business.

Disadvantage of Alternative Methodology: The alternative method spreads the costs of expected serious losses proportionally, based on the number of total number of claims. This method does not recognize that some segments may be more prone to serious losses than others.

Advantage of Existing Methodology: Reflects the applicable serious loss loading based on true losses experience for each insurance uses.

Disadvantage of Existing Methodology: The existing method utilizes the actual experience, which may not have sufficient number of large loss claims, in particular for newer or smaller segments.

b) The alternative method could be modified to utilize the actual past experience. A possibility could be to draw comparison with the segments that are expected to have similar loss behavior. Another possibility could be to assume a statistical distribution on the severity of the losses, based on the actual data.

c) MPI recognizes that a loading for serious losses could be added to all insurance uses, particularly for newer and smaller business segments. The criterion for determination of the serious loss loading will be examined further.

PUB (MPI) 2-5

Part and Chapter:	**PUB (MPI) 1-10(a)** **V Rev Appendix 3**	**Page No.:**	
PUB Approved Issue No:	**4. Financial Forecasts**		
Topic:	**Extension Financial Forecast**		
Sub Topic:	**Extension Profit Margin**		

Preamble to IR:

Question:

Please provide the historical five-year actual underwriting profit margin and net income profit margin for Extension.

Rationale for Question:

To assess reasonableness of Extension forecasts.

RESPONSE:

Please see revised *Revenues REV Appendix 3 Figure REV App 3-1 (MPI Exhibit #36)* which now includes a column for actual underwriting profit margin and a column for actual net income profit margin for the Extension line of business.

Figure 1 Overall Average Rate Level Change *(updated Revenues Appendix 3 Figure REV App 3-1)*

Line No.	Rating Year	Profit Margin (Actual) Underwriting Income	Profit Margin (Actual) Net Income	Overall Profit Target [a]	Indicated Overall Rate Change	Actual Overall Rate Change
1	**2013**	**-**	**-**	15.70%	*	-3.78%
2	**2014**	**-**	**-**	19.10%	0	-0.30%
3	**2015**	**-**	**-**	25.00%	1.01%	1.01%
4	**2016**	**-**	**-**	29.00%	1.07%	1.08%
5	**2017**	23.39%	27.17%	25.00%	0.00%	0.03%
6	**2018**	26.22%	32.11%	32.10%	0.30%	0.03%
7	**2019**	26.41%	30.12%	27.85%	-6.49%	-6.37%
8	**2020**	28.63%	30.19%	28.29%	0.01%	0.27%
9	**2021 [b]**	29.29%	32.15%	15.48%	8.10%	8.20%
10	**2022**	**-**	**-**	20.83%	0.02%	0.32%

11 Notes:
12 "*" indicates where profit target/rate change calculated on a product level (not overall)
13 [a] For 2021/22 and after, the profit target is based on Underwriting Income; all prior
14 years based on Net Income.
15 [b] The 8.20% overall rate change is due to product changes which significantly
16 increased claims costs for Extension. Excluding these product changes, the
17 overall rate change would be -7.50% i.e. the product changes resulted in a
18 15.7% required revenue increase to cover the increased claims costs.

The source of the values are from *Pro Formas Chapter Figure EPF-1*. Please note, Figure EPF-1 shows fiscal year 2019/20 based on a 12-month period ending March 31, 2020, whereas the actual profit margins shown in the 2019 and 2020 rating year rows for *Revenues Chapter REV Appendix Figure App 3-1* have been calculated based on a 13-month period ending March 31, 2020.

PUB (MPI) 2-6

Part and Chapter:	**PUB (MPI) 1-12(b)** **Part V Forecasting – PF Pro-Formas**	**Page No.:**	
PUB Approved Issue No:	**4. Financial Forecast:** **c. Impact of IFRS 9 and 17**		
Topic:	**Financial Forecast**		
Sub Topic:			

Preamble to IR:

Minimum Filing Requirement B.3 Pro-Formas (c) requires filing based on IFRS 4 and IFRS 17; and (d) requires a quantitative summary of the changes in presentation from IFRS 4 to IFRS 17.

MPI shows in PF-14 that it has not included any impacts for any of the changes under IFRS 17 or IFRS 9.

MPI states in its response to PUB (MPI) 1-12 (b) that the estimated restatements from IFRS 17 and IFRS 9 are either not known or not available.

Not known or not available is not responsive to the information request.

Question:

Please provide MPI's current best estimate of the impacts of each of the five items listed in PUB (MPI) 1-12. If there is still uncertainty in the estimates, what is the range of possibilities (based on potential election decisions) for each of the five noted impacts?

Rationale for Question:

This is a Minimum Filing Requirement.

RESPONSE:

At this point nothing has changed since responding to round 1 questions. MPI continues to evaluate the estimated impacts to Total Equity and, at this time, estimated restatements from IFRS 17 and IFRS 9 are not fully known. For an estimate of some of the potential impacts related to IFRS please see *PUB (MPI) 2-10*.

PUB (MPI) 2-7

Part and Chapter:	**PUB(MPI) 1-14** **Part VII Investments INV** **Attachment B**	**Page No.:**	
PUB Approved Issue No:	**4. (b) Financial Forecast** **7. Performance of the Investment Portfolio and the Composition of (i) The Portfolio, (ii) Benchmark Portfolio(s) On Market Value Basis** **17. Interest Rate Forecasting**		
Topic:			
Sub Topic:			

Preamble to IR:

Question:

a) Please provide an updated comparison of the interest rates based on Mercer approach as of August 31st and compare with MPI update.

b) Please provide an updated PF-1, PF-2 and PF-3 and actuarially indicated rate (with supporting schedules) using each of Mercer's proposed interest rate approach as of August 31st.

Rationale for Question:

To obtain updated financial information based on Mercer's approach.

RESPONSE:

a) Please see *Appendix 1* for a comparison of interest rates based on forward interest rates and a Naïve forecast as of August 31st.

b) Based on the Mercer recommended approach of using forward rates as of August 31st, MPI calculated the New Money yield to be 4.05%. The result to the actuarially

indicated rate would be a -2.1% rate change (versus the current applied for -0.9% provisional rate change).

Please see *Figure 1* for a breakdown of the 2023/24 rate change, by Major Classification, and *Figures 2 to 4* for PF-1, PF-2 and PF-3, respectively. Please note, consistent with the Round 1 request, MPI did not apply the Mercer recommended approach for forecasting interest rates to the re-evaluation of the Pension obligation.

Figure 1 Rating Year 2023/24 Major Classification Required Rate Changes - Breakeven Rates

Line No.	Coverage	Overall	Private Pass	Comm	Public	Motor-Cycle	Trailer	ORV
1	**23/24 Units**	1,276,421	873,100	49,500	11,800	20,600	237,821	83,600
2	**Claims**	683.08	907.20	704.13	1,756.43	680.12	41.32	4.78
3	**Claims Expense**	123.87	164.51	127.68	318.50	123.33	7.49	0.87
4	**Road Safety**	9.89	13.21	13.21	13.21	13.21	0.00	0.00
5	**Operating Expense**	75.97	101.54	101.54	101.54	101.54	0.00	0.00
6	**Regulatory/Appeal**	3.43	4.59	4.59	4.59	4.59	0.00	0.00
7	**Commission: Vehicle**	39.94	52.95	41.78	99.45	38.89	2.87	0.26
8	**Prem Tax: Vehicle**	27.86	36.94	29.15	69.38	27.13	2.00	0.18
9	**Comm & Prem Tax: Driver**	3.34	4.47	4.47	4.47	4.47	0.00	0.00
10	**Commission Flat Fee**	4.36	5.83	5.83	5.83	5.83	0.00	0.00
11	**Reins: Casualty**	1.48	1.97	1.97	1.97	1.97	0.00	0.00
12	**Reins: Catastrophe**	11.92	12.98	12.98	12.98	0.00	12.98	0.00
13	**Fleet Rebates**	15.40	21.04	21.04	21.04	0.00	0.00	0.00
14	**Anti-Theft Discount**	0.55	0.80	0.00	0.00	0.00	0.00	0.00
15	**Driver Prem**	50.66	67.72	67.72	67.72	67.72	0.00	0.00
16	**Service Fees**	21.67	28.96	28.96	28.96	28.96	0.00	0.00
17	**Req Rate (Raw)**	928.75	1,231.36	971.71	2,312.73	904.41	66.66	6.10
18	**Req Rate (Bal)**	910.40	1,207.03	952.51	2,267.03	886.54	65.34	5.97
19	**22/23 Average Rate**	882.56	1,163.41	884.25	2,221.22	901.96	68.87	5.98
20	**Major Class Drift**	5.4%	6.2%	5.0%	0.9%	0.5%	5.9%	0.0%
21 22	**23/24 Average Rate Without Rate Change**	930.10	1,235.12	928.18	2,241.38	906.75	72.94	5.98
23	**Full Cred Req Change**	-2.1%	-2.3%	2.6%	1.1%	-2.2%	-10.4%	-0.1%
24	**Applied for Change**	-2.1%	-2.3%	2.6%	1.1%	-2.2%	-10.4%	-0.1%
25	**Credibility**		99.3%	89.2%	66.3%	77.4%	97.5%	93.3%
26	**Cred Wtd Change**		-1.3%	2.3%	0.4%	-1.1%	-10.2%	-0.2%
27	**Cred Wtd Req Rate**		1,218.84	949.06	2,251.44	896.36	65.50	5.97
28	**Cred Wtd Req Rate (Bal)**	918.61	1,219.12	949.28	2,251.96	896.57	65.52	5.97
29	**Cred Wtd Change (Bal)**		-1.3%	2.3%	0.5%	-1.1%	-10.2%	-0.1%

Figure 2 PF-1 Statement of Operations – Basic

Multi-year - Statement of Operations

Line No.	*PUB 2-7(b)* *(C$ 000s, rounding may affect totals)*	*For the Years Ended March 31,* 2022A	2023FB	2024F	2025F	2026F	2027F
1	**BASIC**	**2021/22A**	**2022/23FB**	**2023/24F**	**2024/25F**	**2025/26F**	**2026/27F**
2	Motor Vehicles	1,092,643	1,119,227	1,135,425	1,175,519	1,217,697	1,261,354
3	Capital Release Provision	(73,275)	(57,857)	-	-	-	-
4	Drivers	61,511	59,927	63,390	65,996	68,165	70,094
5	Reinsurance Ceded	(15,659)	(16,352)	(16,843)	(17,348)	(17,868)	(18,404)
6	**Total Net Premiums Written**	**1,065,220**	**1,104,945**	**1,181,972**	**1,224,167**	**1,267,994**	**1,313,044**
7	**Net Premiums Earned**						
8	Motor Vehicles	1,094,496	1,107,273	1,127,468	1,155,824	1,196,979	1,239,909
9	Capital Release Provision	(36,176)	(66,536)	(28,420)	-	-	-
10	Drivers	63,747	60,635	61,689	64,716	67,100	69,147
11	Reinsurance Ceded	(15,659)	(16,352)	(16,843)	(17,348)	(17,868)	(18,404)
12	**Total Net Premiums Earned**	**1,106,408**	**1,085,020**	**1,143,894**	**1,203,192**	**1,246,211**	**1,290,652**
13	Service Fees & Other Revenues	24,652	28,100	27,509	26,951	27,573	28,227
14	**Total Earned Revenues**	**1,131,060**	**1,113,120**	**1,171,403**	**1,230,143**	**1,273,784**	**1,318,879**
15	Claims Incurred	838,574	885,523	925,071	967,982	1,013,683	1,060,137
16	DPAC \ Premium Deficiency Adjustment	-	-	-	-	-	7,042
17	(a) Claims Incurred - Interest Rate Impact	(132,765)	(119,556)	7,541	3,255	(7,079)	(5,533)
18	**Total Claims Incurred**	**705,809**	**765,967**	**932,612**	**971,237**	**1,006,604**	**1,061,646**
19	Claims Expense	146,277	151,982	161,962	163,924	159,696	164,809
20	Road Safety/Loss Prevention	10,337	12,267	12,590	12,644	12,280	12,664
21	**Total Claims Costs**	**862,423**	**930,216**	**1,107,164**	**1,147,805**	**1,178,580**	**1,239,119**
22	**Expenses**						
23	Operating	75,945	89,477	95,520	95,838	93,990	97,060
24	Commissions	44,925	47,977	51,401	57,621	57,429	56,480
25	Premium Taxes	28,966	33,043	34,824	33,666	37,924	39,273
26	Regulatory/Appeal	4,530	4,620	4,481	4,282	4,372	4,466
27	**Total Expenses**	**154,366**	**175,117**	**186,226**	**191,407**	**193,715**	**197,279**
28	**Underwriting Income (Loss)**	**114,271**	**7,787**	**(121,987)**	**(109,069)**	**(98,511)**	**(117,519)**
29	Investment Income	79,813	140,495	113,943	118,418	122,764	129,915
30	(b) Investment Income - Interest Rate Impact	(126,997)	(102,295)	8,755	3,376	(5,608)	(6,872)
31	**Net Investment Income**	**(47,184)**	**38,200**	**122,698**	**121,794**	**117,156**	**123,043**
32	Gain (Loss) on Sale of Property	104	-	-	-	-	-
33	**Net Income (Loss) from Annual Operations**	**67,191**	**45,987**	**711**	**12,725**	**18,645**	**5,524**
34	**Total net Impact due to interest rate change (b) - (a)**	5768	17261	1214	121	1471	-1339

Figure 3 PF-2 Statement of Financial Position – Basic

Multi-year - Statement of Financial Position

Line No.	*PUB 2-7(b)* *(C$ 000s, rounding may affect totals)*	*For the Years Ended March 31,* 2022A	2023FB	2024F	2025F	2026F	2027F
1	**BASIC**	**2021/22A**	**2022/23FB**	**2023/24F**	**2024/25F**	**2025/26F**	**2026/27F**
2	**Assets**						
4	Cash and cash equivalents	153,131	152,907	145,043	39,438	29,965	21,098
5	Investments	2,750,044	2,740,544	2,862,054	2,995,824	3,144,253	3,314,307
6	Investment property	5,912	5,757	5,603	5,448	5,293	5,138
7	Due from other insurance companies	14	-	-	-	-	-
8	Accounts receivable	398,612	361,715	386,953	400,617	414,991	429,869
9	Deferred policy acquisition costs	37,672	37,111	40,715	42,544	42,224	36,149
10	Reinsurers' share of unpaid claims	2,457	-	-	-	-	-
11	Property and equipment	111,880	133,141	151,483	163,714	169,870	176,026
12	Deferred development costs	44,687	49,751	54,258	56,402	55,923	46,800
13	**Total Assets**	**3,504,409**	**3,480,926**	**3,646,109**	**3,703,987**	**3,862,519**	**4,029,387**
14	**Liabilities**						
15	Due to other insurance companies	369	325	325	325	325	325
16	Accounts payable and accrued liabilities	60,876	62,805	68,312	71,298	69,155	71,549
17	Financing lease obligation	5,361	5,282	5,159	5,036	4,913	4,791
18	Unearned premiums and fees	548,725	572,104	611,546	633,993	657,363	681,468
19	Provision for employee current benefits	19,281	19,995	20,672	21,349	22,026	22,703
20	Provision for employee future benefits	355,244	366,670	378,099	389,530	400,961	412,392
21	Provision for unpaid claims	2,103,789	2,000,090	2,062,579	2,123,271	2,174,465	2,228,163
22	**Total Liabilities**	**3,093,645**	**3,027,271**	**3,146,692**	**3,244,802**	**3,329,208**	**3,421,391**
23	**Equity**						
24	Retained Earnings	359,335	445,482	485,673	443,061	515,466	586,659
25	Accumulated Other Comprehensive Income	51,429	8,173	13,741	16,122	17,842	21,339
26	**Total Equity**	**410,764**	**453,655**	**499,414**	**459,183**	**533,308**	**607,998**
27	**Total Liabilities & Equity**	**3,504,409**	**3,480,926**	**3,646,106**	**3,703,985**	**3,862,516**	**4,029,389**

Figure 4 PF-3 Statement of Changes in Equity – Basic

Multi-year - Statement of Changes in Equity

Line No.	*PUB 2-7(b)* *(C$ 000s, rounding may affect totals)*	*For the Years Ended March 31,* 2022A	2023FB	2024F	2025F	2026F	2027F
1	**BASIC**	**2021/22A**	**2022/23FB**	**2023/24F**	**2024/25F**	**2025/26F**	**2026/27F**
2	**Total Equity**						
3	**Retained Earnings**						
4	**Beginning Balance**	448,678	359,335	445,482	485,673	443,061	515,466
5	**Net Income (Loss) from annual operations**	67,191	45,987	711	12,725	18,645	5,524
6	**Rebate to Policyholders**	(156,534)	-	-	(98,375)	-	-
7	**Transfer from Extension Retained Earnings**	-	40,160	39,480	43,038	53,760	65,669
8	**Total Retained Earnings**	**359,335**	**445,482**	**485,673**	**443,061**	**515,466**	**586,659**
9	**Total Accumulated Other Comprehensive Income**						
10	**Beginning Balance**	(14,700)	51,429	8,173	13,741	16,122	17,842
11	**Other Comprehensive Income on Available for Sale Assets**	25,485	(43,256)	5,568	2,381	1,720	3,497
12	**Change in Remeasurement of Employee Future Benefits**	40,644	-	-	-	-	-
13	**Total Accumulated Other Comprehensive Income**	51,429	8,173	13,741	16,122	17,842	21,339
14	**Total Equity Balance**	**410,764**	**453,655**	**499,414**	**459,183**	**533,308**	**607,998**
15	**MINIMUM CAPITAL TEST (C$ 000s)**						
16	**Total Equity Balance**	410,761	453,655	499,414	459,183	533,308	607,998
17	**Less: Assets Requiring 100% Capital**	44,687	49,751	54,258	56,402	55,923	46,800
18	**Capital Available**	366,074	403,904	445,156	402,781	477,385	561,198
19	**Minimum Capital Required (100% MCT)**	384,411	363,401	384,870	402,794	421,259	446,259
20	**MCT Ratio % (Line 20) / (Line 21)**	**95.2%**	**111.2%**	**115.7%**	**100.0%**	**113.3%**	**125.8%**

Figure App 1-1 Comparison of Forward Interest Rates vs MPI's Naïve Approach based on August 31, 2022

Line No.		2022/23				2023/24				2024/25				2025/26			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Current Approach - Naïve Forecast**	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%	3.12%
2	**Forward Interest Rates**	3.04%	3.04%	3.04%	3.04%	2.98%	2.98%	2.98%	2.98%	2.96%	2.96%	2.96%	2.96%	3.00%	3.00%	3.00%	3.00%
3	**Difference**	-0.08%	-0.08%	-0.08%	-0.08%	-0.13%	-0.13%	-0.13%	-0.13%	-0.16%	-0.16%	-0.16%	-0.16%	-0.12%	-0.12%	-0.12%	-0.12%

PUB (MPI) 2-8

Part and Chapter:	**PUB (MPI) 1-15(a),(b) & (c),(d)** **Appendix 1-1a** **Part VII Investments INV.16.2.1**	**Page No.:**	**72, 78**
PUB Approved Issue No:	**4. (b) Financial Forecast** **7. Performance of the Investment Portfolio and the Composition of (i) The Portfolio, (ii) Benchmark Portfolio(s) On Market Value Basis** **17. Interest Rate Forecasting**		
Topic:	**Interest Rate Risk**		
Sub Topic:	**Interest Rate Forecast**		

Preamble to IR:

Question:

Please provide an update to PUB (MPI) 1-15 a-d as of August 31, 2022. Please comment on any material changes.

Rationale for Question:

To assess the continued use of the naïve interest rate forecast for rate-setting purposes.

RESPONSE:

Please see *Figure 1* which shows the SIRF, Naïve and 50/50 GoC 10 Year Bond Forecast as of August 31, 2022. The GoC 10 Year Bond increased from 2.41% in March 31, 2022 to 3.12% in Aug 31, 2022.

Figure 1 SIRF, Naïve and 50/50 GoC 10 Year Bond Forecast as of August 31, 2022 *(Updated PUB (MPI) 1-15(a) Appendix 1-1a as of August 31, 2022)*

Line No.	Year	Qtr	BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	**2022**	**Q1**	1.92%	2.35%	2.40%	2.08%	2.41%	2.40%	2.40%	2.40%	2.30%	3.12%	2.71%
2		**Q2**	2.98%	2.77%	3.23%	2.95%	3.11%	3.23%	3.22%	3.23%	3.09%	3.12%	3.10%
3		**Q3**	3.00%	3.23%	2.90%	3.01%	3.15%	3.00%	3.25%	3.25%	3.10%	3.12%	3.11%
4		**Q4**	3.05%	3.50%	2.90%	3.06%	3.15%	2.85%	3.35%	3.40%	3.16%	3.12%	3.14%
5	**2023**	**Q1**	2.95%	3.40%	2.90%	3.08%	3.10%	2.80%	3.35%	3.35%	3.12%	3.12%	3.12%
6		**Q2**	2.90%	3.20%	2.80%	3.06%	3.10%	2.70%	3.25%	3.30%	3.04%	3.12%	3.08%
7		**Q3**	2.85%	3.00%	2.55%	3.07%	3.10%	2.65%	3.10%	3.25%	2.95%	3.12%	3.03%
8		**Q4**	2.75%	2.90%	2.35%	3.00%	3.05%	2.55%	2.95%	3.10%	2.83%	3.12%	2.97%
9	**2024**	**Q1**	2.75%	2.75%	2.25%	2.94%	3.05%	2.56%			2.72%	3.12%	2.92%
10		**Q2**	2.72%	2.55%	2.25%	2.96%	3.00%	2.67%			2.69%	3.12%	2.91%
11		**Q3**	2.70%	2.54%	2.25%	2.98%	2.97%	2.71%			2.69%	3.12%	2.90%
12		**Q4**	2.68%	2.53%	2.25%	2.99%	2.95%	2.83%			2.70%	3.12%	2.91%
13	**2025**	**Q1**	2.65%	2.51%	2.20%	3.00%	2.92%	2.92%			2.70%	3.12%	2.91%
14		**Q2**	2.63%	2.50%	2.20%	3.01%	2.89%	2.99%			2.70%	3.12%	2.91%
15		**Q3**	2.61%	2.50%	2.20%	3.01%	2.86%	3.06%			2.71%	3.12%	2.91%
16		**Q4**	2.58%	2.50%	2.20%	3.02%	2.84%	3.11%			2.71%	3.12%	2.91%
17	**2026**	**Q1**		2.50%	2.20%	3.02%	2.84%	3.15%			2.74%	3.12%	2.93%
18		**Q2**		2.50%	2.20%	3.03%	2.84%	3.19%			2.75%	3.12%	2.93%
19		**Q3**			2.20%	3.03%		3.22%			2.82%	3.12%	2.97%
20		**Q4**			2.20%	3.04%		3.25%			2.83%	3.12%	2.97%

Please see *Figure 2* which shows the SIRF, Naïve and 50/50 90-Day T-Bill Rate Forecast as of August 31, 2022. The 90-Day T-Bill rate increased from 0.60% in March 31, 2022 to 3.22% in Aug 31, 2022.

Figure 2 **SIRF, Naïve and 50/50 90-Day T-Bill Forecast as of August 31, 2022**
(Updated PUB (MPI) 1-15(a) Appendix 1-1b as of August 31, 2022)

Line No.	Year	Qtr	BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (Modified SIRF)	Naïve	50/50
1	**2022**	**Q1**	0.39%	1.50%	1.90%	0.42%	1.52%	0.60%	0.73%	0.60%	0.96%	3.22%	2.09%
2		**Q2**	1.43%	1.95%	1.90%	1.59%	3.25%	2.08%	2.31%	2.08%	2.07%	3.22%	2.65%
3		**Q3**	2.90%	3.28%	1.90%	3.04%	3.60%	3.30%	3.50%	3.50%	3.13%	3.22%	3.17%
4		**Q4**	3.65%	3.80%	1.90%	3.77%	3.75%	3.90%	3.80%	4.00%	3.57%	3.22%	3.40%
5	**2023**	**Q1**	3.70%	3.70%	3.10%	3.78%	3.75%	3.90%	3.75%	4.00%	3.71%	3.22%	3.47%
6		**Q2**	3.70%	3.60%	3.10%	3.70%	3.50%	3.90%	3.75%	4.00%	3.66%	3.22%	3.44%
7		**Q3**	3.70%	3.50%	3.10%	3.49%	3.15%	3.90%	3.75%	4.00%	3.57%	3.22%	3.40%
8		**Q4**	3.70%	3.40%	3.10%	3.12%	2.95%	3.45%	3.75%	3.75%	3.40%	3.22%	3.31%
9	**2024**	**Q1**	3.18%	3.00%	2.20%	2.73%	2.80%	2.52%			2.74%	3.22%	2.98%
10		**Q2**	2.93%	2.40%	2.20%	2.48%	2.70%	2.37%			2.51%	3.22%	2.87%
11		**Q3**	2.68%	2.34%	2.20%	2.48%	2.63%	2.40%			2.45%	3.22%	2.84%
12		**Q4**	2.43%	2.28%	2.20%	2.23%	2.56%	2.42%			2.35%	3.22%	2.79%
13	**2025**	**Q1**	2.18%	2.21%	2.00%	2.23%	2.48%	2.42%			2.25%	3.22%	2.74%
14		**Q2**	2.18%	2.15%	2.00%	1.98%	2.41%	2.43%			2.19%	3.22%	2.71%
15		**Q3**	2.18%	2.16%	2.00%	1.98%	2.34%	2.43%			2.18%	3.22%	2.70%
16		**Q4**	2.18%	2.18%	2.00%	1.98%	2.27%	2.43%			2.17%	3.22%	2.70%
17	**2026**	**Q1**		2.19%	1.95%	1.98%	2.27%	2.43%			2.16%	3.22%	2.69%
18		**Q2**		2.20%	1.95%	1.98%	2.27%	2.43%			2.16%	3.22%	2.69%
19		**Q3**			1.95%	1.98%		2.43%			2.12%	3.22%	2.67%
20		**Q4**			1.95%	1.98%		2.43%			2.12%	3.22%	2.67%

Please see *Figure 3* which shows the Basic Investment and Claims Net Interest Rate Impact with SIRF as of August 31, 2022.

Figure 3 Basic Investment and Claims Net Interest Rate Impact with SIRF as of August 31, 2022 *(Updated PUB (MPI) 1-15(b) as of August 31, 2022)*

Line No.		2017/18 Actual	2018/19 Actual	2019/20 Actual	2020/21 Actual	2021/22 Actual	2022/23 Forecast	2023/24 Forecast	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast
1	*(in Millions of Dollars)*										
2	Marketable Bond Yield	3.04%	2.88%	2.69%	2.50%	3.58%	4.29%	3.96%	3.83%	3.82%	3.94%
3	YoY Change	0.13%	-0.16%	-0.19%	-0.19%	0.01%	0.71%	-0.33%	-0.13%	0.00%	0.12%
4	Claims Discount Rate	3.47%	3.26%	3.09%	2.88%	3.54%	4.22%	3.97%	3.86%	3.87%	3.96%
5	YoY Change	0.08%	-0.21%	-0.17%	-0.21%	0.66%	0.69%	-0.25%	-0.11%	0.00%	0.09%
6	Duration Gap (Years)*	0.1	(0.1)	0.9	(0.2)	0.1	0.0	(0.0)	(0.0)	(0.0)	(0.0)
7	Investments										
8	Investment Income	116.3	208.5	59.6	89.5	(47.2)	13.0	174.0	133.8	114.8	96.5
9	(1) Marketable Bond Gain/(Loss)	4.6	14.2	5.5	0.7	(127.0)	(118.2)	49.1	21.8	(1.5)	(23.5)
10	Investment Income excluding Marketable Bond G/L	111.7	194.3	54.1	88.9	79.8	131.2	124.8	111.9	116.3	119.9
11	Claims										
12	Net Claims Incurred	783.0	892.3	761.5	653.8	838.6	(119.3)	43.7	19.1	(0.6)	(17.0)
13	(2) Claims Interest Rate Impact	(15.8)	40.9	(8.9)	44.2	(132.8)	(140.0)	51.3	22.4	(0.7)	(19.9)
14	Claims Excluding Interest Rate Impact	798.8	851.4	770.4	609.6	971.3	20.7	(7.6)	(3.3)	0.1	2.9
15	Net Interest Rate Impact										
16	(1) Marketable Bond Gain/Loss	4.6	14.2	5.5	0.7	(127.0)	(114.3)	52.5	21.8	(0.9)	(23.0)
17	(2) Claims Interest Rate Impact	(15.8)	40.9	(8.9)	44.2	(132.8)	(140.0)	51.3	22.4	(0.7)	(19.9)
18	Net Impact of Changes in Interest Rates [(1) - (2)]	20.4	(26.7)	14.4	(43.5)	5.8	25.7	1.2	(0.7)	(0.2)	(3.1)

Please see *Figure 4* which shows the Fixed Income Duration and Claims Duration with updated numbers as of August 31, 2022.

Figure 4 **Fixed Income Duration and Claims Duration *(Updated PUB (MPI) 1-15(c) Appendix 1-2 as of August 31, 2022)***

Line No.	Date	Fixed Income Duration	Claims Duration*	Difference (Fixed Income Duration - Claims Duration)
1	**Feb-20**	10.48	10.68	-0.2
2	**May-20**	10.57	10.35	0.2
3	**Aug-20**	10.41	10.57	-0.2
4	**Nov-20**	10.50	10.58	-0.1
5	**Feb-21**	10.69	10.66	0.0
6	**Mar-21**	10.38	10.35	0.0
7	**Jun-21**	10.42	10.18	0.2
8	**Sep-21**	10.37	10.13	0.2
9	**Dec-21**	10.66	10.17	0.5
10	**Mar-22**	9.58	9.50	0.1
11	**Jun-22**	8.44	8.67	-0.2
12	**Aug-22**	8.65	8.63	0.0

13 * Claims Duration is one month lagged

Please see *Figure 5* which shows the Investment Income for the Basic Claims portfolio (excluding RSR portfolio & Basic's portion of the EFB portfolio) as of August 31, 2022.

Figure 5 **Basic Claims Investment Income based on Naïve interest forecast as of August 2022 *(Updated PUB (MPI) 1-15(c) Appendix 1-3** as of August 31, 2022)***

Line No.	Investment Summary During Period	2022/23	2023/24	2024/25	2025/26	2026/27
1	***(C$000s)***					
2	**Interest Income During Period**	75,544	83,368	88,962	92,396	95,581
3	**Dividend and Other Income During Period**	-	-	-	-	-
4	**Gains During Period - Profit & Loss***	(108,612)	(344.7)	(320.5)	(303.2)	(292.8)
5	**Investment Fees Paid**	(1,352)	(1,386)	(1,437)	(1,442)	(1,405)
6	**Amortization/Accretion During Period**	(1,025)	3,854	3,882	3,736	3,816
7	**Pension Expense**	-	-	-	-	-
8	**Investment Income**	**-35,444**	**85,491**	**91,086**	**94,387**	**97,700**

9 *Government of Canada 10YR Bond Yield increased from 2.61% in July 2022 to 3.12% in August 2022
10 **Please note that PUB (MPI) 1-15 (c) Appendix 1-3 is originally INV-44 which is Investment Income for Basic Claims
11 only and not Basic Line of Business

Please see *Figure 6* which shows the Investment Income for the Basic line of business and Claims Net Interest Rate Impact with Naïve Forecast as of August 31, 2022.

Figure 6 **Basic Investment and Claims Net Interest Rate Impact with Naïve Forecast as of August 31, 2022** ***(Updated PUB (MPI) 1-15(d) Appendix 1-4 as of August 31, 2022)***

Line No.		2017/18 Actual	2018/19 Actual	2019/20 Actual	2020/21 Actual	2021/22 Actual	2022/23 Forecast	2023/24 Forecast	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast
1	*(in Millions of Dollars)*										
2	Marketable Bond Yield	3.04%	2.88%	2.69%	2.50%	3.58%	4.25%	4.24%	4.23%	4.23%	4.22%
3	YoY Change	0.13%	-0.16%	-0.19%	-0.19%	0.01%	0.67%	-0.01%	-0.01%	0.00%	0.00%
4	Claims Discount Rate	3.47%	3.26%	3.09%	2.88%	3.54%	4.19%	4.20%	4.20%	4.21%	4.21%
5	YoY Change	0.08%	-0.21%	-0.17%	-0.21%	0.66%	0.66%	0.00%	0.00%	0.01%	0.00%
6	Duration Gap (Years)*	0.1	(0.1)	0.9	(0.2)	0.1	-	-	-	-	-
7	Investments										
8	Investment Income	116.3	208.5	59.6	89.5	(47.2)	18.7	119.7	118.4	123.8	129.3
9	(1) Marketable Bond Gain/(Loss)	4.6	14.2	5.5	0.7	(127.0)	(112.5)	(3.6)	(0.6)	(0.4)	(0.4)
10	Investment Income excluding Marketable Bond G/L	111.7	194.3	54.1	88.9	79.8	131.2	123.3	119.0	124.2	129.6
11	Claims										
12	Net Claims Incurred	783.0	892.3	761.5	653.8	838.6	918.7	934.0	979.4	1,025.9	1,074.7
13	(2) Claims Interest Rate Impact	(15.8)	40.9	(8.9)	44.2	(132.8)	(134.2)	(0.5)	(0.9)	(2.8)	0.9
14	Claims Excluding Interest Rate Impact	798.8	851.4	770.4	609.6	971.3	1,052.9	934.5	980.2	1,028.7	1,073.7
15	Net Interest Rate Impact										
16	(1) Marketable Bond Gain/Loss	4.6	14.2	5.5	0.7	(127.0)	(108.6)	(0.3)	(0.3)	(0.3)	(0.3)
17	(2) Claims Interest Rate Impact	(15.8)	40.9	(8.9)	44.2	(132.8)	(134.2)	(0.5)	(0.9)	(2.8)	0.9
18	Net Impact of Changes in Interest Rates [(1) - (2)]	20.4	(26.7)	14.4	(43.5)	5.8	25.6	0.1	0.6	2.5	(1.2)

PUB (MPI) 2-9

Part and Chapter:	**PUB (MPI) 1-17 Part V Expenses Figure EXP–2 and Figure EXP- 5**	**Page No.:**	
PUB Approved Issue No:	**4. Financial Forecasts 8. Cost of Operations and Cost Containment Measures**		
Topic:	**Financial Forecasts**		
Sub Topic:	**Corporate Expenses**		

Preamble to IR:

Question:

a) Please provide an updated Figure 1 and Figure 2 including five years historical information.

b) In the case of DVA Figure 2, please supplement the analysis to include government funding provided and net surplus deficit in each of the years.

Rationale for Question:

To obtain up-to-date financial forecasts.

RESPONSE:

a) Please see *Appendix 1*.

b) Please see *Appendix 2*.

Total Operating Expenses – 10 year Summary of Total Expenses – Extension

Expense	2017/18A	2018/19A	2019/20A*	2020/21A	2021/22A	2022/23FB	2023/24F	2024/25F	2025/26F	2026/27F
($000's, except where noted)										
Compensation - Salaries	8,398	8,364	9,586	8,173	8,135	9,610	12,723	14,127	12,242	11,317
Compensation - Overtime	68	91	100	70	111	91	99	99	104	105
Compensation - Benefits	1,909	2,055	2,220	2,234	2,014	2,273	2,501	2,564	2,647	2,630
Compensation - H & E Tax	173	182	204	177	181	206	229	238	246	244
Sub Total - Compensation	**10,548**	**10,692**	**12,110**	**10,654**	**10,441**	**12,180**	**15,552**	**17,028**	**15,239**	**14,296**
% increase / (decrease) over prior year	*4.6%*	*1.4%*	*13.3%*	*-12.0%*	*-2.0%*	*16.7%*	*27.7%*	*9.5%*	*-10.5%*	*-6.2%*
Data Processing	3,037	1,947	2,150	2,648	3,114	7,891	7,679	8,860	7,359	6,331
Special Services	461	360	365	625	821	839	1,235	1,252	1,292	1,285
Building Expenses	676	631	654	552	527	540	550	563	581	578
Safety/Loss Prevention Programs	170	219	260	162	197	266	303	332	343	341
Telephone/Telecommunications	139	129	130	123	119	123	135	139	143	142
Public Information/Advertising	244	235	290	156	240	405	244	249	258	256
Printing, Stationery, Supplies	74	96	103	65	88	106	116	120	123	120
Postage	268	282	316	275	279	239	262	234	189	207
Regulatory/Appeal	9	8	12	20	19	12	12	12	12	12
Travel and Vehicle Expense	56	65	72	32	42	68	74	76	78	77
Driver Education Program	298	303	317	116	251	344	383	391	404	402
Grants in Lieu of Taxes	124	117	128	118	111	120	132	135	139	138
Furniture & Equipment	56	47	107	36	146	104	96	71	73	73
Merchant Fees & Bank Charges	3,245	3,401	3,520	2,854	2,626	2,708	2,776	2,775	2,831	2,886
Other	328	339	400	294	448	491	315	296	290	357
Sub total - Other Expenses	**9,185**	**8,179**	**8,824**	**8,076**	**9,028**	**14,256**	**14,312**	**15,505**	**14,115**	**13,205**
% increase / (decrease) over prior year	*13.3%*	*-11.0%*	*7.9%*	*-8.5%*	*11.8%*	*57.9%*	*0.4%*	*8.3%*	*-9.0%*	*-6.4%*
Depreciation-Capital Assets	317	307	377	340	359	404	457	515	596	633
Amortization-Deferred Development	1,414	1,660	1,371	1,229	858	604	507	417	3,055	6,105
Subtotal - Depreciation / Amortization	**1,731**	**1,967**	**1,748**	**1,569**	**1,217**	**1,008**	**964**	**932**	**3,651**	**6,738**
% increase / (decrease) over prior year	*-17.2%*	*-17.2%*	*-17.2%*	*-17.2%*	*-17.2%*	*-17.2%*	*-4.4%*	*-3.3%*	*291.7%*	*84.6%*
Total Expenses	**21,464**	**20,838**	**22,682**	**20,299**	**20,686**	**27,444**	**30,828**	**33,465**	**33,005**	**34,239**

Note: Figures includes improvement initiative (ongoing and implementation) expenses

* reflects13-month year

Total Operating Expenses – 10 year Summary of Total Expenses – DVA

Expense	2017/18A	2018/19A	2019/20A*	2020/21A	2021/22A	2022/23FB	2023/24F	2024/25F	2025/26F	2026/27F
($000's, except where noted)										
Compensation - Salaries	16,454	16,203	19,058	17,821	21,087	23,873	29,085	27,455	27,273	26,416
Compensation - Overtime	104	153	193	118	230	217	219	214	222	230
Compensation - Benefits	3,839	3,891	4,334	4,901	5,090	5,614	5,765	5,780	5,895	6,013
Compensation - H & E Tax	349	344	398	388	457	510	529	536	547	558
Sub Total - Compensation	**20,746**	**20,591**	**23,983**	**23,228**	**26,864**	**30,214**	**35,598**	**33,985**	**33,937**	**33,217**
% increase / (decrease) over prior year	*-1.7%*	*-0.7%*	*16.5%*	*-3.1%*	*15.7%*	*12.5%*	*17.8%*	*-4.5%*	*-0.1%*	*-2.1%*
Data Processing	1,816	3,888	4,433	2,424	14,155	17,779	19,399	19,653	11,863	10,476
Special Services	460	398	463	490	697	615	849	841	858	875
Building Expenses	1,054	994	1,119	965	1,071	1,099	1,045	1,044	1,065	1,087
Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
Telephone/Telecommunications	130	121	121	144	153	171	175	175	179	182
Public Information/Advertising	256	217	262	104	126	168	192	192	195	199
Printing, Stationery, Supplies	2,821	2,541	2,671	2,446	3,108	2,887	2,951	2,945	3,004	3,063
Postage	1,111	1,217	1,269	1,034	1,456	1,240	1,269	1,252	1,263	1,198
Regulatory/Appeal	8	8	12	25	26	18	17	16	16	17
Travel and Vehicle Expense	177	186	198	78	105	218	223	222	226	230
Driver Education Program	-	-	-	-	-	-	-	-	-	-
Grants in Lieu of Taxes	194	185	220	213	230	245	250	250	255	260
Furniture & Equipment	39	46	103	49	192	149	132	92	94	96
Merchant Fees & Bank Charges	38	34	40	70	62	60	61	61	62	64
Other	521	567	567	488	770	897	560	766	805	669
Sub total - Other Expenses	**8,625**	**10,402**	**11,478**	**8,530**	**22,151**	**25,546**	**27,123**	**27,509**	**19,885**	**18,416**
% increase / (decrease) over prior year	*-21.1%*	*20.6%*	*10.3%*	*-25.7%*	*159.7%*	*15.3%*	*6.2%*	*1.4%*	*-27.7%*	*-7.4%*
Depreciation-Capital Assets	497	467	597	574	712	810	850	909	1,009	1,084
Amortization-Deferred Development	1,598	1,774	1,419	1,529	1,303	614	549	8,806	11,346	15,653
Subtotal - Depreciation / Amortization	**2,095**	**2,241**	**2,016**	**2,103**	**2,015**	**1,424**	**1,399**	**9,715**	**12,355**	**16,737**
% increase / (decrease) over prior year	*47.5%*	*7.0%*	*-10.0%*	*4.3%*	*-4.2%*	*-29.3%*	*-1.8%*	*594.4%*	*27.2%*	*35.5%*
Total Expenses	**31,466**	**33,234**	**37,477**	**33,861**	**51,030**	**57,184**	**64,120**	**71,209**	**66,177**	**68,370**
Government Funding Received	30,177	30,250	32,770	30,250	30,250	40,250	40,250	30,250	30,250	30,250
Net Surplus/(Deficit)	843	1,373	(6,565)	(2,728)	(22,148)	(11,390)	(22,496)	(39,345)	(33,499)	(35,265)

Note: Figures includes improvement initiative (ongoing and implementation) expenses

* 13-month fiscal year

PUB (MPI) 2-10

Part and Chapter:	**CAC (MPI) 1-9**	**Page No.:**	
PUB Approved Issue No:	**4. Financial Forecast**		
Topic:	**PF-14 Statement of Changes in Equity: -0.9% Basic Rate Change – with IFRS Changes effective in 2023/24**		
Sub Topic:			

Preamble to IR:

MPI did not provide the one-time financial impacts of IFRS (affecting both Basic and Extension) because policy decisions remain outstanding. For example:

Part V PF Appendix 1 discusses accounting policy choices related to either utilizing a General Measurement Model GMM or applying a Premium Allocation Approach (PAA).

MPI also needs to decide on accounting policies for initial and subsequent recognition and measurement of Liability for Remaining Coverage (LRC) choice of discounting for contracts with coverage periods of less than one year.

Choice to capitalize or expense acquisition cash flows: If MPI chooses to continue to defer and amortize, there is no expected transition adjustments to opening retained earnings to write off DPAC balances. There would be a positive adjustment to retained earnings due to the broadening of the definition of acquisition costs under IFRS 17. The alternative is to expense DPAC. The transitional adjustment to opening retained earnings would be the balance of the DPAC at April 1, 2022 (a known number). The position paper recommends MPI choose to expense acquisition costs as they are incurred.

Question:

Please provide a table which lists and summarize the accounting policy choices, decisions made and that remain outstanding, the advice received from MPI's internal analysis and external consultant and the financial implications related to each of the alternatives. Where financial implications cannot yet be determined, please indicate the order of magnitude of the adjustment and when the decision and supporting analysis is expected to be finalized.

Rationale for Question:

To understand MPI's accounting policy decisions.

RESPONSE:

MPI filed its accounting position papers and documents outlining its policy choices. MPI reviewed and approved the majority of the policy decisions under IFRS 17. Due to significant movements in interest rates, the financial impacts are difficult to model (and provide). As a result, MPI provides the financial impacts at a point in time, which impacts will vary at the time of adoption.

Below is the summary of the key policy choices made by MPI:

Measurement Policy Choice:

- MPI meets the accounting criteria to apply the Premium Allocation Approach (PAA), which is the simplified IFRS 17 measurement method. This aligns with SGI, ICBC and the vast majority of private enterprises, due to the simplifications provided. This policy choice has no financial impact on day one adoption. Key aspects of the PAA applications are:

    - Eligible based insurance contracts are repriced annually based on risk.

- Simplifications relate to revenue recognition, treatment of acquisition costs and required disclosures.

- Based on degree of complexity, existing systems and processes, additional resources, and comparison to peers, MPI proceeded with the recommendation to apply the PAA.

Level of Aggregation:

- IFRS 17 requires that there be measurement and recognition purposes, insurance contracts assessed & assigned within Portfolios, Groups, and Cohorts. Key aspects of the policy choice are:

  - Portfolio level decisions will impact financial statement presentation and options available to reduce financial statement volatility.

  - Group & Cohort level decisions may impact the timing and recognition of revenue and profits.

  - The underlying systems of MPI that accommodate tracking and analysis by portfolio, group, and cohort levels.

  - MPI finalized two portfolios for direct insurance contracts and three for reinsurance.

Acquisition Costs:

- MPI will write-off Deferred Acquisition Costs [DPAC]. Writing-off DPAC will equate to a day 0 [upon adoption] beneficial impact. The option is available as MPI uses the PAA approach. As MPI made this decision, it can now elect to expense acquisition costs as incurred, rather than defer and amortize them. The alternative (i.e., deferring the acquisition costs), does not cause any greater volatility after the transitional day one impact.

- As MPI employs this simplification, an adjustment will occur upon transition to IFRS 17 in order to eliminate any deferred acquisition costs currently capitalized in the financial statements. Based on its March 31, 2021 audited financial statements, MPI identified the DPAC write-off as $64.8M.

- MPI does not expect writing off DPAC to increase net income volatility (post-transition) or reduce the usefulness or level of information currently disclosed. However, it will reduce the complexity of required disclosures, insurance contract liability calculations, and onerous contract assessments.

Financial Instruments Classification [IFRS 9]

- Insurance companies can adopt IFRS 17 and IFRS 9 simultaneously. IFRS 9 governs the Financial Instruments accounting. Based on its review, MPI will adopt a Fair Value (FV) approach to its investments. This is in-line with Industry and Peers, as there is widespread adoption of the P&L Approach to ensure transparency for stakeholders. Provincial bonds (i.e., MUSH bonds) are currently Held to Maturity [HTM] and accounted based on an amortized basis. Upon adoption of IFRS 9, MPI will identify the amortized cost using the FV approach, with a beneficial impact at day zero of $82.4M, based on the March 2021 audited figures.

- MPI identified these key impacts and decided to use the FV approach because:

    - it expects a fairer measurement of value (specifically through P&L) under IFRS 9 for investments;

    - it aligns (i.e., offsets) with treatment for changes in claims discount rate as part of interest rate risk mitigation;

    - Other Comprehensive Income [OCI] options are not available with current investment vehicles in asset and liability management (ALM), for most asset classes that currently back surplus;

- of an expected increase in volatility with mark to market FV changes flowing through P&L for these asset classes (however, there will be a countervailing impact for discount rate changes for Claims Liability); and

- Accumulated Other Comprehensive Income [AOCI] to Retained Earnings transfer on Day One.

Claims Discount Rate [CDR] Methodology

- IFRS 17 provides a selection for discount rate, and MPI must use either the top-down or bottom-up approach to determine the claims discount rate. MPI chose the top-down approach as it is unique (in that it has relatively long duration, interest rate sensitive policy liabilities and robust existing ALM processes).

- Under IFRS 17, the CDR is not tied to the assets but rather to the characteristics of the claims liabilities. Being so tied makes it more difficult to manage the ALM program. The top-down approach offers continued linkage to the assets, as the calculation starts with a reference portfolio linked to the investments.

- MPI chose the top-down approach based on its "defendability", ease of communication (to stakeholders) and its better relation to assets (i.e., it protects better than the bottom-up approach in case of significant distress in financial markets).

- MPI is modelling the financial impact for the CDR.

Risk Adjustment

- Risk Adjustment replaces current provision for adverse deviation (PfAD). MPI requires the risk adjustment to reflect the degree of its risk aversion.

- The risk appetite of MPI is reflected in the capital holding requirements for each of its lines of business (LOBs): 100%, 200%, 300% MCT ratio for Basic, Extension and SRE LOBs, respectively.

- MPI will use a Quantile method for Risk Adjustment calculations. Under the Quantile Approach, a range of claims development scenarios are simulated and the future claims payments of each of the scenarios are discounted to the measurement date. MPI determines the risk adjustments for non-financial risk as the difference of the discounted unpaid claims at the selected percentile and the best estimate unpaid claims liability averaged across the scenarios.

- MPI uses the Over-Dispersed Poisson (ODP) Bootstrap model to simulate the distribution of total discounted unpaid claims across all coverages and lines of business. MPI inputs historical paid claims (including ILAE) triangles to the ODP model to create the variabilities of future claims developments in the simulated scenarios. Benefit indexation is also catered though paid claims triangle.

- Aggregation of the calculated RA from coverage level (undiversified) to company level includes a diversification benefit determined using assumed correlations between each coverage and LOB. MPI is finalizing the financial impact of its Risk Adjustment policy choice.

Onerous Contracts

- IFRS 17 requires the recognition of onerous contracts, if the fulfilment cash flows arising from the contract are a net outflow at the date of initial recognition.

- If onerous, there will be a loss recognized (i.e., loss component).

- MPI will calculate and disclose the loss component balances and year to date changes on group level, using premium information and key rolling forward assumptions.

- MPI does not expect that it will be onerous in most years since Basic and Extension are in the same portfolio, with Basic being priced to break-even and the Extension product line having predictable/stable earnings.

Reinsurance Contracts Held

- IFRS 17 requires a reinsurance contract held to be accounted for separately from the underlying insurance contracts to which it relates. Since reinsurance is relatively insignificant for MPI, most reinsurance policy choices are immaterial.

- There is a choice to present income or expenses of reinsurance contracts held as a single amount or separately in the income statement. The policy choice of MPI is to present these elements separately to allow additional disclosure to financial statement users.

Items that remain to be finalized for IFRS 17:

- Transition methodology paper (although MPI already knows that its policy choice will be to use a full retrospective approach for IFRS 17).

- Financial Modelling for MCT and financial impacts to policy choices, to be completed for October 2022.

PUB (MPI) 2-11

Part and Chapter:	**PUB (MPI) 1-22**	**Page No.:**	
PUB Approved Issue No:	**5. Changes to Integrated Cost Allocation Methodology**		
Topic:	**Project Nova**		
Sub Topic:	**Allocation of Project Nova Costs**		

Preamble to IR:

MPI has defined a story point as: "a unit of measure for estimating work effort in an Agile environment. This unit of measure translates to overall capacity, which MPI then uses to estimate time required for feature delivery. Together, this provides overall effort for each Release, which MPI can then quantify through budget and cost.

Question:

a) Please denote the methodology and/or pattern utilized to set story points.

b) Please indicate to what extent the new methodologies have been reviewed or vetted by MPI's external advisory teams.

c) Please indicate the estimated cost associated to each story point.

d) Please provide a table which denotes each story point along with associated translation to MPI capacity.

e) Please describe how MPI determines the number of story points for each sprint and the total number of story points available for a Program Increment.

f) Please file a table indicating the Program Increment number, Sprint Number, Number of Stories, total number of Story Points associated to the Sprint, total number of story points completed, and total number of story points deferred for

each Sprint since the start of January 2022 inclusive of the current and next planned sprint.

Rationale for Question:

To understand changes in the allocation of Project Nova Costs

RESPONSE:

a) MPI story points are related to time estimates ordered as the Fibonacci number sequence (or "T-shirt sizing"). This is industry standard for the early and mid-stages of Agile practice maturity.

Teams within each stream will determine story points for their work items based on a combination of factors including:

- Complexity & Difficulty
- Skill & Experience
- Level of Unknowns (includes risks)

Teams vary in composition but can include Technical Leads, System Architects, Developers, Subject Matter Experts, and a Scrum Master.

Support Streams: TSS Technical Shared Services (TSS), Quality Assurance (QA), Data Analytics, Data Migration and End to End (E2E - Business Process Management)

- These support streams do not estimate story points. The approach is to assume "demand capacity" and responsiveness to support DVA, PnC, Digital and Integrations.

b) MPI has not required the engagement of any external partner.

c) Story points directly dictate effort and duration to complete delivery of each release. In turn, the effort is utilized to quantify the cost to deliver each release.

d) It is important to note that the use of time demarcation is loose, not strict. This adheres to Agile principles, to ensure that estimation is more valuable as it becomes more predictable over time.

Story Points and MPI Capacity

Streams	Story Points	MPI Capacity
Digital	1	Up to 1 hour
	2	2-3 hours
	3	4-8 hours
	5	2-3 days
	8	1 week (4-5 days)
	13	Up to 2 weeks
	21	Up to 4 weeks
DVA	1	1 day/person
Operational Readiness	1	Up to 1 hour
	4	1 day
	8	3 – 4 days
	13	5 – 7 days
	21	2 weeks
PnC	1	1 day
	4	1 week
	8	2 weeks
	16	4 weeks
ISS	1	1 day
	4	1 week
	8	2 weeks
	16	4 weeks

e) The total story points for each sprint are determined by the capacity of the number of resources in that stream. Each resource is assumed 80% effective in

each 4-week cycle. The Program Increment is then the summary of the 3 component sprints.

Capacity reductions further reduce resource capacity and must account for:

- Vacation, holidays
- On boarding of new resources
- Split allocation resources
- Defect fixes
- Architectural Support Requirements
- Agile ceremonies

f) Please see below table.

Streams	Program Increment Number	Sprint Number	Number Stories	Total Number of Story Points Associated to the Sprint	Total Number of Story Points Completed	Total Number of Story Point Deferred
Digital Stream	4	11	75	133	117	16
	5	12	93	163	150	13
		13	206	348	363	39
		14	203	335	292	43
	6	15	186	465	412	46
		16	202	424	343	35
		17	205	390	393	27
	7	18	201	331	379	25
		19	139	339	340	37
		20	134	348	TBD	TBD
DVA	4	11	27	434	445	104
	5	12	21	432	448	12
		13	22	432	477	- 26*
		14	30	432	453	-23*
	6	15	56	540	517	37
		16	26	544	616	287
		17	26	544	636	242
	7	18	33	490	549	288
		19	52	490	549	193
		20	78	490	549	-13*
				*negatives where additional story points were completed		

Streams	Program Increment Number	Sprint Number	Number Stories	Total Number of Story Points Associated to the Sprint	Total Number of Story Points Completed	Total Number of Story Point Deferred
Operational Readiness	4	11	117	110	110	na
	5	12	155	207	207	na
		13	231	330	330	na
		14	294	308	308	na
	6	15	367	486	486	na
		16	431	496	496	na
		17	369	582	582	na
	7	18	329	635	603	na
		19	199	442	442	na
		20	412	490	18	TBD
PnC	4	11	36	95	83	0
	5	12	31	53	53	0
		13	35	59	59	0
		14	38	107	107	0
	6	15	20	50	50	0
		16	6	57	57	0
		17	5	14	14	0
	7	18	6	54	54	0
		19	4	13	13	0
		20	5	12	12	0
ISS	4	11		174	164	30
	5	12		192	182	0
		13		216	199	50
		14		115	190	65
	6	15		156	114	10
		16		141	124	32
		17		134	68	20
	7	18		178	57	122
		19		170	28	132
		20		175	TBD	TBD
		*Stories are managed via backlog priority and are continuously re-balanced based against capacity.				

PUB (MPI) 2-12

Part and Chapter:	**PUB (MPI) 1-26** **CAC(MPI) 1-30**	**Page No.:**	
PUB Approved Issue No:	**5. Changes to Integrated Cost Allocation Methodology**		
Topic:	**Project Nova**		
Sub Topic:	**Allocation of Project Nova Costs**		

Preamble to IR:

MPI is allocating leadership stream costs based on a composite of how other streams cost are allocated.

The DVA stream is based on timecards, the Digital stream is based on a management analysis of features.

MPI based its previous P&C stream allocation methodology on claims incurred volumes, which allocates costs based on the claims volumes. However, as claims counts are significantly higher for the Basic LOB, a disparity in cost allocations existed, which did not align the capital asset benefit to the correct LOB.

Based on business analysis and project management advice from the Vendor (Accenture) as of January 2022, during the P&C discovery phase, MPI selected features as a base for allocations to build its projections. As discovery is now complete, MPI will use the story points as the basis of allocation.

Question:

a) Please provide the analysis or report prepared by Accenture on the cost allocation methodology now employed.

b) Please provide the analysis supporting the allocation of digital stream costs by features for 2022/23 and 2023/24.

c) Please provide the support for the determination of the percentage allocation of the P&C stream based on story points approach for 2022/23 and 2023/24.

d) Please indicate to what extent the new methodologies have been reviewed or vetted by MPI's external auditor.

e) Please provide support for the determination of the percentage allocations of leadership stream by LOB for 2022/23 and 2023/24.

Rationale for Question:

To understand changes in the allocation of Project Nova costs.

RESPONSE:

a) For clarity, Accenture did not prepare an analysis or a report for the purpose of applying a cost allocation methodology. As part of Agile project delivery all streams allocate story points to measure effort required to deliver epics and features for every sprint and program increment. Accenture was the first System Integrator (SI) to provide story point breakdown to measure effort as they are the SI delivering the first release. This was leveraged to apply an accurate and repeatable approach to the cost allocation methodology.

b) For story point methodology, please refer to *PUB (MPI) 2-11 Figure 1 and Figure 2*.

c) Please refer to *PUB (MPI) 2-11 Figure 1 and Figure 2*.

d) Future years will be dependent on the completion of discovery for R3 and R4, but MPI will continue to leverage similar story point methodology.

e) The external auditor has not been engaged as measuring effort through story point methodology is an industry proven method.

f) Leadership Stream allocation methodology is based on a yearly calculation where the proportion of the aggregate expected results for the other work streams by Line of Business (LOB) are used to allocate leadership costs. This is a dynamic allocator as leadership costs will vary from year to year.

PUB (MPI) 2-13

Part and Chapter:	**PUB(MPI) 1-100(b)** **Part IV - Nova, Information Technology, and Value Management - Nova Project**	**Page No.:**	**23**
PUB Approved Issue No:	**6. Annual Business Plan** **19. Current IT Strategic Plan and IT Expenses and Projects, including Project Nova and Other Initiatives Planned for or Ongoing in the Rating Years.** **(a) Project Nova Re-Baseline, Budget, and Financing Options, including Debt Financing.**		
Topic:	**Capital Plans**		
Sub Topic:			

Preamble to IR:

Question:

Please file the 2023/24 Annual Business Plan.

Rationale for Question:

To enhance the understanding of the risk profile related to staffing for Project Nova.

RESPONSE:

Pursuant to section 7 of *The Crown Corporations Governance and Accountability Act* the annual business plan must be approved by the responsible minister after being reviewed by the Treasury Board. This step has yet to occur, as such the 2023/24 Annual Business Plan cannot yet be filed.

PUB (MPI) 2-14

Part and Chapter:	**PUB (MPI) 1-31** **Part VII Investments Figure INV-1** **PUB (MPI) 1-34(a) (2022 GRA)**	**Page No.:**	
PUB Approved Issue No:	**7. Performance of the Investment Portfolio and the Composition of i) The Portfolio, ii) Benchmark Portfolio(s) on a Market Value Basis (e.g., Asset Mix)**		
Topic:	**Basic Line of Business Investment Income**		
Sub Topic:	**Investment Income**		

Preamble to IR:

Question:

Please provide an update PUB(MPI) 1-31 (a) as of August 31, 2022.

Rationale for Question:

To understand up-to-date financial position.

RESPONSE:

Please see *PUB (MPI) 2-14 Appendix 1* for the updated *PUB (MPI) 1-31(a)* which is the Summary of Basic Line of Business Investment Income (*2023 GRA Investments Chapter Figure INV-1* updated) as of August 31, 2022.

Figure App 1-1 Summary of Basic Line of Business Investment Income (2023 GRA Figure INV-1 updated) based on August 31, 2022
(Updated PUB(MPI) 1-31(a) as of August 31, 2022)

Line No.	Asset Class	Reference Section #	2017/18 Actual	2018/19 Actual	2019/20 Actual	2020/21 Actual	2021/22 Actual	2022/23 Budget	2023/24 Forecast	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast
1	*(C$000s, except where noted)*											
2	**Interest Income During Period**											
3	Cash/Short Term Investments	INV.3	565	2,192	3,641	454	93	1,881	3,062	3,171	3,182	3,182
4	Provincial Bonds	INV.4	34,147	32,514	80,710	84,694	81,430	38,235	43,729	47,807	50,449	53,093
5	Corporate Bonds	INV.4	-	3,702	-	-	-	22,975	26,186	29,159	31,230	33,064
6	MUSH	INV.5	25,349	24,950	-	-	-	19,819	19,039	18,130	17,310	16,398
7	Private Debt	INV.9	-	-	1,254	2,998	4,800	6,075	6,515	5,282	5,337	5,634
8	**Total**		**60,060**	**63,358**	**85,604**	**88,146**	**86,323**	**88,986**	**98,531**	**103,549**	**107,509**	**111,370**
9	**Dividend and other Income**											
10	Canadian Equities	INV.6	7,774	8,781	3,097	3,080	5,258	2,458	2,388	2,493	2,665	2,841
11	US/Global Equities	INV.7	2,619	2,996	797	1,019	3,578	2,277	2,320	2,578	2,755	2,937
12	Global Low Volatility	INV.7	-	-	2,182	-	-	1,165	1,153	1,273	1,357	1,442
13	Investment Properties (CityPlace)	INV.8	2,972	3,094	1,390	(765)	148	373	390	399	407	415
14	Infrastructure	INV.9	1,731	11,533	2,620	1,621	1,961	1,618	1,189	864	951	1,006
15	**Total**		**15,096**	**26,404**	**10,086**	**4,955**	**10,945**	**7,892**	**7,440**	**7,607**	**8,135**	**8,642**
16	**Gains During Period - Profit & Loss**											
17	Marketable Bonds Unrealized Gains/(Loss)	INV.4	8,079	8,718	(16,827)	(10,645)	(123,025)	(95,626)	(601)	(578)	(554)	(547)
18	Marketable Bonds Realized Gains/(Loss)	INV.4	(3,490)	5,459	22,346	11,296	(3,975)	(16,862)	(2,995)	(34)	186	194
19	Private Debt Gains/(Loss)*	INV.5	-	-	-	-	-	-	(4,689)	(575)	-	-
20	Canadian Equities Realized Gains	INV.6	20,060	48,239	3,469	1,028	5,943	16,362	9,496	4,427	3,780	3,758
21	US/Global Equities Realized Gains	INV.7	4,928	56,550	572	1,561	4,807	9,053	5,939	3,702	3,560	3,838
22	Global Low Volatility	INV.7	-	-	3,652	6,452	1,571	6,214	4,140	2,126	2,188	2,322
23	Real Estate	INV.8	25,058	17,443	6,516	(878)	15,342	12,745	9,006	6,247	6,944	7,369
24	Infrastructure	INV.9	5,376	1,635	7,679	1,945	111	6,269	4,635	3,388	3,728	3,944
25	**Total**		**60,011**	**138,046**	**27,407**	**10,756**	**(99,226)**	**(61,845)**	**24,931**	**18,703**	**19,832**	**20,878**
26	**Other**											
27	Investment Fees Paid	INV.10	(3,641)	(3,576)	(4,038)	(4,111)	(4,802)	(4,252)	(4,155)	(4,148)	(4,232)	(4,279)
28	Amortization of Bond Premium/Discount	INV.10	(3,069)	(3,553)	(6,083)	(8,994)	(6,962)	(868)	4,421	4,464	4,343	4,448
29	Pension Expense	INV.10	(11,619)	(12,170)	(10,686)	(11,249)	(11,439)	(11,237)	(11,511)	(11,789)	(11,789)	(11,789)
30	Venture Capital Income	INV.10	412	-	-	-	-	-	-	-	-	-
31	Investment Write-Down		(930)	-	(42,676)	10,022	(22,023)	-	-	-	-	-
32	**Total**		**(18,847)**	**(19,298)**	**(63,483)**	**(14,329)**	**(45,226)**	**(16,357)**	**(11,244)**	**(11,472)**	**(11,678)**	**(11,620)**
33	**Total Basic LOB Investment Income**		**116,320**	**208,510**	**59,614**	**89,528**	**(47,184)**	**18,676**	**119,658**	**118,386**	**123,799**	**129,270**
34	***Missed in the initial submission of INV-1**											

PUB (MPI) 2-15

Part and Chapter:	**PUB (MPI) 1-39(c)**	**Page No.:**	
PUB Approved Issue No:	**7. Performance of the Investment Portfolio and the Composition of i) The Portfolio, ii) Benchmark Portfolio(s) on a Market Value Basis (e.g., Asset Mix)**		
Topic:	**Investment Return Forecasts**		
Sub Topic:			

Preamble to IR:

> *"While reliance on the 5th percentile provides a measure of conservatism in the methodology, historical performance is no indicator of future performance. Simply using historical data also does not capture current market environment dynamics that could be quite different than historical levels (such as inflation, interest rates, GDP, demographics, etc.) MPI noted that the equity market decline in March 2020 did not impact forecast returns for equities given that the assumption is based on long-term historical averages. This one example highlights the limitations of a historical approach, as it does not capture the impact of severe market events that would reasonably be expected to impact future returns in the near term."*

MPI provided the forecast building block approach at March 31, 2022, and the historical perspective based on the building block approach which is based on long-term historical averages. We would like to understand how the forecast of investment income changes if Mercer's forecast build-up approach is used.

Question:

a) Please provide the building block methodology return as of August 31, 2022.

b) Please indicate the impact on total investment income utilizing the forecast building block approach return as of August 31, 2022, on 2022/23, 2023/24 and 2024/25 and compare that with the investment income forecast by MPI for those years,

c) Please confirm that the return per building block approach shown is consistent with how Mercer would calculate an expected equity return?

d) Please discuss the merits of utilizing Mercer's approach versus the historical approach currently used.

Rationale for Question:

To understand the impact of utilizing Mercer build-up approach for forecasting investment income.

RESPONSE:

a) Please see *Appendix 1* which shows the building block methodology return as of June 30, 2022 which is the latest available to date.

b) The figure below shows the impact on total investment income utilizing the building block approach comparing the investment income forecast using the current MPI approach as of August 31, 2022.

Figure 1 Total Investment Income Current MPI Approach vs. Building Block Method based on August 31, 2022

Line No.	Total Basic LOB Investment Income ($'000s)	2022/23 Forecast	2023/24 Forecast	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast
1	Current MPI Approach as of August 31, 2022	$ 18,675.67	$ 119,657.80	$ 118,385.72	$ 123,798.92	$ 129,269.62
2	Building Block Method Equity Return as of June 30, 2022 (latest available)	$ 20,436.89	$ 124,597.68	$ 123,060.95	$ 130,182.55	$ 137,441.22
3	Difference	**$ 1,761.21**	**$ 4,939.87**	**$ 4,675.23**	**$ 6,383.63**	**$ 8,171.60**

c) As per Mercer: broadly speaking, the four components shown in the response to Part A are consistent with how Mercer develops future expected equity returns: (1) Inflation, (2) Real Growth in Earnings, (3) Dividend Yield, and (4) Price/Earnings Adjustment. However, it is important to note that Mercer develops its assumptions with a long-term focus (10 to 20 years). This effectively assumes that short-term fluctuations in any of the building block components (in particular, the first two) are temporary and will mean-revert to an "equilibrium" state. This is an important

distinction because in the long-term the relationship between fundamental drivers like inflation and economic growth can reasonably be expected to translate into equity returns, which may not be the case in the short-term. For this reason, Mercer relies on long-term forward-looking economic forecasts of inflation and real GDP growth in its model, rather than using observed results.

The figures shown in the response to part a) for inflation and real GDP growth appear to be either the realized monthly figures or very short-term forecasts; in either case, the short time frame in Mercer's view makes forecasting less reliable and of less value. Mercer does not develop short-term equity return forecasts for use in its asset allocation modelling.

d) MPI's current approach uses historical data which may not capture current market environment dynamics. Of importance, the current methodology results in less volatile expected equity returns; it is also relatively simple and requires minimal judgement.

On the other hand, the building block method is a robust approach in developing expected returns as it uses several inputs. This approach captures current market dynamics and will therefore be more volatile. Currently, equities are a small proportion of total invested assets of the Basic Line of Business portfolio (<10%), thus a need for a robust approach should be balanced with materiality. Also, Mercer's approach requires significant judgement in order to develop forward-looking economic forecasts of inflation and real GDP growth. In Mercer's opinion, "the short time frame…makes forecasting less reliable and of less value".

Figure App 1-1 Comparison of Building Block Method with MPI's Current Approach based on August 31, 2022

Line No.								
1	Current MPI Approach as of August 31, 2022					6.60%		
2	Building Block Method Equity Return as of June 30, 2022 (latest available)					10.56%		
3	Building Block Method Equity Return (Historical Average)					4.85%		
4							E	
5		A	B	C	D		Market Valuation	
6		CDN	Real	Dividend Yield	Dividend Yield	=A+B+C	Adjustment	Return per Building
7		Annual CPI	GDP Growth	(CDN Index)	(MSCI World)	Total w/o MVA	(E/P Ratio)	Block Method
8	8/31/2022	No data yet	No data yet	3.22%	2.18%	No data yet	-0.823%	No data yet
9	7/31/2022	7.6%	No data yet	3.11%	2.09%	No data yet	-0.782%	No data yet
10	6/30/2022	8.1%	0.10%	3.22%	2.27%	11.5%	-0.890%	10.563%
11	5/31/2022	7.7%	0.00%	2.92%	2.09%	10.7%	-0.342%	10.308%
12	4/30/2022	6.8%	0.30%	2.87%	2.07%	9.9%	-0.341%	9.600%
13	3/31/2022	6.7%	0.70%	2.70%	1.92%	10.1%	-0.232%	9.830%
14	2/28/2022	5.7%	0.80%	2.78%	1.97%	9.3%	-0.160%	9.108%
15	1/31/2022	5.1%	-0.10%	2.75%	1.90%	7.8%	-0.164%	7.623%
16	12/31/2021	4.8%	0.10%	2.61%	1.73%	7.5%	-0.119%	7.394%
17	11/30/2021	4.7%	0.50%	2.66%	1.80%	7.9%	-0.081%	7.799%
18	10/31/2021	4.7%	0.90%	2.56%	1.77%	8.1%	-0.046%	8.068%
19	9/30/2021	4.4%	0.30%	2.63%	1.86%	7.3%	-0.122%	7.191%
20	8/31/2021	4.1%	0.60%	2.57%	1.78%	7.3%	-0.001%	7.256%
21	7/31/2021	3.7%	0.40%	2.60%	1.82%	6.7%	-0.026%	6.691%
22	6/30/2021	3.1%	0.90%	2.60%	1.81%	6.6%	0.040%	6.601%
23	5/31/2021	3.6%	-0.60%	2.65%	1.84%	5.7%	0.239%	5.889%
24	4/30/2021	3.4%	-1.00%	2.80%	1.85%	5.2%	0.181%	5.371%
25	3/31/2021	2.2%	1.10%	2.80%	1.89%	6.1%	0.262%	6.358%
26	2/28/2021	1.1%	0.30%	2.91%	1.96%	4.3%	0.469%	4.771%
27	1/31/2021	1.0%	0.40%	3.09%	1.99%	4.5%	0.417%	4.930%
28	12/31/2020	0.7%	0.00%	3.01%	1.86%	3.7%	0.494%	4.237%
29	11/30/2020	1.0%	0.70%	3.08%	1.92%	4.7%	0.433%	5.166%
30	10/31/2020	0.7%	0.60%	3.40%	2.15%	4.7%	0.299%	4.958%
31	9/30/2020	0.5%	0.90%	3.27%	2.07%	4.7%	0.380%	5.064%
32	8/31/2020	0.1%	0.90%	3.20%	2.00%	4.2%	0.386%	4.632%
33	7/31/2020	0.1%	2.60%	3.26%	2.14%	6.0%	0.359%	6.365%
34	6/30/2020	0.7%	5.80%	3.41%	2.23%	9.9%	0.274%	10.145%
35	5/31/2020	-0.4%	4.50%	3.50%	2.32%	7.6%	-0.080%	7.554%
36	4/30/2020	-0.2%	-10.90%	3.66%	2.49%	-7.5%	-0.133%	-7.594%
37	3/31/2020	0.9%	-7.40%	4.08%	2.94%	-2.4%	-0.433%	-2.867%
38	2/29/2020	2.2%	0.20%	3.31%	2.66%	5.7%	-0.311%	5.355%
39	1/31/2020	2.4%	0.10%	3.14%	2.43%	5.6%	-0.179%	5.456%
40	12/31/2019	2.2%	0.30%	3.07%	2.32%	5.6%	-0.211%	5.407%
41	11/30/2019	2.2%	0.00%	3.06%	2.38%	5.2%	-0.164%	5.069%
42	10/31/2019	1.9%	0.20%	3.07%	2.45%	5.1%	-0.230%	4.905%
43	9/30/2019	1.9%	0.10%	3.08%	2.49%	5.0%	-0.203%	4.847%
44	8/31/2019	1.9%	0.00%	3.12%	2.56%	5.1%	-0.254%	4.804%
45	7/31/2019	2.0%	0.00%	3.12%	2.50%	5.1%	-0.261%	4.869%
46	6/30/2019	2.0%	0.20%	3.12%	2.53%	5.3%	-0.258%	5.083%
47	5/31/2019	2.4%	0.30%	3.19%	2.67%	5.9%	-0.177%	5.712%
48	4/30/2019	2.0%	0.40%	3.07%	2.53%	5.5%	-0.114%	5.382%
49	3/31/2019	1.9%	0.60%	3.15%	2.61%	5.6%	-0.144%	5.487%

Comparison of Building Block Method with Current MPI's Approach based on August 31, 2022 ***(cont'd)***

Current MPI Approach as of August 31, 2022	6.60%
Building Block Method Equity Return as of June 30, 2022 (latest available)	10.56%
Building Block Method Equity Return (Historical Average)	4.85%

Line No.		A CDN Annual CPI	B Real GDP Growth	C Dividend Yield (CDN Index)	D Dividend Yield (MSCI World)	=A+B+C Total w/o MVA	E Market Valuation Adjustment (E/P Ratio)	Return per Building Block Method
50	2/28/2019	1.5%	-0.20%	3.16%	2.64%	4.5%	-0.105%	4.365%
51	1/31/2019	1.4%	0.10%	3.23%	2.72%	4.8%	-0.149%	4.624%
52	12/31/2018	2.0%	0.00%	3.46%	2.79%	5.4%	-0.306%	5.142%
53	11/30/2018	1.7%	-0.20%	3.24%	2.57%	4.7%	-0.264%	4.451%
54	10/31/2018	2.4%	0.30%	3.19%	2.58%	5.9%	-0.282%	5.652%
55	9/30/2018	2.2%	0.10%	2.98%	2.40%	5.3%	-0.123%	5.174%
56	8/31/2018	2.8%	0.20%	2.95%	2.40%	6.0%	-0.122%	5.864%
57	7/31/2018	3.0%	0.30%	2.92%	2.43%	6.2%	-0.114%	6.097%
58	6/30/2018	2.5%	0.10%	2.95%	2.49%	5.5%	-0.120%	5.384%
59	5/31/2018	2.2%	0.60%	2.96%	2.49%	5.8%	-0.136%	5.646%
60	4/30/2018	2.2%	0.00%	3.04%	2.52%	5.3%	-0.182%	5.082%
61	3/31/2018	2.3%	0.30%	3.09%	2.54%	5.7%	-0.193%	5.506%
62	2/28/2018	2.2%	0.40%	3.06%	2.48%	5.6%	-0.164%	5.455%
63	1/31/2018	1.7%	0.00%	2.93%	2.37%	4.6%	-0.099%	4.530%
64	12/31/2017	1.9%	0.30%	2.78%	2.31%	4.9%	-0.039%	4.910%
65	11/30/2017	2.1%	0.50%	2.81%	2.35%	5.4%	0.024%	5.434%
66	10/31/2017	1.4%	0.20%	2.75%	2.37%	4.3%	0.021%	4.365%
67	9/30/2017	1.6%	0.20%	2.83%	2.42%	4.6%	-0.009%	4.574%
68	8/31/2017	1.4%	-0.10%	2.92%	2.47%	4.2%	-0.001%	4.217%
69	7/31/2017	1.2%	0.20%	2.93%	2.46%	4.3%	-0.009%	4.285%
70	6/30/2017	1.0%	0.20%	2.95%	2.47%	4.2%	0.012%	4.169%
71	5/31/2017	1.3%	0.40%	2.94%	2.47%	4.7%	0.141%	4.801%
72	4/30/2017	1.6%	0.50%	2.89%	2.50%	5.0%	0.166%	5.193%
73	3/31/2017	1.6%	0.30%	2.91%	2.51%	4.8%	0.184%	4.958%
74	2/28/2017	2.0%	0.20%	2.93%	2.51%	5.2%	0.200%	5.375%
75	1/31/2017	2.1%	0.50%	2.87%	2.56%	5.5%	0.193%	5.692%
76	12/31/2016	1.5%	0.30%	2.79%	2.49%	4.6%	0.208%	4.800%
77	11/30/2016	1.2%	0.40%	2.83%	2.56%	4.4%	0.256%	4.666%
78	10/31/2016	1.5%	-0.10%	2.83%	2.62%	4.2%	0.225%	4.448%
79	9/30/2016	1.3%	0.30%	2.82%	2.59%	4.5%	0.228%	4.685%
80	8/31/2016	1.1%	0.20%	2.85%	2.59%	4.1%	0.294%	4.444%
81	7/31/2016	1.3%	0.60%	2.86%	2.58%	4.7%	0.293%	5.010%
82	6/30/2016	1.5%	0.50%	2.99%	2.69%	5.0%	0.249%	5.232%
83	5/31/2016	1.5%	-0.60%	2.99%	2.65%	3.9%	0.211%	4.099%
84	4/30/2016	1.7%	0.20%	3.01%	2.68%	4.9%	0.191%	5.065%
85	3/31/2016	1.3%	-0.40%	3.14%	2.70%	4.0%	0.140%	4.147%
86	2/29/2016	1.4%	-0.30%	3.34%	2.84%	4.4%	0.147%	4.543%
87	1/31/2016	2.0%	0.60%	3.42%	2.82%	6.0%	0.149%	6.181%
88	12/31/2015	1.6%	0.10%	3.44%	2.58%	5.1%	0.175%	5.321%
89	11/30/2015	1.4%	0.20%	3.30%	2.53%	4.9%	0.199%	5.055%
90	10/31/2015	1.0%	0.10%	3.22%	2.54%	4.4%	0.206%	4.558%
91	9/30/2015	1.0%	-0.40%	3.28%	2.73%	3.9%	0.213%	4.127%
92	8/31/2015	1.3%	0.20%	3.13%	2.64%	4.6%	0.159%	4.762%
93	7/31/2015	1.3%	0.30%	3.02%	2.46%	4.6%	0.227%	4.820%
94	6/30/2015	1.0%	0.30%	2.96%	2.50%	4.3%	0.243%	4.536%

Comparison of Building Block Method with Current MPI's Approach based on August 31, 2022 ***(cont'd)***

Current MPI Approach as of August 31, 2022	6.60%
Building Block Method Equity Return as of June 30, 2022 (latest available)	10.56%
Building Block Method Equity Return (Historical Average)	4.85%

Line No.		A CDN Annual CPI	B Real GDP Growth	C Dividend Yield (CDN Index)	D Dividend Yield (MSCI World)	=A+B+C Total w/o MVA	E Market Valuation Adjustment (E/P Ratio)	Return per Building Block Method
95	5/31/2015	0.9%	-0.10%	2.87%	2.44%	3.6%	0.192%	3.836%
96	4/30/2015	0.8%	0.00%	2.83%	2.44%	3.6%	0.230%	3.859%
97	3/31/2015	1.2%	-0.10%	2.93%	2.45%	4.0%	0.206%	4.238%
98	2/28/2015	1.0%	-0.10%	2.88%	2.43%	3.8%	0.080%	3.907%
99	1/31/2015	1.0%	-0.40%	3.00%	2.56%	3.6%	0.024%	3.599%
100	12/31/2014	1.5%	0.20%	2.94%	2.44%	4.6%	0.034%	4.641%
101	11/30/2014	2.0%	0.10%	2.91%	2.42%	5.0%	0.025%	4.987%
102	10/31/2014	2.4%	0.30%	2.87%	2.49%	5.5%	0.037%	5.565%
103	9/30/2014	2.0%	0.40%	2.79%	2.50%	5.2%	0.083%	5.301%
104	8/31/2014	2.1%	-0.20%	2.68%	2.46%	4.6%	0.146%	4.738%
105	7/31/2014	2.1%	0.10%	2.71%	2.53%	4.9%	0.130%	5.052%
106	6/30/2014	2.4%	0.50%	2.74%	2.49%	5.6%	0.131%	5.728%
107	5/31/2014	2.3%	0.60%	2.84%	2.53%	5.7%	0.221%	5.938%
108	4/30/2014	2.0%	0.20%	2.83%	2.57%	5.1%	0.223%	5.290%
109	3/31/2014	1.5%	0.30%	2.91%	2.57%	4.8%	0.201%	4.957%
110	2/28/2014	1.1%	0.50%	2.92%	2.56%	4.6%	0.159%	4.720%
111	1/31/2014	1.5%	0.00%	3.02%	2.65%	4.5%	0.100%	4.604%
112	12/31/2013	1.2%	-0.40%	2.99%	2.41%	3.8%	0.102%	3.929%
113	11/30/2013	0.9%	0.20%	3.05%	2.46%	4.2%	-0.083%	4.069%
114	10/31/2013	0.7%	0.50%	2.99%	2.52%	4.1%	-0.119%	4.026%
115	9/30/2013	1.1%	0.30%	3.12%	2.60%	4.5%	-0.191%	4.295%
116	8/31/2013	1.1%	0.40%	3.17%	2.70%	4.6%	-0.210%	4.428%
117	7/31/2013	1.3%	0.60%	3.22%	2.63%	5.1%	-0.250%	4.887%
118	6/30/2013	1.2%	-0.40%	3.32%	2.74%	4.1%	-0.312%	3.760%
119	5/31/2013	0.7%	0.30%	3.17%	2.67%	4.2%	-0.302%	3.905%
120	4/30/2013	0.4%	0.20%	3.20%	2.67%	3.8%	-0.335%	3.474%
121	3/31/2013	1.0%	0.30%	3.11%	2.72%	4.4%	-0.280%	4.116%
122	2/28/2013	1.2%	0.30%	3.09%	2.78%	4.6%	-0.340%	4.288%
123	1/31/2013	0.5%	0.60%	3.05%	2.80%	4.1%	-0.345%	3.802%
124	12/31/2012	0.8%	0.00%	3.01%	2.81%	3.8%	-0.376%	3.466%
125	11/30/2012	0.8%	0.50%	3.04%	2.84%	4.4%	-0.385%	3.982%
126	10/31/2012	1.2%	0.00%	2.94%	2.88%	4.1%	-0.354%	3.745%
127	9/30/2012	1.2%	0.00%	2.95%	2.81%	4.1%	-0.349%	3.761%
128	8/31/2012	1.2%	-0.10%	3.02%	2.86%	4.2%	-0.431%	3.736%
129	7/31/2012	1.3%	0.20%	3.10%	2.92%	4.6%	-0.481%	4.069%
130	6/30/2012	1.5%	0.10%	3.14%	2.96%	4.7%	-0.469%	4.274%
131	5/31/2012	1.2%	0.20%	3.15%	3.11%	4.6%	-0.631%	3.963%
132	4/30/2012	2.0%	0.30%	2.91%	2.89%	5.2%	-0.478%	4.735%
133	3/31/2012	1.9%	0.30%	2.88%	2.80%	5.1%	-0.445%	4.661%
134	2/29/2012	2.6%	-0.30%	2.79%	2.84%	5.1%	-0.403%	4.712%
135	1/31/2012	2.5%	-0.10%	2.83%	2.96%	5.2%	-0.434%	4.757%
136	12/31/2011	2.3%	0.50%	2.84%	2.92%	5.6%	-0.518%	5.120%
137	11/30/2011	2.9%	0.10%	2.80%	2.93%	5.8%	-0.662%	5.131%
138	10/31/2011	2.9%	0.00%	2.73%	2.92%	5.6%	-0.660%	4.966%
139	9/30/2011	3.2%	0.30%	2.89%	3.17%	6.4%	-0.765%	5.590%

Comparison of Building Block Method with Current MPI's Approach based on August 31, 2022 ***(cont'd)***

Current MPI Approach as of August 31, 2022	6.60%
Building Block Method Equity Return as of June 30, 2022 (latest available)	10.56%
Building Block Method Equity Return (Historical Average)	4.85%

Line No.		A CDN Annual CPI	B Real GDP Growth	C Dividend Yield (CDN Index)	D Dividend Yield (MSCI World)	=A+B+C Total w/o MVA	E Market Valuation Adjustment (E/P Ratio)	Return per Building Block Method
140	8/31/2011	3.1%	0.50%	2.62%	2.97%	6.2%	-0.413%	5.792%
141	7/31/2011	2.7%	0.70%	2.57%	2.75%	6.0%	-0.391%	5.619%
142	6/30/2011	3.1%	0.40%	2.52%	2.66%	6.0%	-0.312%	5.706%
143	5/31/2011	3.7%	-0.20%	2.44%	2.62%	5.9%	-0.004%	5.933%
144	4/30/2011	3.3%	0.00%	2.36%	2.57%	5.6%	0.017%	5.653%
145	3/31/2011	3.3%	0.30%	2.33%	2.59%	5.9%	0.064%	5.981%
146	2/28/2011	2.2%	-0.20%	2.32%	2.54%	4.3%	0.130%	4.413%
147	1/31/2011	2.3%	0.30%	2.41%	2.59%	5.1%	0.066%	5.122%
148	12/31/2010	2.4%	0.70%	2.45%	2.43%	5.5%	0.081%	5.583%
149	11/30/2010	2.0%	0.50%	2.56%	2.58%	5.1%	0.210%	5.267%
150	10/31/2010	2.4%	0.50%	2.59%	2.56%	5.5%	0.182%	5.715%
151	9/30/2010	1.9%	0.00%	2.63%	2.61%	4.5%	0.162%	4.710%
152	8/31/2010	1.7%	0.30%	2.73%	2.79%	4.8%	0.163%	4.936%
153	7/31/2010	1.8%	0.10%	2.78%	2.69%	4.7%	0.140%	4.851%
154	6/30/2010	1.0%	0.30%	2.87%	2.81%	4.1%	0.086%	4.211%
155	5/31/2010	1.4%	0.40%	2.74%	2.72%	4.5%	0.046%	4.581%
156	4/30/2010	1.8%	-0.10%	2.62%	2.51%	4.4%	0.117%	4.480%
157	3/31/2010	1.4%	0.50%	2.65%	2.49%	4.6%	0.138%	4.692%
158	2/28/2010	1.6%	0.50%	2.75%	2.65%	4.8%	0.125%	4.956%
159	1/31/2010	1.9%	0.60%	2.90%	2.69%	5.4%	0.061%	5.420%
160	12/31/2009	1.3%	0.30%	2.74%	2.49%	4.4%	0.201%	4.564%
161	11/30/2009	1.0%	0.60%	2.80%	2.57%	4.4%	0.187%	4.551%
162	10/31/2009	0.1%	0.10%	2.92%	2.64%	3.1%	0.124%	3.232%
163	9/30/2009	-0.9%	0.80%	2.80%	2.56%	2.7%	0.230%	2.966%
164	8/31/2009	-0.8%	0.00%	2.94%	2.64%	2.2%	-0.398%	1.763%
165	7/31/2009	-0.9%	0.20%	2.99%	2.73%	2.2%	-0.464%	1.776%
166	6/30/2009	-0.3%	0.10%	3.13%	2.94%	3.0%	-0.541%	2.429%
167	5/31/2009	0.1%	-0.10%	3.13%	2.95%	3.1%	-0.767%	2.350%
168	4/30/2009	0.4%	-0.30%	3.53%	3.16%	3.6%	-1.048%	2.534%
169	3/31/2009	1.2%	-0.80%	3.82%	3.59%	4.3%	-1.229%	3.035%
170	2/28/2009	1.4%	-0.50%	4.21%	3.93%	5.1%	-1.749%	3.387%
171	1/31/2009	1.1%	-0.50%	4.01%	3.82%	4.6%	-1.520%	3.063%
172	12/31/2008	1.2%	-1.40%	4.21%	3.76%	4.0%	-0.962%	3.009%
173	11/30/2008	2.0%	-1.00%	4.12%	3.83%	5.1%	-1.230%	3.856%
174	10/31/2008	2.6%	-0.10%	3.90%	3.69%	6.4%	-1.084%	5.315%
175	9/30/2008	3.4%	0.00%	3.27%	3.21%	6.7%	-0.619%	6.046%
176	8/31/2008	3.5%	-0.10%	2.79%	2.87%	6.2%	-0.096%	6.086%
177	7/31/2008	3.4%	0.40%	2.83%	2.92%	6.6%	-0.122%	6.501%
178	6/30/2008	3.1%	0.20%	2.64%	2.87%	6.0%	-0.030%	5.937%
179	5/31/2008	2.2%	0.00%	2.58%	2.66%	4.8%	0.030%	4.840%
180	4/30/2008	1.7%	0.20%	2.72%	2.69%	4.6%	-0.061%	4.562%
181	3/31/2008	1.4%	0.20%	2.79%	2.86%	4.3%	-0.196%	4.144%
182	2/29/2008	1.8%	-0.20%	2.73%	2.76%	4.3%	-0.117%	4.228%
183	1/31/2008	2.2%	0.40%	2.75%	2.70%	5.3%	-0.175%	5.169%
184	12/31/2007	2.4%	-0.40%	2.48%	2.37%	4.5%	-0.139%	4.317%

Comparison of Building Block Method with Current MPI's Approach based on August 31, 2022 ***(cont'd)***

Current MPI Approach as of August 31, 2022	6.60%
Building Block Method Equity Return as of June 30, 2022 (latest available)	10.56%
Building Block Method Equity Return (Historical Average)	4.85%

Line No.		A CDN Annual CPI	B Real GDP Growth	C Dividend Yield (CDN Index)	D Dividend Yield (MSCI World)	=A+B+C Total w/o MVA	E Market Valuation Adjustment (E/P Ratio)	Return per Building Block Method
185	11/30/2007	2.5%	0.10%	2.55%	2.38%	5.1%	-0.122%	5.001%
186	10/31/2007	2.4%	0.10%	2.27%	2.25%	4.8%	-0.009%	4.746%
187	9/30/2007	2.5%	-0.20%	2.35%	2.28%	4.6%	-0.081%	4.542%
188	8/31/2007	1.7%	0.30%	2.44%	2.32%	4.5%	-0.137%	4.334%
189	7/31/2007	2.2%	0.00%	2.40%	2.31%	4.6%	-0.110%	4.480%
190	6/30/2007	2.2%	0.30%	2.38%	2.22%	4.9%	-0.095%	4.776%
191	5/31/2007	2.2%	0.40%	2.33%	2.17%	4.9%	-0.086%	4.832%
192	4/30/2007	2.2%	0.10%	2.42%	2.22%	4.7%	-0.160%	4.558%
193	3/31/2007	2.3%	0.20%	2.45%	2.24%	5.0%	-0.182%	4.770%
194	2/28/2007	2.0%	0.50%	2.47%	2.28%	5.0%	-0.158%	4.849%
195	1/31/2007	1.1%	-0.20%	2.47%	2.24%	3.4%	-0.154%	3.225%
196	12/31/2006	1.7%	0.60%	2.40%	2.23%	4.7%	-0.152%	4.521%
197	11/30/2006	1.4%	0.20%	2.41%	2.26%	4.0%	-0.186%	3.817%
198	10/31/2006	1.0%	0.20%	2.40%	2.23%	3.6%	-0.256%	3.364%
199	9/30/2006	0.7%	-0.10%	2.54%	2.32%	3.2%	-0.321%	2.857%
200	8/31/2006	2.1%	0.10%	2.44%	2.34%	4.7%	-0.180%	4.499%
201	7/31/2006	2.3%	0.20%	2.44%	2.40%	5.0%	-0.227%	4.748%
202	6/30/2006	2.4%	-0.20%	2.45%	2.36%	4.7%	-0.248%	4.434%
203	5/31/2006	2.8%	0.00%	2.42%	2.40%	5.2%	-0.124%	5.108%
204	4/30/2006	2.4%	0.00%	2.25%	2.25%	4.7%	-0.049%	4.640%
205	3/31/2006	2.2%	0.20%	2.32%	2.25%	4.7%	-0.049%	4.635%
206	2/28/2006	2.2%	0.20%	2.01%	2.31%	4.4%	-0.021%	4.365%
207	1/31/2006	2.8%	0.20%	1.91%	2.29%	4.9%	0.015%	4.879%
208	12/31/2005	2.1%	0.50%	1.82%	2.31%	4.4%	-0.067%	4.340%
209	11/30/2005	2.0%	0.50%	1.70%	2.27%	4.2%	-0.040%	4.148%
210	10/31/2005	2.6%	0.30%	1.67%	2.34%	4.5%	-0.109%	4.427%

PUB (MPI) 2-16

Part and Chapter:	**PUB (MPI) 1-43 Part VII INV Investments**	**Page No.:**	**INV-44-48**
PUB Approved Issue No:	**7. Performance of the Investment Portfolio**		
Topic:	**Investment Portfolio**		
Sub Topic:			

Preamble to IR:

PUB (MPI) 1-43 provides updated Figures INV 44-49.

Figure App 1-2 shows $0 cash projected for 2022/23 through 2026/27 for the Basic Claims asset allocation.

Figure App 1-4 shows approximately $100 million cash projected for 2022/23 through 2026/27 for the RSR asset allocation.

Question:

a) Please provide the reasoning for no cash in the Basic claims portfolio and how claims are to be paid with no cash.

b) Please explain why the RSR portfolio requires $100 million cash throughout the forecast period.

Rationale for Question:

To better understand portfolio allocation.

RESPONSE:

a) Claims are paid out of cash held in MPI's corporate operating account, which is not held within any of the investment portfolios. As per the Investment Policy Statement, the target for cash and short-term investments in the Basic Claims portfolio is zero, and therefore reflected in the financial model.

b) For modeling purposes, there is an operational cash requirement that needs to be included in one of the investment portfolios, and it was decided to include it in the RSR portfolio.

PUB (MPI) 2-17

Part and Chapter:	**PUB(MPI) 1-45** **Part VII INV Attachment B**	**Page No.:**	**57**
PUB Approved Issue No:	**7. Performance of the Investment Portfolio and the Composition of i) The Portfolio, ii) Benchmark Portfolio(s) on a Market Value Basis (e.g., Asset Mix)**		
Topic:	**Investment Income**		
Sub Topic:	**Investment Impairment**		

Preamble to IR:

Question:

a) Please provide an update to Appendix 1, reflecting the market value as of August 31, 2022, and comment on any material changes.

b) Please provide an update to the monthly impairment analysis (Appendix 3) on August 31, 2022.

Rationale for Question:

To understand changes in Basic investment portfolio.

RESPONSE:

a) Please refer to *Appendix 1* attached. This document compares the market values on March 31, 2022 and August 31, 2022. The number of units for the Province of Ontario Bond are reduced due to a sale of 9,000,000 units of this investment. There are minor variances in the number of units of the Addenda and Sunlife investments due to the change in allocation percentage for Basic (from 74.812% in 2021/22 to 74.169% in 2022/23).

b) Please refer to *Appendix 2* attached. The market value versus book value at each month-end is included for the months from April to August 2022.

Change in Investments Written Down from March 31, 2022 to August 31, 2022

Security	Units @ 31-Mar-22	Closing Market Value per unit @ 31-Mar-22	Market Value @ 31-Mar-22	Units @ 31-Aug-22	Closing Market Value per unit @ 31-Aug-22	Market Value @ 31-Aug-22	Change in Units from March to August, 2022	Change in Market Value per unit from March to August, 2022	Change in Market Value from March to August, 2022
ADDENDA CORP L/T BOND P (9142)	6,167,767	10.9060	67,265,663	6,216,201	9.9253	61,697,662	48,435	(0.9807)	(5,568,001)
SUNLIFE LT PRIV FIXED INC	6,366,757	9.6391	61,369,805	6,372,265	9.1029	58,006,095	5,509	(0.5362)	(3,363,711)
PROVINCE OF ONTARIO	12,580,000	0.9970	12,542,260	3,580,000	0.9684	3,466,979	(9,000,000)	(0.0286)	(9,075,281)

Impairment Analysis Updated
Market Value vs Book Value for April through August, 2022

Description	Addenda Corp. L/T Bond	Sunlife LT PRIV Fixed Inc.	Province of Ontario
Units	8,244,354.73	8,510,341.62	12,580,000.00
Cost	104,429,816.84	95,895,890.02	13,685,530.40
Book Value-March 31, 2022 pre-impairment	104,429,816.84	95,895,890.02	13,333,566.89
Market Value-March 31, 2022	89,912,932.70	82,032,033.91	12,542,260.00
Corporate Impairment	(14,516,884.14)	(13,863,856.11)	(791,306.89)
Basic Impairment	(10,860,371.36)	(10,371,828.03)	(791,306.89)
Significance (MV<Cost by 20%)	-13.90%	-14.46%	-5.93%
Material Threshold (.01% Overall Portfolio)	-0.40%	-0.38%	-0.02%
Prolonged (12 months or more)	Yes	Yes	Yes

Market Value vs Book Value as each month-end	Addenda Corp. L/T Bond	Sunlife LT PRIV Fixed Inc.	Province of Ontario
MV vs BV at August 31, 2022	(6,002,587.59)	(3,344,243.51)	(103,709.38)
MV vs BV at July 31, 2022	(4,136,559.47)	(7,604,740.15)	(45,472.88)
MV vs BV at June 30, 2022	(7,815,379.17)	(3,455,208.11)	(72,332.99)
MV vs BV at May 31, 2022	(5,786,879.55)	(3,598,491.31)	(34,188.16)
MV vs BV at April 30, 2022	(5,139,451.99)	-	(404,478.64)
MV vs BV at March 31, 2022	(14,516,884.14)	(13,863,856.11)	(791,306.89)
MV vs BV at February 28, 2022	(11,489,859.71)	(7,214,706.76)	(511,539.77)
MV vs BV at January 31, 2022	(9,173,094.15)	(665,867.84)	(474,642.58)
MV vs BV at December 31, 2021	(2,702,281.89)	(2,441,225.89)	(339,168.06)
MV vs BV at November 30, 2021	(5,524,446.84)	(5,124,342.52)	(379,933.62)
MV vs BV at October 31, 2021	(6,122,942.25)	(4,818,130.87)	(381,518.54)
MV vs BV at September 30, 2021	(5,694,866.72)	(1,434,660.11)	(228,380.35)
MV vs BV at August 31, 2021	(3,115,998.82)	(1,707,560.76)	(155,743.27)
MV vs BV at July 31, 2021	(2,570,741.51)	(3,249,574.05)	(153,816.69)
MV vs BV at June 30, 2021	(3,744,046.76)	(4,915,312.64)	(219,570.51)
MV vs BV at May 31, 2021	(6,832,956.15)	(6,282,304.65)	(195,494.72)
MV vs BV at April 30, 2021	(6,089,152.21)	(6,546,485.51)	(182,913.54)
MV vs BV at March 31, 2021	(5,713,004.22)	(6,282,304.65)	(247,942.28)
MV vs BV at February 28, 2021	(2,227,415.68)	1,497,549.53	(239,389.06)
MV vs BV at January 31, 2021	1,249,549.33	5,041,551.41	6,711.20

PUB (MPI) 2-18

Part and Chapter:	**PUB (MPI) 1-46** **Part VII INV Attachment B**	**Page No.:**	**27**
PUB Approved Issue No:	**7. Performance of the Investment Portfolio and the Composition of i) The Portfolio, ii) Benchmark Portfolio(s) on a Market Value Basis (e.g., Asset Mix)** **17. Interest Rate Forecast**		
Topic:	**Interest Rate Forecasting**		
Sub Topic:	**Provincial & Corporate Bond Spreads**		

Preamble to IR:

Question:

a) Please file an update as of August 31st of the history of corporate and provincial bond spreads and an update on the impact of using the historical spreads in the forecast. Please provide a narrative of the change and the impact on claims liabilities and investment income.

b) Please file a schedule detailing the full duration of provincial and corporate bond spreads from the 2022 GRA (final), the 2023 GRA, and the August 31st update, and a comparison of the spread change from the Application filing.

Rationale for Question:

To assess the merits of Mercer's suggestion related to MPI incorporating Provincial and Corporate Bond spreads into the forecast methodology.

RESPONSE:

a) Please see *Appendix 1* showing history of corporate and provincial bonds spreads as of August 31, 2022.

Please see *Figure 1* below for the impact on claims and investment income in using the historical spreads. The spread of Provincial and Corporate Bonds at 10 year duration is lower by 3 bps and 10.88 bps comparing the current MPI approach and the Historical Spread approach. This resulted in lower investment income and higher claims liabilities.

Figure 1 Effect of Using Historical Spreads in Forecast as of August 31, 2022 (Updated PUB (MPI) 1-46 Appendix 2 as of Aug 31, 2022)

Line No.		Change in Investment Income			
	$'000s	2022/23	2023/24	2024/25	2025/26
1	Inc/(Dec) in Interest Income	$ (9)	$ (48)	$ (188)	$ (446)
2	Inc/(Dec) in Dividend & Other Income	$ -	$ (84)	$ (198)	$ (230)
3	Inc/(Dec) in Gains During Period - Profit & Loss	$ 0	$ 36	$ (231)	$ (238)
4	Dec/(Inc) in Investment Fees Paid	$ -	$ 13	$ 25	$ 29
5	Dec/(Inc) in Amortization During Period	$ 1	$ (56)	$ (134)	$ 192
6	Dec/(Inc) in Pension Expense	$ -	$ -	$ -	$ -
7	Inc/(Dec) in Investment Income	$ (9)	$ (140)	$ (726)	$ (693)

		Claims Liabilities			
8	$'000s	2022/23	2023/24	2024/25	2025/26
9	Claims Incurred - August 2022 update	$ 784,468	$ 933,570	$ 978,462	$ 1,023,118
10	Claims Incurred - using historical spread as of August 2022	$ 793,310	$ 935,403	$ 982,239	$ 1,025,742
11	Variance	$ 8,842	$ 1,833	$ 3,778	$ 2,624

12		Status Quo	Historical Spread	
13		August 2022	Approach - Aug 2022	
14		Provincial	Provincial	
15	Duration	Bond Spread	Bond Spread	Difference
16	10	81.66	78.66	(3.00)
17	Duration	Corporate Bond	Corporate Bond	Difference
18	10	189.00	178.12	(10.88)

b) Please see *Figure 2* below for the schedule detailing the full duration of provincial and corporate bond spreads from the 2022 GRA (final), the 2023 GRA, and the August 31st update. Spreads are calculated at various durations based upon the duration and yield of the various FTSE Russell fixed income benchmarks that are specified in MPI's Investment Policy Statement.

Figure 2 Duration of Provincial and Corporate Bonds Spreads

Line No.	2022 GRA Duration	2022 GRA Provincial Bonds Spread	2022 GRA Duration	2022 GRA Corporate Bonds Spread
1	2.85	-0.81%	2.84	-0.35%
2	4.74	-0.27%	6.72	0.63%
3	10.76	0.68%	10.19	1.51%
4	15.80	1.18%	13.41	1.98%
5				
6	2023 GRA			
7	Duration	Provincial Bonds Spread	Duration	Corporate Bonds Spread
8	2.71	0.16%	2.74	0.99%
9	4.68	0.37%	6.20	1.35%
10	10.70	0.72%	9.73	1.73%
11	15.66	0.90%	12.84	1.84%
12				
13	August 31, 2022 update			
14	Duration	Provincial Bonds Spread	Duration	Corporate Bonds Spread
15	2.82	0.68%	2.74	1.80%
16	4.73	0.70%	5.87	1.84%
17	10.38	0.83%	9.40	1.89%
18	14.96	0.96%	12.30	1.89%

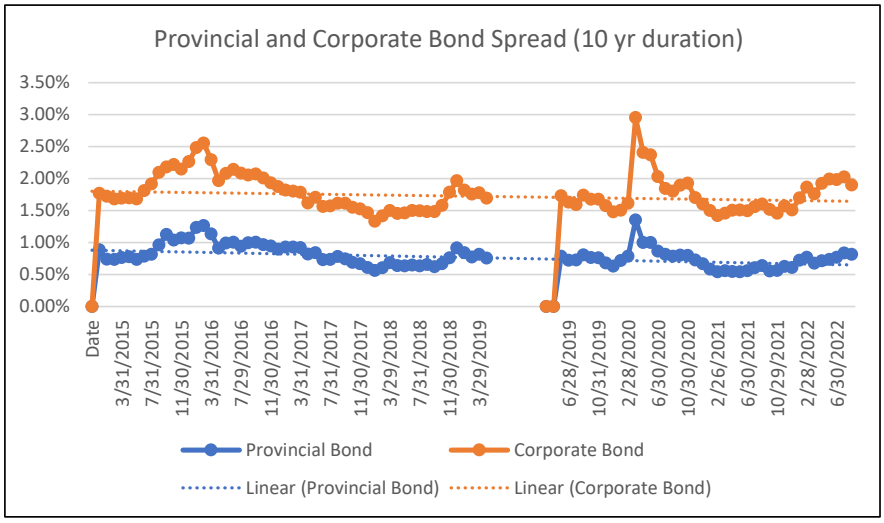
Please see *Figure 3* below for the comparison of the spread change from the Application filing. The spreads shown in Figure 3 are derived from the spreads in *Figure 2* using a linear interpolation methodology.

Figure 3 Comparison of Spread Change from Application Filing

Line No.	Duration	Provincial Bond Spread (in bps) 2022 GRA	2023 GRA	Variance	Corporate Bond Spread (in bps) 2022 GRA	2023 GRA	Variance
1	1	(81)	16	97	(35)	99	133
2	2	(81)	16	97	(35)	99	133
3	3	(77)	19	96	(31)	101	132
4	4	(48)	30	78	(6)	112	118
5	5	(23)	38	62	20	123	103
6	6	(7)	44	52	45	133	88
7	7	8	50	42	70	144	74
8	8	24	56	32	95	155	59
9	9	40	62	22	121	165	45
10	10	56	68	12	146	174	28
11	11	70	73	3	163	177	15
12	12	80	77	(4)	177	181	4
13	13	90	80	(10)	192	184	(8)
14	14	100	84	(16)	198	184	(14)
15	15	110	88	(23)	198	184	(14)
16	16	118	90	(28)	198	184	(14)
17	17	118	90	(28)	198	184	(14)
18	18	118	90	(28)	198	184	(14)
19	19	118	90	(28)	198	184	(14)
20	20	118	90	(28)	198	184	(14)
21	21	118	90	(28)	198	184	(14)
22	22	118	90	(28)	198	184	(14)

Figure App 1-1 History of Provincial and Corporate Bond Spread assuming 10 year Duration
(updated PUB (MPI) 1-46 Appendix 1 as of August 31, 2022)

Line No.	Date	Provincial Bond Implied Spread	Corporate Bond Implied Spread
1	12/31/2014	0.89%	1.77%
2	1/30/2015	0.74%	1.72%
3	2/27/2015	0.74%	1.68%
4	3/31/2015	0.76%	1.69%
5	4/30/2015	0.78%	1.70%
6	5/29/2015	0.74%	1.68%
7	6/30/2015	0.79%	1.81%
8	7/31/2015	0.82%	1.92%
9	8/31/2015	0.96%	2.10%
10	9/30/2015	1.13%	2.18%
11	10/30/2015	1.04%	2.22%
12	11/30/2015	1.07%	2.15%
13	12/31/2015	1.07%	2.27%
14	1/29/2016	1.23%	2.48%
15	2/29/2016	1.26%	2.55%
16	3/31/2016	1.13%	2.29%
17	4/29/2016	0.91%	1.97%
18	5/31/2016	0.99%	2.08%
19	6/30/2016	1.01%	2.14%
20	7/29/2016	0.94%	2.08%
21	8/31/2016	1.00%	2.06%
22	9/30/2016	1.00%	2.07%
23	10/31/2016	0.97%	2.01%
24	11/30/2016	0.94%	1.93%
25	12/30/2016	0.89%	1.88%
26	1/31/2017	0.93%	1.82%
27	2/28/2017	0.93%	1.80%
28	3/31/2017	0.92%	1.79%
29	4/28/2017	0.82%	1.62%
30	5/31/2017	0.84%	1.70%
31	6/30/2017	0.73%	1.56%
32	7/31/2017	0.74%	1.57%
33	8/31/2017	0.78%	1.62%
34	9/29/2017	0.74%	1.62%
35	10/31/2017	0.69%	1.55%
36	11/30/2017	0.67%	1.52%
37	12/29/2017	0.61%	1.47%
38	1/31/2018	0.56%	1.33%
39	2/28/2018	0.61%	1.42%
40	3/29/2018	0.69%	1.50%
41	4/30/2018	0.64%	1.45%
42	5/31/2018	0.64%	1.46%
43	6/29/2018	0.65%	1.50%
44	7/31/2018	0.64%	1.50%
45	8/31/2018	0.66%	1.48%
46	9/28/2018	0.62%	1.48%
47	10/31/2018	0.67%	1.58%
48	11/30/2018	0.76%	1.79%
49	12/31/2018	0.92%	1.97%
50	1/31/2019	0.84%	1.82%
51	2/28/2019	0.77%	1.76%
52	3/29/2019	0.81%	1.78%
53	4/30/2019	0.75%	1.69%



History of Provincial and Corporate Bond Spread assuming 10 year Duration
(updated PUB (MPI) 1-46 Appendix 1 as of August 31, 2022) ***(cont'd)***

Line No.	Date	Provincial Bond Implied Spread	Corporate Bond Implied Spread
54	5/31/2019	0.79%	1.73%
55	6/28/2019	0.72%	1.63%
56	7/31/2019	0.73%	1.59%
57	8/30/2019	0.81%	1.74%
58	9/30/2019	0.76%	1.68%
59	10/31/2019	0.76%	1.68%
60	11/29/2019	0.68%	1.58%
61	12/31/2019	0.63%	1.48%
62	1/31/2020	0.72%	1.50%
63	2/28/2020	0.78%	1.61%
64	3/31/2020	1.35%	2.95%
65	4/30/2020	1.00%	2.41%
66	5/29/2020	1.00%	2.37%
67	6/30/2020	0.87%	2.03%
68	7/31/2020	0.82%	1.84%
69	8/31/2020	0.79%	1.81%
70	9/30/2020	0.80%	1.90%
71	10/30/2020	0.80%	1.93%
72	11/30/2020	0.73%	1.70%
73	12/31/2020	0.67%	1.60%
74	1/29/2021	0.59%	1.50%
75	2/26/2021	0.54%	1.42%
76	3/31/2021	0.56%	1.46%
77	4/30/2021	0.55%	1.50%
78	5/31/2021	0.54%	1.51%
79	6/30/2021	0.56%	1.50%
80	7/30/2021	0.61%	1.56%
81	8/31/2021	0.64%	1.60%
82	9/29/2021	0.56%	1.52%
83	10/29/2021	0.57%	1.46%
84	11/30/2021	0.63%	1.57%
85	12/31/2021	0.61%	1.51%
86	1/31/2022	0.72%	1.70%
87	2/28/2022	0.77%	1.87%
88	3/31/2022	0.68%	1.76%
89	4/29/2022	0.72%	1.93%
90	5/31/2022	0.74%	1.99%
91	6/30/2022	0.77%	1.98%
92	7/31/2022	0.84%	2.02%
93	8/31/2022	0.82%	1.90%

PUB (MPI) 2-19

Part and Chapter:	**CAC (MPI) 1-59(a)** **Part VII – INV Investments**	**Page No.:**	
PUB Approved Issue No:	**7. Performance of the Investment Portfolio** **20. Asset Liability Management Study (in accordance with Directives 11.19 and 11.20 of Order 134/21)**		
Topic:	**ALM study**		
Sub Topic:			

Preamble to IR:

CAC (MPI) 1-59(a) indicates that MPI expects to recommend new asset mixes for all five portfolios to its Investment Committee on November 10, 2022.

Question:

a) Does MPI confirm that any changes to the asset mix for the Basic claims portfolio could affect the yield rate used for pricing in next year's GRA?

b) Is there any information that is available that will be used at the Investment Committee meeting on November 10, 2022, that could be provided? If so, please file.

Rationale for Question:

To understand the potential impact of changes in the asset mix on the future required rate.

RESPONSE:

a) Yes, MPI confirms that any changes to the asset mix for the Basic claims portfolio could affect the yield rate used for pricing in next year's GRA.

b) As per the response to *CMMG (MPI) 1-3(d)*: "MPI will file the recommendations made to the Investment Committee after they are first reviewed and approved by the Investment Committee."

PUB (MPI) 2-20

Part and Chapter:	**CAC (MPI) 1-66(c)** **Part VII – INV Investments**	**Page No.:**	
PUB Approved Issue No:	**7. Performance of the Investment Portfolio** **20. Asset Liability Management Study (in accordance with Directives 11.19 and 11.20 of Order 134/21)**		
Topic:	**ALM Study**		
Sub Topic:	**Defined Benefit Pension Plan Funding**		

Preamble to IR:

CAC (MPI) 1-66(c) provides a rough calculation of the estimated $150 million accounting gain of switching to a pre-funded method. This calculation shows a liability of $447.9 million being removed from the books in exchange for a required transfer to the CSSF of $233.2 million.

Question:

a) Given the fact that the Employee Future Benefits are currently valued following the CIA Standards of Practice with regards to discounting, using the Fiera Capital yields, please explain how $447.9 million of liability can be removed at a cost of only $233.2 million.

b) CAC (MPI) 1-66 (c) did request the interest rates and other parameters used in the calculation, and we are unable to find them in the response. Please provide.

c) Would expected future employer contributions change, based on the method used (pre-funding versus payment funding), which would affect expenses and hence affect the indicated rate?

Rationale for Question:

To better understand how accounting choices affect the pension liability.

RESPONSE:

a) For purposes of valuing the pension obligation on the balance sheet, accounting standards dictate that the liability shall be discounted using a corporate bond yield relative to the pension plan duration – using the Fiera curve. For purposes of settling and transferring assets in a transaction as proposed here, a going concern yield would be used to discount the liability. The going concern yield is different from the accounting discount rate for two primary reasons; i) the accounting discount rate is point-in-time and does not assume any change into the future, and ii) the discount rate for accounting does not reflect of any of the backing assets other than fixed income while the portfolio backing the liability used to determine the going concern valuation would typically include growth assets such as equities, real estate, etc. The difference between these two methods of determining a discount rate will lead to a difference in the balance sheet valuation and the amount required to transfer and settle with the CSSB.

b) Please see details to the inputs to the response to CAC (MPI) 1-66(c) as follows:

Item	Value	Rate, Assumption, Source, etc
Pension Liability Carrying Value (June 2021)	$475.9M	Estimated carrying value using a discount rate of 3.18%
Estimated Retained Carrying Value (June 2021)	28.0M	Analysis completed by MPI (and CSSB's) pension actuary as at Dec-2020 pro-rated for update to Jun-2021 (475.9 ÷ 521.0 x 30.7)
Required transfer to the CSSF	233.2M	Analysis completed by MPI (and CSSB's) pension actuary
Gain on Transition	214.6M	Calculation from above inputs (475.9-28.0-233.2)
Update carrying value at March 2022 compared to June 2021	-52.8M	Pension Benefit Plan liability at 3/31/2022 with a discount rate of 4.01% less Estimated carrying value at 6/30/2021 using a discount rate of 3.18% (423.1M – 475.9M)

Item	Value	Rate, Assumption, Source, etc.
Estimated Gain (using March 2022 values)	161.8M	Calculation from above inputs (214.6M – 52.8M)
Round down to nearest 50 million	**150.0M**	

Analysis completed by MPI (and CSSB's) pension actuary as at Dec-2020 is included as *Appendix 1* to this IR.

c) The current service cost expense would be replaced with the cost of the prescribed match contributions. These are roughly the same in material respects, however, not the same. The estimated difference would lead to a rate change of ~ -0.5%. Additionally, the impact of a re-measurement of the pension obligation, which would flow through OCI, would essentially be removed and therefore significantly reduce the volatility of capital available, in turn having less impact on the capital build/release/rebate. See the table below for a summary:

	Payment Funding	Pre-Funding	Change
Current Service Cost	$17M	-	+ $17M
Interest Cost	15M	-	+ 15M
Investment Income	15M	-	- 15M
Prescribed Match Contributions	-	11M	- 11M
Net P&L Annual Impact	- $17M	- $11M	+ $6M
Impact on AAP Rate Setting			~ 0.5%
Remeasurement of Pension (OCI): Volatility reduction on Available Capital	100%	6%	-94%

Estimated MPI Pension Obligations if MPI Becomes a Matching Employer under the CSSA

		[1]	[2] = a subset of [1]	[3]	[4]	[5]
		Estimated Allocations of MPI Pension Obligations 31-Dec-2019				
		Matching	Matching	Pre Matching	Post Matching	Post Matching
		Going Concern All Employers Total Portion in CSSF	Going Concern MPI Member Portion in CSSF	Accounting MPI Employer Portion not in CSSF	Going Concern MPI Employer Portion Transfer to CSSF	Accounting MPI Employer Portion Remains at MPI
[a]	Basic Liabilities - CRA Onside	5,458,130,091	282,976,772	407,355,074	237,510,657	-
[b]	Basic Liabilities - CRA Offside	-	-	25,592,989		25,592,989
[c]	Indexing Liabilities - CRA Onside	336,603,000	12,821,653	19,693,896	11,736,337	-
[d]	Indexing Liabilities - CRA Offside	-	-	1,179,819		1,179,819
[e]	Contribution to Basic Asset Smoothing	135,261,760	7,017,824	-	5,890,264	-
[f]	Contribution to Indexing Asset Smoothing	23,308,000	887,258	-	812,155	-
[g]	Contribution to Indexing 2004 Runoff	154,487,000	5,885,139	-	5,386,979	-
[h]	Contribution to Basic Funded Ratio Deficit	(856,748,851)	(44,427,353)	-	(37,289,173)	-
[i]	Contribution to Indexing Funded Ratio Surplus	81,456,000	3,102,840	-	2,840,194	-
	Total Allocation of Obligations	5,332,497,000	268,264,133	453,821,778	226,887,413	26,772,808
[j]	Total Basic Assets	4,736,643,000	245,567,243	432,948,063	206,111,748	25,592,989
[k]	Total Indexing Assets	595,854,000	22,696,890	20,873,715	20,775,665	1,179,819
[l]	Total Assets	5,332,497,000	268,264,133	453,821,778	226,887,413	26,772,808

		[6]	[7] = a subset of [6]	[8]	[9]	[10]
		Estimated Allocations of MPI Pension Obligations 31-Dec-2020				
		Matching	Matching	Pre Matching	Post Matching	Post Matching
		Going Concern All Employers Total Portion in CSSF	Going Concern MPI Member Portion in CSSF	Accounting MPI Employer Portion not in CSSF	Going Concern MPI Employer Portion Transfer to CSSF	Accounting MPI Employer Portion Remains at MPI
[a]	Basic Liabilities - CRA Onside	5,595,824,000	290,115,513	467,670,193	243,502,411	-
[b]	Basic Liabilities - CRA Offside	-	-	29,382,421	-	29,382,421
[c]	Indexing Liabilities - CRA Onside	372,711,000	14,197,054	22,609,877	12,995,314	-
[d]	Indexing Liabilities - CRA Offside	-	-	1,354,509	-	1,354,509
[e]	Contribution to Basic Asset Smoothing	203,141,000	10,531,846	-	8,839,685	-
[f]	Contribution to Indexing Asset Smoothing	32,646,000	1,243,529	-	1,138,268	-
[g]	Contribution to Indexing 2004 Runoff	156,646,000	5,966,853	-	5,461,776	-
[h]	Contribution to Basic Funded Ratio Deficit	(941,414,000)	(48,807,612)	-	(40,965,652)	-
[i]	Contribution to Indexing Funded Ratio Surplus	64,740,000	2,466,032	-	2,257,290	-
	Total Allocation of Obligations	5,484,294,000	275,713,215	521,017,000	233,229,092	30,736,930
[j]	Total Basic Assets	4,857,551,000	251,839,747	497,052,614	211,376,444	29,382,421
[k]	Total Indexing Assets	626,743,000	23,873,468	23,964,386	21,852,648	1,354,509
[l]	Total Assets	5,484,294,000	275,713,215	521,017,000	233,229,092	30,736,930
					Transfer to CSSF	Remains at MPI
					ESTIMATE	**ESTIMATE**

Note 1: Above allocations/estimates are based on 31-Dec-2019 CSSF & CSSA Going Concern Valuations & MPI 31-Dec-2019 Accounting Reports, the 31-Dec-2020 MPI Accounting Report, and the 31-Dec-2020 CSSF Accounting Projection - formal computer runs would be required to refine these estimates.

Note 2: The largest reasons for a larger accounting liability than a going concern liability are the prefunding of future indexing done for accounting versus a limited amount for going concern; and a much lower liability interest discount rate of about 2.59% versus going concern rate of about 5.75% per year as at 31-Dec-2020.

Note 3: Offside pension obligations pursuant to the Canada Revenue Agency (CRA) cannot be transferred to the registered CSSF and must remain an accounting liability of MPI.

Note 4: Obligations as at 31-Mar-2021 have not been shown as they would require additional compute runs. The accounting interest rates fluctuate significantly each

PUB (MPI) 2-21

Part and Chapter:	**CAC(MPI) 1-70(a)**	**Page No.:**	
PUB Approved Issue No:	**7. Performance of the Investment Portfolio**		
Topic:	**Figure INV – 1**		
Sub Topic:	**Investment Income**		

Preamble to IR:

Question:

Please refile Figure Inv 1 to reflect the correction for income relative to MUSH bonds.

Rationale for Question:

To understand changes to investment income.

RESPONSE:

Please see *Appendix 1* for the revised *Investments Chapter INV 1* which now includes income from MUSH bonds for all fiscal years.

Figure App 1-1 Revised Summary of Basic Line of Business Investment Income to reflect MUSH Interest Income

Line No.	Asset Class	Reference Section #	2017/18 Actual	2018/19 Actual	2019/20 Actual	2020/21 Actual	2021/22 Actual	2022/23 Budget	2023/24 Forecast	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast
1	*(C$000s, except where noted)*											
2	**Interest Income During Period**											
3	Cash/Short Term Investments	INV.3	565	2,192	3,641	454	93	664	586	593	599	599
4	Provincial Bonds	INV.4	34,147	32,514	51,439	60,503	58,809	38,169	39,967	42,124	43,818	45,230
5	Corporate Bonds	INV.4	-	3,702				24,780	26,514	27,863	29,269	30,300
6	MUSH	INV.5	25,349	24,950	29,271	24,191	22,621	19,328	18,254	17,184	16,205	15,142
7	Private Debt	INV.9	-	-	1,254	2,998	4,800	6,619	7,522	6,812	7,220	6,888
8	**Total**		**60,060**	**63,358**	**85,604**	**88,146**	**86,323**	**89,561**	**92,843**	**94,576**	**97,111**	**98,159**
9	**Dividend and other Income**											
10	Canadian Equities	INV.6	7,774	8,781	3,097	3,080	5,258	2,678	2,737	2,881	3,215	3,090
11	US/Global Equities	INV.7	2,619	2,996	797	1,019	3,578	2,263	2,622	2,933	3,244	3,185
12	Global Low Volatility	INV.7	-	-	2,182	-	-	1,169	1,312	1,464	1,645	1,539
13	Investment Properties (CityPlace)	INV.8	2,972	3,094	1,390	(765)	148	350	359	367	374	382
14	Infrastructure	INV.9	1,731	11,533	2,620	1,621	1,961	1,510	1,002	940	1,056	1,066
15	**Total**		**15,096**	**26,404**	**10,086**	**4,955**	**10,945**	**7,970**	**8,033**	**8,584**	**9,534**	**9,262**
16	**Gains During Period - Profit & Loss**											
17	Marketable Bonds Unrealized Gains/(Loss)	INV.4	8,079	8,718	(16,827)	(10,645)	(123,025)	6,325	133	144	149	146
18	Marketable Bonds Realized Gains/(Loss)	INV.4	(3,490)	5,459	22,346	11,296	(3,975)	(10,254)	(304)	(285)	(299)	(211)
19	Private Debt Gains/(Loss)*	INV.5	-	-	-	-	-	-	(1,348)	-	(757)	-
20	Canadian Equities Realized Gains	INV.6	20,060	48,239	3,469	1,028	5,943	25,784	6,942	3,648	4,127	3,621
21	US/Global Equities Realized Gains	INV.7	4,928	56,550	572	1,561	4,807	9,824	6,577	3,746	4,629	4,294
22	Global Low Volatility	INV.7	-	-	3,652	6,452	1,571	8,320	2,675	2,124	2,636	2,509
23	Real Estate	INV.8	25,058	17,443	6,516	(878)	15,342	10,987	7,085	7,725	7,499	7,532
24	Infrastructure	INV.9	5,376	1,635	7,679	1,945	111	5,869	3,921	3,687	4,137	4,178
25	**Total**		**60,011**	**138,046**	**27,407**	**10,756**	**(99,226)**	**56,854**	**25,681**	**20,789**	**22,122**	**22,070**
26	**Other**											
27	Investment Fees Paid	INV.10	(3,641)	(3,576)	(4,038)	(4,111)	(4,802)	(4,353)	(4,448)	(4,578)	(4,846)	(4,730)
28	Amortization of Bond Premium/Discount	INV.10	(3,069)	(3,553)	(6,083)	(8,994)	(6,962)	(2,698)	(3,083)	(3,311)	(3,448)	(3,399)
29	Pension Expense	INV.10	(11,619)	(12,170)	(10,686)	(11,249)	(11,439)	(11,237)	(11,511)	(11,789)	(11,789)	(11,789)
30	Venture Capital Income	INV.10	412	-	-	-	-	-	-	-	-	-
31	Investment Write-Down		(930)	-	(42,676)	10,022	(22,023)	-	-	-	-	-
32	**Total**		**(18,847)**	**(19,298)**	**(63,483)**	**(14,329)**	**(45,226)**	**(18,288)**	**(19,042)**	**(19,678)**	**(20,083)**	**(19,918)**
33	**Total Basic LOB Investment Income**		**116,320**	**208,510**	**59,614**	**89,528**	**(47,184)**	**136,097**	**107,515**	**104,271**	**108,684**	**109,572**
34	***Missed in the initial submission of INV-1**											

PUB (MPI) 2-22

Part and Chapter:	**PUB(MPI) 1-53(a)** **Part V Expenses Fig. EXP App 8-1 and Fig. EXP App 12-1**	**Page No.:**	
PUB Approved Issue No:	**8. Cost of Operations and Cost Containment**		
Topic:	**Compensation**		
Sub Topic:			

Preamble to IR:

Question:

Please supplement the incremental schedule to include the percentage change by year by each classification and explain the reason for the differences between management and non-management.

Rationale for Question:

To understand the change in forecast assumptions related to compensation.

RESPONSE:

Please see *Figure 1* below:

Figure 1 Average Annual Regular Salary by Classification (*revised Expenses Appendix 8 Figure EXP App 8-1*)

Line No.	Classification	2017-18A	2018-19A	2019-20A	2020-21A	2021-22A	2022-23FB	2023-24F	2024-25F	2025-26F	2026-27F	Compounded Annual Growth Rates 2018/19-2021/22 (4 years)	2023/24-2024/25* (2 years)	2022/23-2026/27 (5 years)
1	*(C$000's, except where noted)*													
2	**Clerical**	47,878	49,026	49,274	50,714	50,247	53,639	55,597	57,626	59,729	61,909	1.21%	3.65%	4.26%
3	**Technical/Professional**	69,404	70,732	72,481	72,695	72,222	77,097	79,911	82,828	85,851	88,985	1.00%	3.65%	4.26%
4	**Supervisor**	75,032	76,971	78,328	82,341	82,466	88,033	91,246	94,576	98,028	101,606	2.39%	3.65%	4.26%
5	**Management**	116,501	118,404	122,184	123,164	127,415	131,556	142,738	149,161	157,216	165,706	2.26%	6.48%	5.40%
6	**Corporate Average**	66,399	67,908	69,015	70,803	71,333	76,101	80,265	83,458	87,071	90,847	1.81%	4.72%	4.96%
8	*% increase over prior year*													
9	**Clerical**	3.20%	2.40%	0.51%	2.92%	-0.92%	6.75%	3.65%	3.65%	3.65%	3.65%			
10	**Technical/Professional**	2.88%	1.91%	2.47%	0.29%	-0.65%	6.75%	3.65%	3.65%	3.65%	3.65%			
11	**Supervisor**	2.90%	2.58%	1.76%	5.12%	0.15%	6.75%	3.65%	3.65%	3.65%	3.65%			
12	**Management**	4.06%	1.63%	3.19%	0.80%	3.45%	3.25%	8.50%	4.50%	5.40%	5.40%			
13	**Corporate Average**	2.30%	2.27%	1.63%	2.59%	0.75%	6.68%	5.47%	3.98%	4.33%	4.34%			
14	**Manitoba (CPI)**	1.60	2.50	2.20	0.50	1.10	4.20	2.40	2.30	2.00	2.00	2.62%	4.58%	3.46%

15 Note: Regular salaries does not include overtime, banked vacation, accrued vacation, retirement allowance.

16 * Rating Years

The difference in percentage change over prior year between management and non-management is due to the difference in the steps in scale and economic increases applied in the classifications.

PUB (MPI) 2-23

Part and Chapter:	**PUB(MPI) 1-54** **Part V Expenses EXP Appendix 12**	**Page No.:**	**20**
PUB Approved Issue No:	**8. Cost of Operations and Cost Containment**		
Topic:	**Compensation**		
Sub Topic:			

Preamble to IR:

Step in Scale Increases - the Collective Agreement specifies a pay plan. Each in scope position aligns to a salary range which has 6 "steps". The incumbent of a position will be eligible for up to 5 annual 3.5% increases until they reach the maximum salary (step) for the specific position. The forecasted rate used in the 2023 GRA is 1.75% (assumption is 50% of employees will receive), consistent with the rate used in prior years.)

The 2018, 2019 and 2020 GRA used a 1.75% increase for this forecast assumption consistent with the narrative explanation above. The 2021 and 2022 GRA used 2.0%. This application uses a forecast assumption of 2.63%, a 31.2% increase in this variable from last year.

It appears that the determination of this compensation assumption has changed.

Question:

a) Please indicate whether in-scope and out of scope employees move up at an annual increase of 3.5% based on the scale.

b) Confirm that the assumption remains that 50% of staff are subject to the change in step scale increases.

c) If (a) and (b) are correct, please explain how the average increase is 2.63% related to step in scale.

d) Please indicate the number of in-scope and out of scope staff assumed in 2022/23 and 2023/24 subject to the step-in scale adjustment.

Rationale for Question:

To better understand the determination of the compensation assumption in the step in scale increases.

RESPONSE:

a) In-scope employees are eligible for a one-step increment each year. One step is approximately 3.5%. Please note that this is specific to in-scope employees; out-of-scope employees are not paid step-in scale.

b) MPI confirms that the assumption remains the same; that is, approximately 50% of in-scope employees are subject to the change in step scale increases.

c) The average increase of 2.63% is based on the average merit increase of 1.75% for in-scope and 3.5% for out-of-scope.

d) In 2022/23 FTE budget of 1,618.2 in-scope and in 2023/24 FTE budget of 1,783.6 in-scope are assumed subject to the step-in-scale adjustment. Out-of-scope employees are not paid based on step-in scale adjustment.

PUB (MPI) 2-24

Part and Chapter:	**PUB (MPI) 1-55(a)** **Part V Expenses** **PUB (MPI) 2-24 (a) (2022 GRA)**	**Page No.:**	
PUB Approved Issue No:	**8. Cost of Operations and Cost Containment**		
Topic:	**Compensation**		
Sub Topic:	**Vacancy Allowance**		

Preamble to IR:

Question:

a) Please reconcile the average salary used in the vacancy allowance analysis with that provided in XP App 8-1.

b) Please refile EXP App 8-1 including benefits.

c) Please provide a comparison of the current vacancy level as of August 31st versus that included in the budget for 2022/23 in a similar format to PUB (MPI) 2-24 (2022 GRA).

Rationale for Question:

To further understand compensation expense.

RESPONSE:

a) and b)

Please see Error and Omission filing (*MPI Exhibit #39*) for revised Expenses Appendix 8 Figure EXP App 8-1.

c) Please see Figure 1

Figure 1 Estimated Vacancy Provision - Comparative Budget to Actual FTE 2022/23

Line No.	Fiscal Year	Estimated Vacancy at Aug 31/22	Related FTE Estimate	Budgeted Vacancy Amount	Related FTE Estimate	Aug 31/22 vs. Budget
1		*($000.00)*		*($000.00)*		*($000.00)*
2	**2022/23**	7,441	90.80	6,000	73.22	1,441

PUB (MPI) 2-25

Part and Chapter:	**PUB (MPI) 1-56(a)** **EXP Appendix 16** **EXP Appendix 17**	**Page No.:**	
PUB Approved Issue No:	**8. Cost of Operations and Cost Containment**		
Topic:	**Basic Capital Expenditures**		
Sub Topic:	**Project Cost Comparisons**		

Preamble to IR:

Project Nova implementation costs are being expenses on Project Nova as incurred and the benefits of the new services and systems will be realized in the future when operational. Current ratepayers may be different from future ratepayers when Project Nova delivered services are operational.

Question:

a) Please update Figure EXP App 16-1 to reflect the revised spending plan.

b) Please identify how much of the implementation expenditures relate to SaaS arrangements versus software and software and source code controlled by MPI.

c) Please indicate what would be the impact on the required rate if Project Nova implementation costs were deferred for rate-setting purposes

d) Please discuss the merits of deferring implementation costs related to Project Nova under IFRS 14 to address intergenerational equity.

Rationale for Question:

To better understand the costs associated with Project Nova.

RESPONSE:

a) *Expenses Appendix 16 Figure EXP App 16-1* already includes $8.6M in deferred development costs for the Nova 2022 Re-Baseline in the 2022/23 budget. As a result, no further update is required.

b) All implementation expenditures relate to Software as a Service (SaaS), with no software or source code controlled by MPI.

c) MPI is deferring Project NOVA implementation costs for the purposes of rate-setting and lists them in the Deferred Development (line 6) of *Expenses Appendix 16 Figure EXP App 16-1*.

d) IFRS 14 Regulatory Deferral Accounts permit an entity that is a first-time adopter of IFRS to continue to account, with some changes for regulatory deferrals account balances, in accordance with its previous GAAP standards, both on initial adoption of IFRS and in subsequent financial statements. In terms of the deferred development of NOVA, MPI did not use the IFRS 14 standard as it is not entirely applicable.

   MPI uses the standards guidelines for IAS 38 that allow for deferral of deferred development. MPI deemed that NOVA represents an intangible asset, and is controlled by the entity, which is identifiable, and has a long-term enduring benefit.

PUB (MPI) 2-26

Part and Chapter:	**PUB (MPI) 1-61(b)** **Part V Expenses Fig. EXP–42** **Exp Appendix 18 Fig. EXP APP 18-1**	**Page No.:**	**59**
PUB Approved Issue No:	**8. Cost of Operations and Cost Containment**		
Topic:	**Operating Expenses**		
Sub Topic:	**Basic Deferred Development Costs**		

Preamble to IR:

Question:

Please explain and reconcile the listed Project Nova expenditures LTD actual through 2020/21 actual expenditures in the 2022 GRA with what is represented as Basic Project Nova in the 2023 GRA.

Rationale for Question:

To understand changes in Basic capital expenditure forecast.

RESPONSE:

Please refer to Error and Omission filing Exhibit #31 for revised Expenses Chapter Figure Exp-42.

PUB (MPI) 2-27

Part and Chapter:	**PUB(MPI) 1-61** **V Expense** **V Exp Appendix 19** **Figure EXP 19-6**	**Page No.:**	
PUB Approved Issue No:	**8. Cost of Operations and Cost Containment**		
Topic:	**Operating Expenses**		
Sub Topic:	**Basic Deferred Development Costs**		

Preamble to IR:

Question:

a) Please file an updated Corporate Deferred Development schedule, including all costs incurred on each of the list of projects and include a total column from 2016/17A.

b) Please provide a comparison of the Deferred Development Expenditures in (a) with that provided last year In response to PUB (MPI) 2-35 2022 GRA and explain the changes.

c) Please reconcile the deferred development expenditures for Nova on PUB(MPI) 1-61(b) of $42.7 million with the $48 million in Exp APP 18-1 line 42.

d) Please explain the change with respect to Project Nova from that presented last year for the Corporation as a whole and please reconcile the changes overall with the change in Basic.

Rationale for Question:

To understand changes in Basic capital expenditure forecast.

RESPONSE:

a) **Figure 1 Corporate Capital Expenditures by Project - Deferred Development Costs Total**

Line No.	Corporate Capital Expenditures Deferred Development Costs:	2016/17A	2017/18A	2018/19A	2019/20A	2020/21A	2021/22A	2022/23F	2023/24F	2024/25F	2025/26F	2026/27F	Unassigned Capital	Total
1	*(C$000s, except where noted)*													
2	Projects that do not impact Basic	3,154	31	-	-	-	-	-	-	-	-	-	-	3,185
3	IT Optimization	46	-	-	-	-	-	-	-	-	-	-	-	46
4	Disaster Recovery	14	-	-	-	-	-	-	-	-	-	-	-	14
5	HR Management System Phase 1 & 2	1,579	-	-	-	-	-	-	-	-	-	-	-	1,579
6	Physical Damage Re-engineering Phase 1 & 2	390	-	-	-	-	-	-	-	-	-	-	-	390
7	PDR Opt Repair - Collaborative Estimating & JSST	688	-	-	-	-	-	-	-	-	-	-	-	688
8	PDR Opt Repair - Distributed Estimating	2,343	2	-	-	-	-	-	-	-	-	-	-	2,345
9	Physical Damage Re-engineering Main/Phase 3	(2,434)	282	-	-	-	-	-	-	-	-	-	-	(2,152)
10	PDR Opt Repair - Remote Estimating	70	115	-	-	-	-	-	-	-	-	-	-	185
11	BI3 Fineos Upgrade 2016	577	-	-	-	-	-	-	-	-	-	-	-	577
12	Enterprise Data Masking	3	-	-	-	-	-	-	-	-	-	-	-	3
13	High School Driver Education Phase 2	1,333	112	-	-	-	-	-	-	-	-	-	-	1,445
14	High School Driver Education Phase 3	-	681	2,194	467	-	-	-	-	-	-	-	-	3,342
15	High School Driver Education Phase 4	-	-	16	678	51	-	-	-	-	-	-	-	745
16	Infor/Lawson Upgrade	1,258	1,101	455	-	-	-	-	-	-	-	-	-	2,814
17	ITO - High Availability	938	-	-	-	-	-	-	-	-	-	-	-	938
18	Legal Management Project	(8)	-	-	-	-	-	-	-	-	-	-	-	(8)
19	Predictive Analytics	1	-	-	-	-	-	-	-	-	-	-	-	1
20	Corporate Learning Management	1,123	1,406	563	-	-	-	-	-	-	-	-	-	3,092
21	Physical Damage - Centre of Excellence	283	-	-	-	-	-	-	-	-	-	-	-	283
22	Information Security Strategy and Road Map Phase 1	1,934	130	-	-	-	-	-	-	-	-	-	-	2,064
23	Information Security Strategy and Road Map Phase 2	659	1,756	75	-	-	-	-	-	-	-	-	-	2,490
24	Technology Innovation & Capabilities	(12)	-	-	-	-	-	-	-	-	-	-	-	(12)
25	Technology Risk Management - 2016/17	2,213	145	-	-	-	-	-	-	-	-	-	-	2,358
26	Technology Risk Management - 2017	-	2,902	1,501	-	-	-	-	-	-	-	-	-	4,403
27	Technology Risk Management - 2018	-	-	3,890	1,438	622	-	-	-	-	-	-	-	5,950
28	Technology Risk Management - 2019	-	-	-	701	1,286	95	-	-	-	-	-	-	2,082
29	Technology Risk Management - 2020	-	-	-	-	1,445	736	715	-	-	-	-	-	2,896
30	Technology Risk Management - 2021	-	-	-	-	-	352	(352)	-	-	-	-	-	-
31	Technology Risk Management - 2022	-	-	-	-	-	-	2,250	-	-	-	-	-	2,250
32	Technology Risk Management - 2023	-	-	-	-	-	-	-	2,250	-	-	-	-	2,250
33	Technology Risk Management - 2024	-	-	-	-	-	-	-	-	2,250	-	-	-	2,250
34	Technology Risk Management - 2025	-	-	-	-	-	-	-	-	-	2,250	-	-	2,250
35	Technology Risk Management - 2026	-	-	-	-	-	-	-	-	-	-	2,250	-	2,250
36	Appointment Manager	2	1,402	49	-	-	-	-	-	-	-	-	-	1,453
37	Customer Claims Reporting System	10,592	5,032	773	-	-	-	-	-	-	-	-	-	16,397
38	Enhanced DR Capabilities	292	1,422	831	-	-	-	-	-	-	-	-	-	2,545
39	Partner Portal	291	2,256	6	-	-	-	-	-	-	-	-	-	2,553
40	Financial Re-Engineering Initiative	342	1	-	854	1,301	7	-	-	-	-	-	-	2,505
41	Customer Self Service	-	1,679	2,809	116	-	-	-	-	-	-	-	-	4,604
42	Credit Card Strategy	-	255	2,534	1,422	-	-	-	-	-	-	-	-	4,211
43	Nova	-	-	-	-	13,024	42,242	61,914	52,192	22,634	16,740	-	(3,052)	205,694
44	Information Security Maturity	-	-	-	373	1,693	1,604	1,412	-	-	-	-	-	5,082
45	Total Loss	-	-	-	1,570	(125)	-	-	-	-	-	-	-	1,445
46	HRMS Optimization - Phase 1	-	-	-	-	65	(65)	-	-	-	-	-	-	-
47	Salvage Management System	-	-	-	134	457	-	-	-	-	-	-	-	591
48	Microsoft 365	-	-	-	-	895	1,146	-	-	-	-	-	-	2,041

Corporate Capital Expenditures by Project - Deferred Development Costs Total *(cont'd)*

Line No.	Deferred Development Costs:	2016/17A	2017/18A	2018/19A	2019/20A	2020/21A	2021/22A	2022/23F	2023/24F	2024/25F	2025/26F	2026/27F	Capital	Total
49	*(C$000s, except where noted)*													
50	Driver Licence Renewal Term Changes (10yr)	-	-	-	-	-	-	-	-	-	-	-	-	-
51	Year 1 Data and Analytics Spend	-	-	-	-	-	1,115	405	-	-	-	-	-	1,520
52	CERP - Additional Product Changes	-	-	-	135	132	-	-	-	-	-	-	-	267
53	**Total Deferred Development Costs**	**27,671**	**20,710**	**15,696**	**7,888**	**20,846**	**47,232**	**66,344**	**54,442**	**24,884**	**18,990**	**2,250**	**(3,052)**	**303,901**
54	**Total Deferred Development Costs - 2022 PUB 2-35**	**27,671**	**20,710**	**15,696**	**7,888**	**20,846**	**45,327**	**30,224**	**16,099**	**9,056**	**4,000**	**-**	**4,523**	**202,040**
55	**Change from 2022 PUB:**	**-**	**-**	**-**	**-**	**-**	**1,905**	**36,120**	**38,343**	**15,828**	**14,990**	**2,250**	**(7,575)**	**101,861**
56	**Details of Change:**													
57	Nova rebaseline 2021/22						7,573	35,728	40,093	17,578	16,740		(7,575)	**110,137**
58	Technology Risk Management						(1,897)	(1,387)	(1,750)	(1,750)	(1,750)	2,250		**(6,284)**
59	Information Security Maturity						(937)	1,374						**437**
60	Financial Re-Engineering Initiative						7							**7**
61	HRMS Optimization - Phase 1						(65)							**(65)**
62	Microsoft 365						(328)							**(328)**
63	Driver Licence Renewal Term Changes (10yr)						(563)							**(563)**
64	Year 1 Data and Analytics Spend						(1,885)	405						**(1,480)**

b) See *lines 54 to 63* of *PUB 2-27(a) Figure 1* above for comparison of the Deferred Development Expenditures in a) with that provided last year in response to *PUB (MPI) 2-35 2022 GRA*.

Total change is $101,861, explanations are:

Nova 2022 Re-baseline accounts for $110,137 of the overall total change, reasons for the re-baseline can be found in the Project Nova Chapter of the application.

The forecasting for Technology Risk Management is based on estimates. The actual costs were expensed based on MPI capitalization criteria, rather than deferred. For future years, forecasting was changed with a larger portion of these costs being forecasted to expense.

The HRMS Optimization – Phase 1 project was cancelled with all costs deferred prior to the cancellation being impaired in 2021/22.

Driver Licence Renewal Term Changes (10yr) initiative was cancelled.

Actual spend for Microsoft 365 and Year 1 Data and Analytics was less than forecasted for 2021/22, with a portion of the Year 1 Data and Analytics being forecasted into 2022/23.

c) Please see Error and Omissions filing *MPI Exhibit #41* (*Part 6 Expenses Appendix 18* (impacts Figure EXP-42))

d)

Line No.	**Nova Capital Expenditures** **Deferred Development Costs - Total:**	**2020/21A**	**2021/22A**	**2022/23F**	**2023/24F**	**2024/25F**	**2025/26F**	**2026/27F**	**Unassigned Capital**	**Total**
1	***(C$000s, except where noted)***									
2	**Nova - 2023 GRA**	13,024	42,242	61,914	52,192	22,634	16,740	-	(3,052)	**205,694**
3	**Nova - 2022 GRA**	13,024	34,669	26,186	12,099	5,056	-		4,523	**95,557**
4	**Change**	**-**	**7,573**	**35,728**	**40,093**	**17,578**	**16,740**	**-**	**(7,575)**	**110,137**
5										
6	**Deferred Development Costs - Basic**	**2020/21A**	**2021/22A**	**2022/23F**	**2023/24F**	**2024/25F**	**2025/26F**	**2026/27F**	**Unassigned Capital**	**Total**
7	***(C$000s, except where noted)***									
8	**Nova - 2023 GRA**	5,607	16,487	8,553	8,179	4,782	3,678	-	(494)	**46,792**
9	**Nova - 2022 GRA**	6,362	14,450	14,103	9,438	3,791	-		1,505	**49,649**
10	**Change**	**(755)**	**2,037**	**(5,550)**	**(1,259)**	**991**	**3,678**	**-**	**(1,999)**	**(2,857)**

Changes are a result of the NOVA 2022 Re-baseline which is detailed in the Project Nova Chapter of the application.

PUB (MPI) 2-28

Part and Chapter:	**PUB (MPI) 1-62(a)**	**Page No.:**	
PUB Approved Issue No:	**8. Cost of Operations and Cost Containment**		
Topic:	**Operating Expenses**		
Sub Topic:	**Broker Commissions**		

Preamble to IR:

Question:

a) Provide a breakdown of the increase in Basic and Extension Commissions attributable to a delay in Project Nova and the change in understanding of transactions that would not be undertaken online.

b) Please provide a full listing of the cost by year, by in-office transactions for each of the transactions that were identified in the 2022 Re-baseline.

c) Provide the information that led MPI to decide that less than 100% of transactions would be conducted online.

Rationale for Question:

To understand changes in broker expenses.

RESPONSE:

a) Please see *Figure 1* below for a summary of changes in commissions for Basic and Extension between the 2023 GRA Base forecast and an alternate forecast where online service delivery had not been delayed by one year. For a complete listing of the commissionable NOVA transactions that will be moving online (along with the transactions that will be removed) please refer to *PUB CI 1-12 (a)*.

Figure 1 Summary of Change in Commissions/Fees Paid to Brokers - Basic and Extension -2023 GRA Base vs. Online Service Delivery Delay

Line No.	Products/Transactions	2022/23FB			2023/24F			2024/25F			2025/26F			2026/27F		
1	*($000's, except where noted)*	Base	Pre Delay	Inc / (Dec)	Base	Pre Delay	nc / (Dec)	Base	Pre Delay	nc / (Dec)	Base	Pre Delay	nc / (Dec)	Base	Pre Delay	nc / (Dec)
2	Basic	41,647	41,647	-	51,745	50,314	1,431	54,447	50,622	3,825	52,431	51,299	1,132	53,121	53,121	-
3	Extension	32,774	32,774	-	33,819	32,955	864	33,584	31,573	2,011	32,210	31,638	572	32,766	32,766	-
4	Basic Transactions / flat fees	7,364	7,364	-	5,459	5,115	344	5,289	4,459	830	4,548	4,306	242	4,393	4,393	-
5	Extension Transactions / flat fees	719	719	-	746	699	47	725	611	114	623	590	33	602	602	-
6	DVA Transactions / flat fees	1,986	1,986	-	4,217	3,951	266	4,091	3,449	642	3,517	3,330	187	3,398	3,398	-
7	**Total Commission Written**	**84,489**	**84,489**	**-**	**95,986**	**93,034**	**2,952**	**98,135**	**90,714**	**7,421**	**93,330**	**91,164**	**2,166**	**94,280**	**94,280**	**-**
8	**Rate Change in Year:**															
9	**Basic - In-Person Transactions**			n/a			0.00%			0.00%			0.00%			n/a
10	**Basic - Online Transactions**			n/a			0.00%			0.00%			0.00%			n/a
11	**Basic - Effective Rate**			n/a			0.12%			0.31%			0.09%			n/a
12	**Extension - In-Person Transactions**			n/a			0.00%			0.00%			0.00%			n/a
13	**Extension - Online Transactions**			n/a			0.00%			0.00%			0.00%			n/a
14	**Extension - Effective Rate**			n/a			0.45%			1.01%			0.28%			n/a
15	**CPI on Flat Fees**			n/a			0.00%			0.00%			0.00%			n/a

b) Please see *Figure 2* below for the requested information:

Figure 2 Commissions Associated with the Nova Online Transactions Currently Modelled in the 2022 Re-baseline - Years 2019/20 thru 2021/22

Line No	Current On-line Transactions:	2019/20	2020/21	2021/22
1	Cancel Policy/Registration	$ 676,564	$ 686,320	$ 715,515
2	Mid Term Change Policy/Rgstn	$ 1,195,340	$ 1,329,480	$ 1,211,735
3	Change Customer Information	$ 1,110,772	$ 976,677	$ 1,109,456
4	Driver License (DL) Replacement	$ 685,006	$ 655,444	$ 772,239
5	Fleet - Renewal Policy	$ 1,455,217	$ 1,337,222	$ 1,325,544
6	Identity Card (IC) Replacement	$ 39,493	$ 36,607	$ 47,756
7	Layup - Mid Term Change	$ 554,571	$ 576,660	$ 487,224
8	Layup - Mid Term Change	$ 1,846,141	$ 1,875,740	$ 1,455,362
9	Reassess Drivers License	$ 1,333,326	$ 1,207,051	$ 1,211,033
10	Renewal Policy/Rgstn	$ 11,488,722	$ 12,837,358	$ 11,545,875
11	Request (Req) Drv Education Srvc	$ 49,086	$ 38,076	$ 42,636
12	Request Knowledge Test (KT) Class 1 Srvc	$ 17,180	$ 20,285	$ 25,316
13	Request Knowledge Test Class 2 Srvc	$ 2,060	$ 1,446	$ 2,005
14	Request Knowledge Test Class 3 Srvc	$ 4,124	$ 4,793	$ 6,235
15	Request Knowledge Test Class 4 Srvc	$ 5,230	$ 4,058	$ 5,086
16	Request Knowledge Test Class 5 Srvc	$ 165,649	$ 149,602	$ 187,483
17	Request Knowledge Test Class 6 Srvc	$ 7,589	$ 8,455	$ 11,589
18	Request Knowledge Test Air Brake Srvc	$ 14,365	$ 17,921	$ 23,824
19	Request Knowledge Test School Bus Srvc	$ 685	$ 609	$ 645
20	Request Road Test (RT) Class 5 Srvc	$ 221,227	$ 155,026	$ 206,236
21	Request Road Test Class 6 Srvc	$ 3,343	$ 2,231	$ 2,802
22	Request Road Test Air Brake/Slk Srvc	$ 1,733	$ 1,181	$ 1,628
23	Fleet - Reasess Policy	$ 2,445,758	$ 2,685,609	$ 2,315,816
24	Fleet - Correction Policy/Registration-Future	$ (298,362)	$ (325,477)	$ (295,508)
25	Reassess Policy/Registration	$ 51,086,942	$ 49,703,784	$ 51,479,272
26	Request Road Test Class 1 Srvc	$ 17,367	$ 21,741	$ 32,254
27	Request Road Test Class 2 Srvc	$ 600	$ 445	$ 606
28	Req Road Test Class 3 Srvc	$ 5,492	$ 3,252	$ 4,875
29	Req Road Test Class 4 Srvc	$ 5,418	$ 2,810	$ 3,589
30	Correction Policy/Rgstn-Future	$ (8,036,704)	$ (6,592,365)	$ (6,550,819)
31	**Total**	**$ 66,103,933**	**$ 67,422,042**	**$ 67,387,309**

c) During 2021, NOVA's business architecture team worked with business leaders and technical architecture to further assess the transactions that would eventually migrate online. The outcome of that assessment led to a reduction in the number of transactions that would be made available with NOVA's implementation. Some

of the reasons why certain transactions were removed from the initial deployment are as follows:

a. An in-person presence would be required to complete certain transactions (i.e. pictures and identification were needed to establish new customers, issue drivers licenses and id cards),

b. In some cases customers would still need to pick-up materials in person (i.e.plate transactions)

c. Last, complexity removed some of the transactions from the initial deployment (i.e. Establishing a new commercial fleet requires lots of documentation)

PUB (MPI) 2-29

Part and Chapter:	**CAC (MPI) 1-1(a) Part I – Overview CAC(MPI) 1-16**	**Page No.:**	**6 of 13**
PUB Approved Issue No:	**8. Cost of Operations**		
Topic:	**MPI 2.0 –Guiding Principle**		
Sub Topic:	**Be a Fast Follower of Industry Best Practices and Trends**		

Preamble to IR:

Question:

Please file the market analysis undertaken used by MPI for determining adequate compensation for in-scope and out-of-scope positions to support its compensation strategy.

Rationale for Question:

To understand reasons for forecast increases in compensation.

RESPONSE:

The analysis is currently underway.

PUB (MPI) 2-30

Part and Chapter:	**CAC(MPI) 1-6**	**Page No.:**	
PUB Approved Issue No:	**8. Cost of Operations**		
Topic:	**Operating Expenses PF-1**		
Sub Topic:			

Preamble to IR:

Question:

Please extend the analysis through the comparative years provided last year, to 2026/27. Please provide an additional column indicate the compound annual growth **(2021/22 through 2025/26) and explain the trends**

Rationale for Question:

To better understand the significant increases as well as the new trend in operating expenses.

RESPONSE:

Figure 1 below shows the change from the prior year forecast for Operating Expenses separated out by Normal Operations and Initiatives. The Figure shows an increase in Operating expenses for 2022/23 and onward, mostly attributed to a higher than previously forecasted cost of Normal Operations and a higher proportion of Full Time Equivalent (FTE) staff deemed to support the operating function. The change in higher operating costs are most notably found in Compensation and Data Processing Expenses.

A further explanation of significant variances for Total Expenses (Normal Operations and Initiatives) can be found in *Expenses EXP Appendix 7.* In addition, further details

on the allocation of operating expenses via the FTE allocator can be found in *Expenses Chapter EXP.4.1.4*.

Figure 1 Operating Expense Comparative - 2023 GRA vs 2022 GRA Forecast

Line No.	*($000s)*	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	Compound Annual Growth rate 22/23 - 25/26 (4 years)
1	**Normal Operations**							
2	**Prior Year Forecast**	71,985	72,417	72,229	n/a	n/a	n/a	
3	**Current Year Forecast**	72,114	81,943	87,511	88,024	n/a	n/a	
4	**Difference**	**129**	**9,526**	**15,282**	**n/a**	**n/a**	**n/a**	
5	**Initiatives**							
6	**Prior Year Forecast**	4,128	3,691	5,912	n/a	n/a	n/a	
7	**Current Year Forecast**	3,831	7,534	8,455	8,268	n/a	n/a	
8	**Difference**	**(297)**	**3,843**	**2,543**	**n/a**	**n/a**	**n/a**	
9	**Total Operating (Normal Operations plus Initiatives)**							
10	**Prior Year Forecast**	**76,113**	**76,108**	**78,141**	**79,099**	**80,894**	**n/a**	1.5%
11	**Inc / (Dec):**							
12	**Compensation Expense**	(601)	5,950	10,024	11,569	11,615	-	
13	**Data Processing Expense**	328	7,777	7,516	8,477	3,871	-	
14	**Special Services Expense**	(165)	626	1,876	1,755	1,777	-	
15	**Amortization-Deferred Development**	(174)	(497)	(1,533)	(4,284)	(3,292)	-	
16	**Other**	444	(487)	(58)	(324)	(429)	-	
17	**Current Year Forecast**	**75,945**	**89,477**	**95,966**	**96,292**	**94,436**	**97,510**	5.6%

Please refer to *Expenses EXP Appendices 2 and 3* for the source of the details to the preceding figure.

PUB (MPI) 2-31

Part and Chapter:	**CAC (MPI) 1-14** **Part V - Expenses**	**Page No.:**	**26**
PUB Approved Issue No:	**8. Cost of Operations**		
Topic:	**Employee Future Benefits**		
Sub Topic:			

Preamble to IR:

In CAC (MPI) 1-14, the most recent actuarial pension valuation report was provided.

a) On page 8, under Valuation results, before change in assumptions the Pension liabilities increased from $457 million at 31 March 2021 to $471 million at 31 March 2022, an increase of $14 million. Changes in assumptions reduced that by $50 million to $423 million.

b) On page 9, under Maturity analysis, it shows that the estimated future pensions as at March 31, 2022 were $916 million, and were $800 million at March 31, 2021, an increase of $116 million, with the vast majority of the increase occurring in the over 5 years category.

Question:

Could MPI, or their pension actuary, explain how an increase of $116 million, or 14.5% in estimated future pensions, only translated to an increase of $14 million, or 3%, in pension liability?

Rationale for Question:

To better understand how the future pensions and the pension liability are related.

RESPONSE:

The change in liabilities of $16M from $457M to $473M only reflects the impacts of the demographic changes in the year (i.e. all economic assumption changes for interest rate, wage growth, inflation and indexing are excluded), whereas the expected future cashflows under the Maturity analysis are calculated by factoring in both demographic changes and all the economic assumptions other than the interest rate. Specifically, changes including the new wage growth, inflation and indexing are reflected in the 2022 cashflows which have increased significantly from 2021.

As a result, the percentage increase for the overall expected future pensions (which includes all assumption changes except the interest rate discount) is much higher than the percentage increase for the liabilities before assumption changes.

PUB (MPI) 2-32

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Claims Trending**		
Sub Topic:			

Preamble to IR:

Frequency and severity of trend selections are based on a review of historical experience.

Question:

a) Please show, for each coverage, the indicated and selected frequency trend, showing the goodness of fit measures used by MPI in the selection process.

b) Please show, for each coverage, the indicated and selected severity trend, showing the goodness of fit measures used by MPI in the selection process.

Rationale for Question:

To better understand the selection of claims cost trends.

RESPONSE:

a) See the figure below. For coverages which trend selection is based on linear or exponential regressions, goodness of fit statistics are generated using the experience period indicated in the "Selected Methodology" column. For coverages which trend selection is not based on regressions (e.g. simple averages), linear regression statistics are also provided in the figure below, for purposes of completeness.

Figure 1 Summary of Frequency Trends

Line No.	Coverage	Linear Exponential Trend	# of Data Points	R^2	Selected Methodology	Indicated Trend Rate using Selected Methodology	Selected Trend Rate
1	**Weekly Indemnity**	-1.07%	5	0.14	2015-2019 Linear Trend	-1.07%	-1.07%
2	**ABO-Indexed**	-3.49%	10	0.71	2010-2019 Linear Trend	-3.49%	-3.49%
3	**ABO-NonIndexed**	2.14%	5	0.21	5-Year Average, No Growth	n/a	0.00%
4	**Public Liability**	-4.21%	10	0.26	2010-2019 Linear Trend	-4.21%	-4.21%
5	**Collision (Repair)**	-1.51%	5	0.33	2015-2019 Linear Trend	-1.51%	-1.51%
6	**Collision (TL)**	-0.18%	10	0.01	2010-2019 Linear Trend	-0.18%	-0.18%
7	**Comprehensive Glass**	2.05%	6	0.96	2015-2020 Linear Trend	2.05%	2.50%
8	**Comprehensive Hail (Repair)**	-40.27%	10	0.33	10-Year Average Claim Counts, No Growth	n/a	0.00%
9	**Comprehensive Hail (TL)**	-35.71%	10	0.12	10-Year Average Claim Counts, No Growth	n/a	0.00%
10	**Comprehensive Other (Repair)**	-0.55%	5	0.03	5-Year Average, No Growth	n/a	0.00%
11	**Comprehensive Other (TL)**	-1.51%	5	0.02	5-Year Average, No Growth	n/a	0.00%
12	**Comprehensive Rodents (Repair)**	-9.61%	3	0.90	3-Year Average, No Growth	n/a	0.00%
13	**Comprehensive Rodents (TL)**	-8.28%	3	0.57	3-Year Average, No Growth	n/a	0.00%
14	**Comprehensive Theft (Repair)**	9.95%	3	0.34	3-Year Average, No Growth	n/a	0.00%
15	**Comprehensive Theft (TL)**	0.43%	3	0.00	3-Year Average, No Growth	n/a	0.00%
16	**Comprehensive Vandalism (Repair)**	-36.06%	2	1.00	2-Year Average, No Growth	n/a	0.00%
17	**Comprehensive Vandalism (TL)**	-28.41%	3	1.00	3-Year Average, No Growth	n/a	0.00%
18	**Property Damage Third Party Loss of Use**	-2.98%	5	0.35	2015-2019 Linear Trend	-2.98%	-2.98%
19	**Property Damage Third Party Deductible Transfer**	-3.04%	5	0.57	2015-2019 Linear Trend	-3.04%	-3.04%
20	**Property Damage Other**	-2.37%	5	0.23	2015-2019 Linear Trend	-2.37%	-2.37%

b) See the figure below. For coverages which trend selection is based on linear or exponential regressions, goodness of fit statistics are generated using the experience period indicated in the "Selected Methodology" column. For coverages which trend selection is not based on regressions (e.g. simple averages), linear regression statistics are also provided in the figure below, for purposes of completeness.

Figure 2 Summary of Severity Trends

Line No.	Coverage	Linear Exponential Trend	# of Data Points	R^2	Selected Methodology	Indicated Trend Rate using Selected Methodology	Selected Trend Rate
1	**Weekly Indemnity ($0 - $100,000)**	2.16%	16	0.67	2004-2019 Exponential Trend	2.16%	2.16%
2	**Weekly Indemnity ($100,000 - $250,000)**	-0.24%	16	0.04	2004-2019 Exponential Trend	-0.24%	-0.24%
3	**Weekly Indemnity ($250,000+)**	-1.13%	16	0.47	2004-2019 Exponential Trend	-1.13%	-1.13%
4	**ABO-Indexed ($0 - $100,000)**	2.01%	16	0.67	2004-2019 Exponential Trend	2.01%	2.01%
5	**ABO-Indexed ($100,000 - $250,000)**	0.20%	16	0.03	2004-2019 Exponential Trend	0.20%	0.20%
6	**ABO-Indexed ($250,000+)**	-3.30%	16	0.46	2004-2019 Exponential Trend	-3.30%	-3.30%
7	**ABO-NonIndexed ($0 - $100,000)**	1.22%	16	0.40	2004-2019 Exponential Trend	1.22%	1.22%
8	**ABO-NonIndexed ($100,000 - $250,000)**	-0.08%	16	0.00	2004-2019 Exponential Trend	-0.08%	-0.08%
9	**ABO-NonIndexed ($250,000+)**	1.42%	16	0.40	2004-2019 Exponential Trend	1.42%	1.42%
10	**Public Liability ($0 - $100,000)**	6.40%	16	0.73	2004-2019 Exponential Trend	6.40%	6.40%
11	**Public Liability ($100,000+)**	-0.47%	16	0.04	2004-2019 Exponential Trend	-0.47%	-0.47%
12	**Collision (Repair)**	3.83%	3	0.91	3-Year Average Growth	5.20%	5.25%
13	**Collision (TL)**	4.91%	3	0.62	3-Year Average Growth	5.99%	6.00%
14	**Comprehensive Glass**	3.93%	15	0.99	14-Year Average Growth	6.83%	6.00%
15	**Comprehensive Hail (Repair)**	0.71%	15	0.06	14-Year Average Growth	3.15%	3.25%
16	**Comprehensive Hail (TL)**	2.30%	15	0.59	14-Year Average Growth	3.47%	3.50%
17	**Comprehensive Other (Repair)**	1.62%	8	0.50	8-Year Average Growth	3.21%	3.25%
18	**Comprehensive Other (TL)**	2.80%	15	0.80	14-Year Average Growth	4.47%	4.50%
19	**Comprehensive Rodents (Repair)**	1.15%	3	0.18	3-Year Average Growth	2.95%	3.00%
20	**Comprehensive Rodents (TL)**	-1.18%	4	0.03	2017-2020 Average, No Growth	3.59%	0.00%
21	**Comprehensive Theft (Repair)**	-0.94%	8	0.07	8-Year Average Growth	2.67%	2.50%
22	**Comprehensive Theft (TL)**	1.58%	5	0.58	5-Year Average Growth	2.27%	2.25%
23	**Comprehensive Vandalism (Repair)**	3.74%	5	0.91	5-Year Average Growth	3.25%	3.25%
24	**Comprehensive Vandalism (TL)**	2.56%	15	0.94	14-Year Average Growth	3.36%	3.25%
25	**Property Damage Third Party Loss of Use**	-2.40%	10	0.34	10-Year Average Growth	1.75%	1.75%
26	**Property Damage Third Party Deductible Transfer**	0.38%	14	0.77	2008-2020 Average Growth	0.34%	0.25%
27	**Property Damage Other**	2.53%	15	0.96	14-Year Average Growth	3.44%	3.50%

PUB (MPI) 2-33

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	**24**
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Claims Trending**		
Sub Topic:			

Preamble to IR:

Figure CI-15 in the pdf of the filing appears to be different from Figure CI-15 in the workbook. It would appear that ABO – Indexed values are being shown in the pdf that is labeled Weekly Indemnity.

Question:

Please update the incorrect version.

Rationale for Question:

To obtain accurate information regarding Figure CI-15.

RESPONSE:

The values in the workbook are the correct version. Please see *Figure 1* below for correct figure of Figure CI-15.

Figure 1 Weekly Indemnity Ultimate Severity *(Claims Incurred Figure CI-15)*

Line No.	Accident Year	Average Severity $0-$100,000	$100,000-$250,000	$250,000+
1	**2004/05**	$6,645	$166,817	$779,091
2	**2005/06**	$7,495	$164,085	$770,965
3	**2006/07**	$7,596	$165,420	$751,214
4	**2007/08**	$7,519	$156,367	$763,560
5	**2008/09**	$8,938	$154,916	$787,228
6	**2009/10**	$8,788	$150,214	$807,517
7	**2010/11**	$9,767	$144,370	$770,989
8	**2011/12**	$9,731	$153,303	$811,467
9	**2012/13**	$9,456	$153,932	$738,179
10	**2013/14**	$9,106	$155,348	$697,050
11	**2014/15**	$9,828	$159,460	$813,958
12	**2015/16**	$9,776	$147,692	$762,853
13	**2016/17**	$9,640	$150,780	$708,801
14	**2017/18**	$9,585	$149,470	$694,488
15	**2018/19**	$9,724	$146,448	$650,474
16	**2019/20**	$9,531	$179,292	$621,490
17	**2020/21**	$19,332	$155,299	$638,488
18	**2021/22**	$27,606	$148,701	$807,648
19	**Severity Growth**	2.16%	-0.24%	-1.13%
20	**Sum of Counts**	28,484	611	1,338
21	**Weighted Average Severity Growth**	1.97%		

PUB (MPI) 2-34

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Claims Trending**		
Sub Topic:			

Preamble to IR:

For each of Weekly Indemnity, ABO – Indexed, ABO – Non-indexed, and Bodily Injury, MPI uses severity groupings in the trending exercise.

Question:

Similar to last year's PUB (MPI) 1-78, please provide the indicated trends for each of these four coverages, calculated without the use of severity groupings. Please show all your work.

Rationale for Question:

To understand the impact of splitting claims into severity groups versus leaving them combined.

RESPONSE:

See the below figures with the revised trends using severity without breaking out severity groupings.

Figure 1 Weekly Indemnity Ultimate Severity

Line No.	Accident Year	Ultimate Incurred [A]	Ultimate Claim Counts [B]	Average Severity [C] = [A] / [B] * 1000	LN() [D] = LN([C])
1		*($000)*			
2	**2004/05**	$56,692	2,060	$27,520	10.22
3	**2005/06**	$64,976	1,949	$33,338	10.41
4	**2006/07**	$82,075	2,086	$39,346	10.58
5	**2007/08**	$82,513	2,063	$39,997	10.60
6	**2008/09**	$82,751	1,885	$43,900	10.69
7	**2009/10**	$78,343	1,861	$42,097	10.65
8	**2010/11**	$99,633	1,948	$51,146	10.84
9	**2011/12**	$93,715	1,844	$50,821	10.84
10	**2012/13**	$88,432	2,007	$44,062	10.69
11	**2013/14**	$76,920	1,875	$41,024	10.62
12	**2014/15**	$77,833	1,684	$46,219	10.74
13	**2015/16**	$89,173	1,785	$49,957	10.82
14	**2016/17**	$96,897	1,808	$53,593	10.89
15	**2017/18**	$94,634	1,931	$49,008	10.80
16	**2018/19**	$84,077	1,898	$44,306	10.70
17	**2019/20**	$87,390	1,750	$49,932	10.82
18	**2020/21**	$75,794	1,273	$59,557	10.99
19	**2021/22**	$86,038	1,766	$48,721	10.79
20	**Severity Growth**				**2.72%**

21 Note: Severity Growth is the exponential trend from 2004/05 to 2019/20

Figure 2 Accident Benefits Other – Indexed Ultimate Severity

Line No.	Accident Year	Ultimate Incurred [A]	Ultimate Claim Counts [B]	Average Severity [C] = [A] / [B] * 1000	LN() [D] = LN([C])
1		*($000)*			
2	**2004/05**	$66,241	11,406	$5,808	8.67
3	**2005/06**	$65,878	10,884	$6,053	8.71
4	**2006/07**	$76,133	10,884	$6,995	8.85
5	**2007/08**	$77,201	11,889	$6,493	8.78
6	**2008/09**	$59,196	11,458	$5,166	8.55
7	**2009/10**	$66,967	11,033	$6,070	8.71
8	**2010/11**	$65,206	12,068	$5,403	8.59
9	**2011/12**	$70,806	11,198	$6,323	8.75
10	**2012/13**	$63,828	12,210	$5,228	8.56
11	**2013/14**	$57,936	12,209	$4,745	8.46
12	**2014/15**	$51,040	10,591	$4,819	8.48
13	**2015/16**	$64,813	11,663	$5,557	8.62
14	**2016/17**	$80,917	11,560	$7,000	8.85
15	**2017/18**	$73,235	11,876	$6,167	8.73
16	**2018/19**	$54,822	11,220	$4,886	8.49
17	**2019/20**	$60,593	9,892	$6,125	8.72
18	**2020/21**	$57,662	6,503	$8,867	9.09
19	**2021/22**	$59,795	8,918	$6,705	8.81
20	**Severity Growth**				**-0.57%**

21 Note: Severity Growth is the exponential trend from 2004/05 to 2019/20

Figure 3 Accident Benefits Other – Non-Indexed Ultimate Severity

Line No.	Accident Year	Ultimate Incurred [A]	Ultimate Claim Counts [B]	Average Severity [C] = [A] / [B] * 1000	LN() [D] = LN([C])
1		*($000)*			
2	**2004/05**	$25,717	1,421	$18,098	9.80
3	**2005/06**	$28,614	1,470	$19,465	9.88
4	**2006/07**	$34,504	1,470	$23,472	10.06
5	**2007/08**	$29,459	1,502	$19,613	9.88
6	**2008/09**	$29,334	1,421	$20,643	9.94
7	**2009/10**	$30,073	1,445	$20,812	9.94
8	**2010/11**	$29,180	1,349	$21,631	9.98
9	**2011/12**	$32,426	1,608	$20,165	9.91
10	**2012/13**	$30,146	1,398	$21,564	9.98
11	**2013/14**	$28,046	1,266	$22,153	10.01
12	**2014/15**	$28,468	1,111	$25,623	10.15
13	**2015/16**	$29,794	1,234	$24,144	10.09
14	**2016/17**	$32,719	1,309	$24,997	10.13
15	**2017/18**	$30,019	1,262	$23,784	10.08
16	**2018/19**	$29,161	1,390	$20,982	9.95
17	**2019/20**	$26,729	1,365	$19,588	9.88
18	**2020/21**	$27,420	1,244	$22,041	10.00
19	**2021/22**	$30,392	1,576	$19,289	9.87
20	**Severity Growth**				**1.00%**

21 Note: Severity Growth is the exponential trend from 2004/05 to 2019/20

Figure 4 Public Liability – Bodily Injury Ultimate Severity

Line No.	Accident Year	Ultimate Incurred [A]	Ultimate Claim Counts [B]	Average Severity [C] = [A] / [B] * 1000	LN() [D] = LN([C])
1		*($000)*			
2	**2004/05**	$5,253	123	$42,705	10.66
3	**2005/06**	$4,254	115	$36,995	10.52
4	**2006/07**	$3,448	109	$31,632	10.36
5	**2007/08**	$3,711	102	$36,387	10.50
6	**2008/09**	$3,159	85	$37,165	10.52
7	**2009/10**	$2,970	84	$35,351	10.47
8	**2010/11**	$4,469	99	$45,143	10.72
9	**2011/12**	$2,460	66	$37,271	10.53
10	**2012/13**	$4,176	83	$50,310	10.83
11	**2013/14**	$3,651	109	$33,496	10.42
12	**2014/15**	$5,410	108	$50,091	10.82
13	**2015/16**	$4,694	86	$54,579	10.91
14	**2016/17**	$4,836	83	$58,260	10.97
15	**2017/18**	$5,256	83	$63,537	11.06
16	**2018/19**	$5,997	78	$76,999	11.25
17	**2019/20**	$4,352	75	$57,784	10.96
18	**2020/21**	$3,691	41	$89,129	11.40
19	**2021/22**	$3,909	54	$72,048	11.19
20	**Severity Growth**				**4.48%**

21 Note: Severity Growth is the exponential trend from 2004/05 to 2019/20

PUB (MPI) 2-35

Part and Chapter:	**PUB(MPI) 1-109** **V Expense** **V Exp Appendix 19** **Figure EXP 19-7**	**Page No.:**	**13**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Corporate Information Technology Costs**		
Sub Topic:	**External Labour Costs**		

Preamble to IR:

Question:

a) Pease provide a comparison schedule(s) with Figure EXP 19-7 with Figure EXP 19-4 from the 2022 GRA and explain the increase in external consultants to be involved in operational activities.

b) Please explain the major increase in Operational activities in 2023/24 and 2024/25 and indicate what aspects of the organization the consultants will be supporting.

Rationale for Question:

To understand the change in external labour from the 2022 GRA.

RESPONSE:

a) Please see *Figure 1* below:

Figure 1 Changes in Consultant Costs and FTE from 2022 GRA to 2023 GRA

Line No.	Consultants - Corporate	2021/22A	2022/23F	2023/24F
1	IT Operational Activities	9	29	42
2	Improvement Initiatives	5	47	48
3	**Total**	**14**	**76**	**90**
4	**Consulting Costs - Basic Only**	**2021/22A**	**2022/23F**	**2023/24F**
5	*($C 000s, except where noted)*			
6	IT Operational Activities	(384)	4,619	6,653
7	Improvement Initiatives	12,862	9,347	9,534
8	**Total**	**12,478**	**13,966**	**16,187**

The increase in external consultants from 2022 GRA to 2023 GRA is required for the duration of the Nova project. As detailed in the response to PUB(MPI) 1-9, MPI will use staff to deliver Nova and consultants to backfill operational positions over the next couple years, as it begins to deliver on the largest part of the program with R3 (personal lines) and R4 (claims). MPI anticipates reductions at a significant rate once Nova goes live, as it can release the contingency resources supporting the existing environment and application activities as staff return to normal operations. MPI is also planning on a reduction of some long-standing consultants that support the legacy systems that will soon be decommissioned.

b) Detailed in part a above, consultants will backfill operational positions as MPI will use staff to deliver Nova. These consultants will support the existing environment and application activities in operations. Please refer to *CAC (MPI) 2-6* response for further information.

PUB (MPI) 2-36

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In MPI Exhibit 37 in the 2022 GRA (the October update), on page 23, MPI provided the following net claims incurred projections:

a) 2022P $751,946
b) 2023B $903,950
c) 2024F $941,501
d) 2025F $982,004

In the 2023 GRA, in Part V – Pro Formas, page 5 (PF-1) MPI has provided the following net claims incurred projections:

a) 2022A $838,574
b) 2023FB $885,524
c) 2024F $927,756
d) 2025F $970,720

In PUB (MPI) 1-11 Appendix 1, MPI provided a breakdown by coverage of the changes in its claims incurred projection.

Question:

Please provide details on the proportion of any increase that is due to changes in inflation assumptions.

Rationale for Question:

To understand the impact of inflation on the incurred claims projection.

RESPONSE:

In the *March 2022 Appointed Actuary Report*, the methodology was changed from a static inflation rate of 2.00% to a variable inflation rate that changes over time. The variable inflation rate is shown in *Investments Chapter Figure INV-40 Manitoba CPI Forecast*. This resulted in an increase in indexed PIPP claims of $63.5 million for 2021/22. Thereafter, the forecast increased approximately $5 million to $6 million per year.

PUB (MPI) 2-37

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In Figure CI-39 of the 2022 GRA, MPI estimated the ultimate collision claims for 2021/22 to be $427,362.

In MPI Exhibit 94 in the 2022 GRA in Figure 1, MPI estimated the ultimate collision claims for 2021/22 to be $387,342.

In Figure CI-39 of the 2023 GRA, MPI estimates the ultimate collision claims for 2021/22 to be $420,009, nearly returning to the original estimate of the 2022 GRA.

Question:

Please provide a detailed explanation on the sources of the changes in the ultimate collision estimate for 2021/22, moving from the 2022 GRA to the October update for the 2022 GRA, to the 2023 GRA.

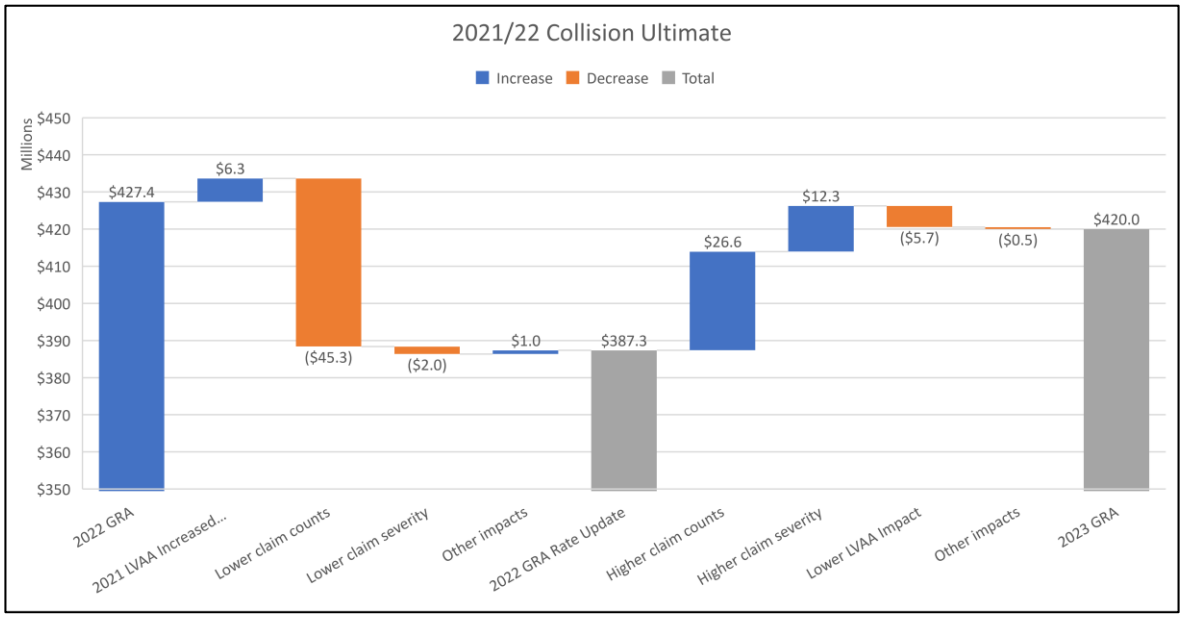
Rationale for Question:

To understand the reasons behind the changes from the last evidence filed by MPI to the current GRA.

RESPONSE:

The largest change in assumptions over the three forecasts was the estimated claim frequency. In the 2022 GRA, MPI assumed a gradual return to normal collision claim frequency by September 30, 2021. For the rate update, the gradual return to normal was extended to March 31, 2022 and experience was updated to July 31, 2021 which resulted in a favourable $45.3 million decrease. The claim frequency during November 2021 through March 2022 was much higher than expected due to poor driving conditions as a result of extreme weather resulting in substantially more claims. By March 31, 2022, the ultimate was increased by $26.6 million over the rate update. The waterfall chart below outlines other impacts as well.

Figure 1 Assumption Impacts from the 2022 GRA through 2023 GRA - Collision



PUB (MPI) 2-38

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	**Figure CI-38**
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In Figure CI-38 of the 2022 GRA, MPI estimated the collision total loss severity growth rate for 2022 to 2025 to be 4.25%.

In MPI Exhibit 92 in the 2022 GRA in Figure 1, MPI indicated that the total loss severity growth rate had been reduced to 2.26%.

In Figure CI-38 of the 2023 GRA, MPI indicates the selected total loss severity growth rate for 2023 to 2026 to be 6.00%.

Question:

Please provide a detailed explanation on the sources of the changes in the total loss severity growth rate, moving from the 2022 GRA to the October update for the 2022 GRA, to the 2023 GRA.

Rationale for Question:

To understand the reasons behind the changes from the last evidence filed by the Corporation to the current GRA.

RESPONSE:

In *MPI Exhibit 92* from the *2022 GRA rate update*, the total loss severity growth was lowered to 2.26% as a result of changing the average from 2015-2019 to 2016-2020. Severity growth in 2015 was high at 7.11% and dropping that from the average lowered the selected severity growth..

As discussed in *Claims Incurred Chapter CI.9.2.2 Collision Total Loss Severity*, total loss severity has increased 14.8% in 2021/22 as a result of higher-than-normal increases to the used vehicle market values. As such, MPI selected a higher growth rate of 6.00% based on the 3-year average growth of 5.99%.

PUB (MPI) 2-39

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	**Figure CI-66**
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In Figure CI-66 of the 2022 GRA, MPI estimated the ultimate comprehensive claims for 2021/22 to be $100,445.

In MPI Exhibit 94 in the 2022 GRA in Figure 1, MPI estimated the ultimate comprehensive claims for 2021/22 to be $79,918.

In Figure CI-66 of the 2023 GRA, MPI estimates the ultimate comprehensive claims for 2021/22 to be $84,241.

Question:

Please provide a detailed explanation on the sources of the changes in the ultimate comprehensive estimate for 2021/22, moving from the 2022 GRA to the October update for the 2022 GRA, to the 2023 GRA.

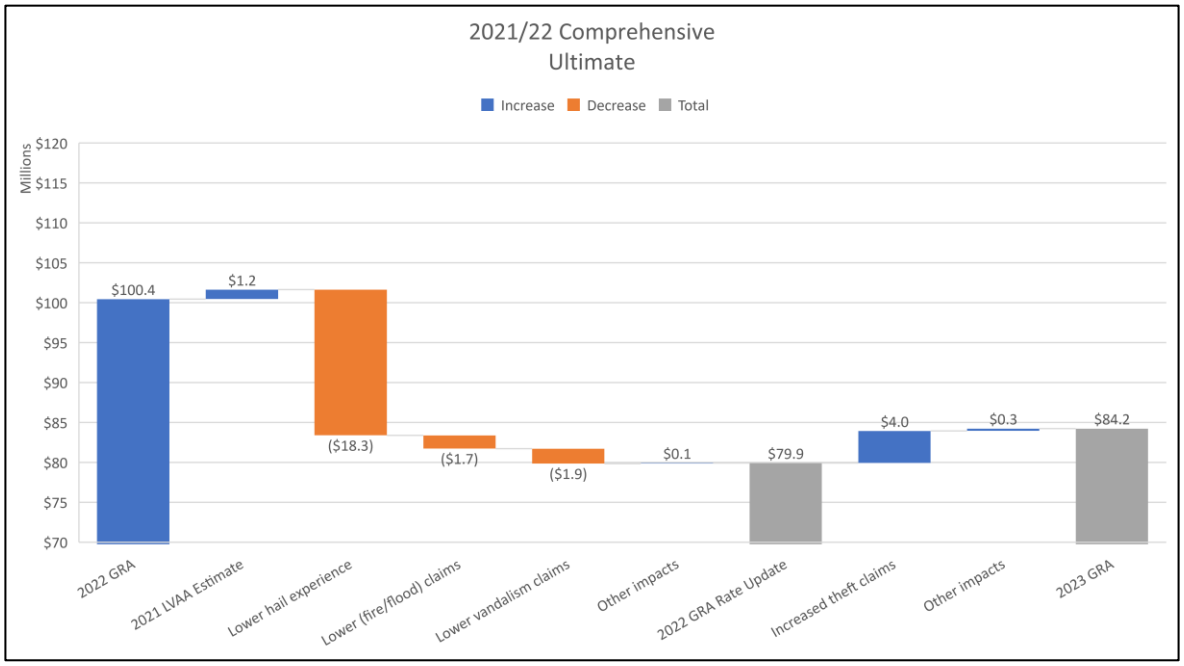
Rationale for Question:

To understand the reasons behind the changes from the last evidence filed by the Corporation to the current GRA.

RESPONSE:

Between the 2022 GRA and the rate update, comprehensive claims were reduced by $20.5 million largely due to less than expected hail claims as of July 31, 2021. This resulted in a reduction of $18.3 million. Thereafter, there was an increase in theft claims, specifically related to catalytic convertors. The increased theft claims resulted in a $4.0 million increase in the 2023 GRA over the rate update provided in October 2021. The waterfall chart below shows all of the impacts from each major source of the changes.

Figure 1 Assumption Impacts from the 2022 GRA through 2023 GRA - Comprehensive



PUB (MPI) 2-40

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	**Figure CI-71**
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In Figure CI-71 of the 2022 GRA, MPI estimated the ultimate property damage claims for 2021/22 to be $39,106.

In MPI Exhibit 76 in the 2022 GRA in Figure 2, MPI estimated the ultimate property damage claims for 2021/22 to be $34,712.

In Figure CI-71 of the 2023 GRA, MPI estimates the ultimate property damage claims for 2021/22 to be $40,952.

Question:

Please provide a detailed explanation on the sources of the changes in the ultimate property damage estimate for 2021/22, moving from the 2022 GRA to the October update for the 2022 GRA, to the 2023 GRA.

Rationale for Question:

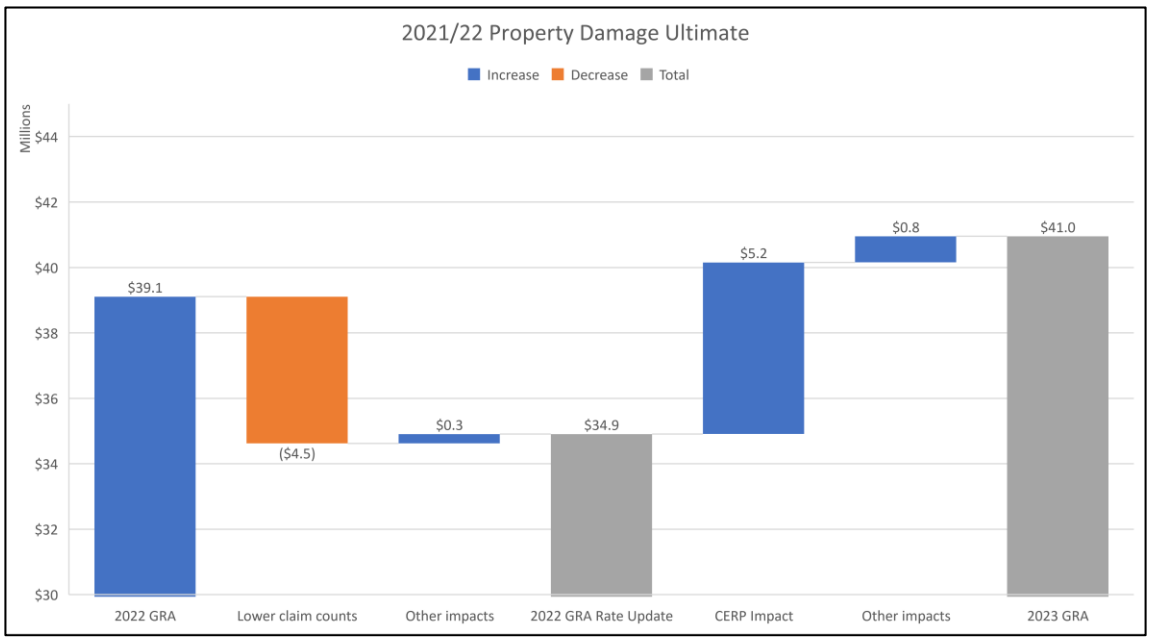
To understand the reasons behind the changes from the last evidence filed by MPI to the current GRA.

RESPONSE:

Two changes resulted in the variance from forecast to forecast. For the 2022 GRA rate update, not unlike collision, property damage claims were well below expected. In the 2022 GRA, MPI assumed a gradual return to normal property damage frequency by September 30, 2021. For the rate update, the gradual return to normal was extended to March 31, 2022 and experience was updated to July 31, 2021 which resulted in a favourable $4.5 million decrease.

In the 2022 GRA, the estimated CERP impact to property damage was included in the collision forecast. For the 2023 GRA, MPI adjusted the third-party deductible transfer to account for the expected increase in severity from the increased deductible. This resulted in a $5.2 million increase.

Figure 1 Assumption Impacts from the 2022 GRA through 2023 GRA - Property Damage



PUB (MPI) 2-41

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	**Figure CI-14**
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In Figure CI-14 of the 2022 GRA, MPI estimated the ultimate weekly indemnity claims for 2021/22 to be $90,202.

In MPI Exhibit 76 in the 2022 GRA in Figure 3, MPI estimated the ultimate weekly indemnity claims for 2021/22 to be $80,260.

In Figure CI-14 of the 2023 GRA, MPI estimates the ultimate weekly indemnity claims for 2021/22 to be $86,038.

Question:

Please provide a detailed explanation on the sources of the changes in the ultimate weekly indemnity estimate for 2021/22, moving from the 2022 GRA to the October update for the 2022 GRA, to the 2023 GRA.

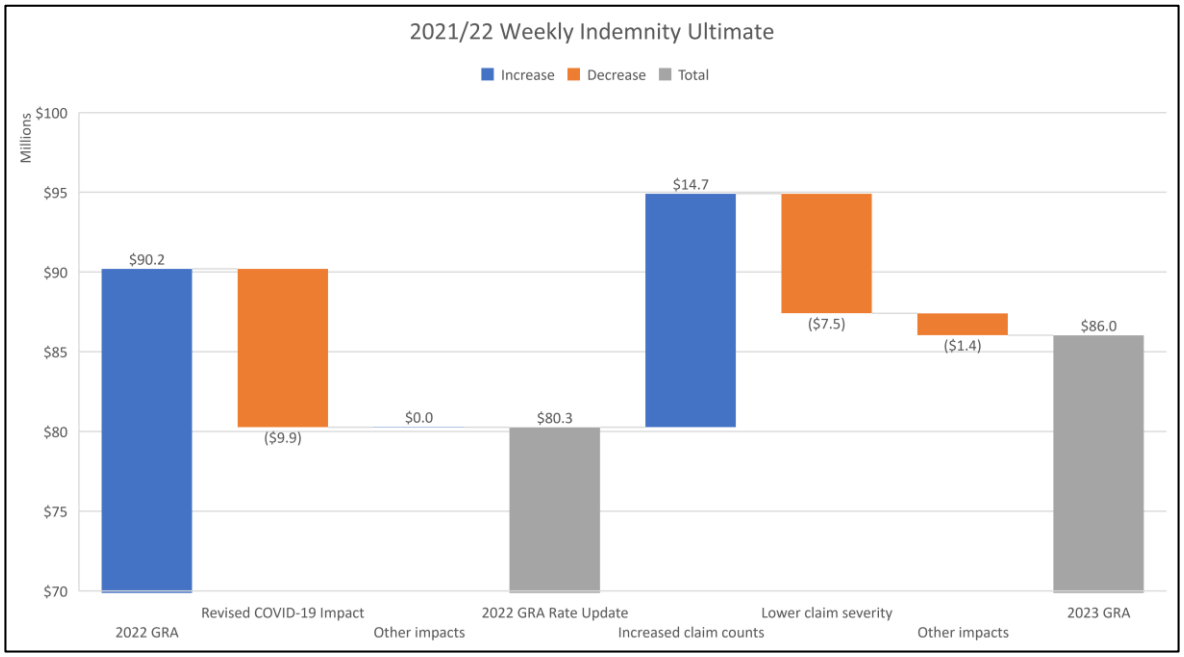
Rationale for Question:

To understand the reasons behind the changes from the last evidence filed by MPI to the current GRA.

RESPONSE:

The largest change in assumptions over the three forecasts was the estimated claim frequency. In the 2022 GRA, MPI assumed a gradual return to normal claim frequency by September 30, 2021. For the rate update, the gradual return to normal was extended to March 31, 2022. This corresponded to a decrease of 16.5% to collision claims which was applied to PIPP frequency, compared to the 6.1% reduction in PIPP claims assumption in the 2022 GRA. This resulted in a favorable $9.9 million decrease. The claim frequency during November 2021 through March 2022 was much higher than expected due to poor driving conditions as a result of extreme weather resulting in substantially more claims. At the end of the 2021/22 year, actual weekly indemnity claims were 18.3% higher than previously forecasted, resulting in an increase of approximately $14.7 million in estimated weekly indemnity claims incurred. This was slightly offset by lower claim severity. The waterfall chart below shows these impacts.

Figure 1 Assumption Impacts from the 2022 GRA through 2023 GRA – Weekly Indemnity



PUB (MPI) 2-42

Part and Chapter:	**Part V Forecasting – CI Claims incurred**	**Page No.:**	**Figure CI-18**
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In Figure CI-18 of the 2022 GRA, MPI estimated the ultimate ABO-indexed claims for 2021/22 to be $63,021.

In MPI Exhibit 76 in the 2022 GRA in Figure 3, MPI estimated the ultimate ABO-indexed claims for 2021/22 to be $56,075.

In Figure CI-18 of the 2023 GRA, MPI estimates the ultimate ABO-indexed indemnity claims for 2021/22 to be $59,795.

Question:

Please provide a detailed explanation on the sources of the changes in the ultimate ABO-indexed estimate for 2021/22, moving from the 2022 GRA to the October update for the 2022 GRA, to the 2023 GRA.

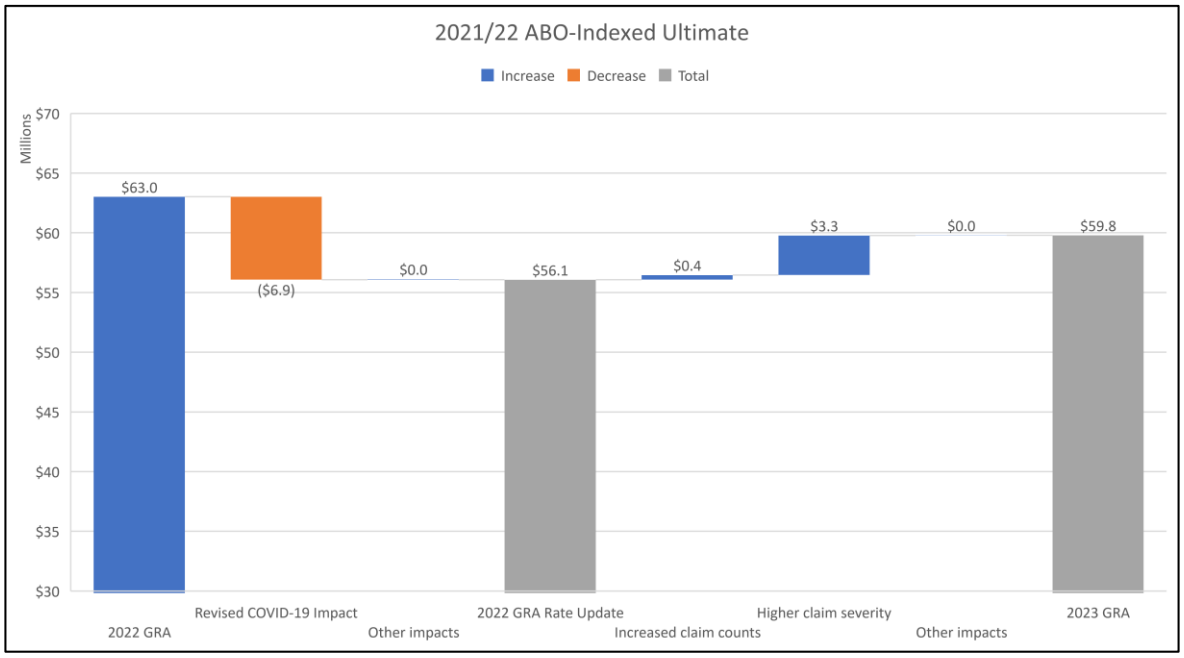
Rationale for Question:

To understand the reasons behind the changes from the last evidence filed by MPI to the current GRA.

RESPONSE:

In the 2022 GRA, MPI assumed a gradual return to normal claim frequency by September 30, 2021. For the rate update, the gradual return to normal was extended to March 31, 2022. This corresponded to a decrease of 16.5% to collision claims which was applied to PIPP frequency, compared to the 6.1% reduction in PIPP claims assumption in the 2022 GRA. This resulted in a favourable $6.9 million decrease. At the end of the 2021/22 year, actual ABO-Indexed claims severity was 5.9% higher than previously forecasted, resulting in an increase of approximately $3.3 million in estimated ABO-Indexed claims incurred. The waterfall chart below shows these impacts.

Figure 1 Assumption Impacts from the 2022 GRA through 2023 GRA – ABO-Indexed



PUB (MPI) 2-43

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	**Figure CI-22**
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In Figure CI-22 of the 2022 GRA, MPI estimated the ultimate ABO-non-indexed claims for 2021/22 to be $30,236.

In MPI Exhibit 76 in the 2022 GRA in Figure 3, MPI estimated the ultimate ABO-non-indexed claims for 2021/22 to be $26,903.

In Figure CI-22 of the 2023 GRA, MPI estimates the ultimate ABO-non-indexed claims for 2021/22 to be $30,392, back to the level of the 2022 GRA.

Question:

Please provide a detailed explanation on the sources of the changes in the ultimate ABO-non-indexed estimate for 2021/22, moving from the 2022 GRA to the October update for the 2022 GRA, to the 2023 GRA.

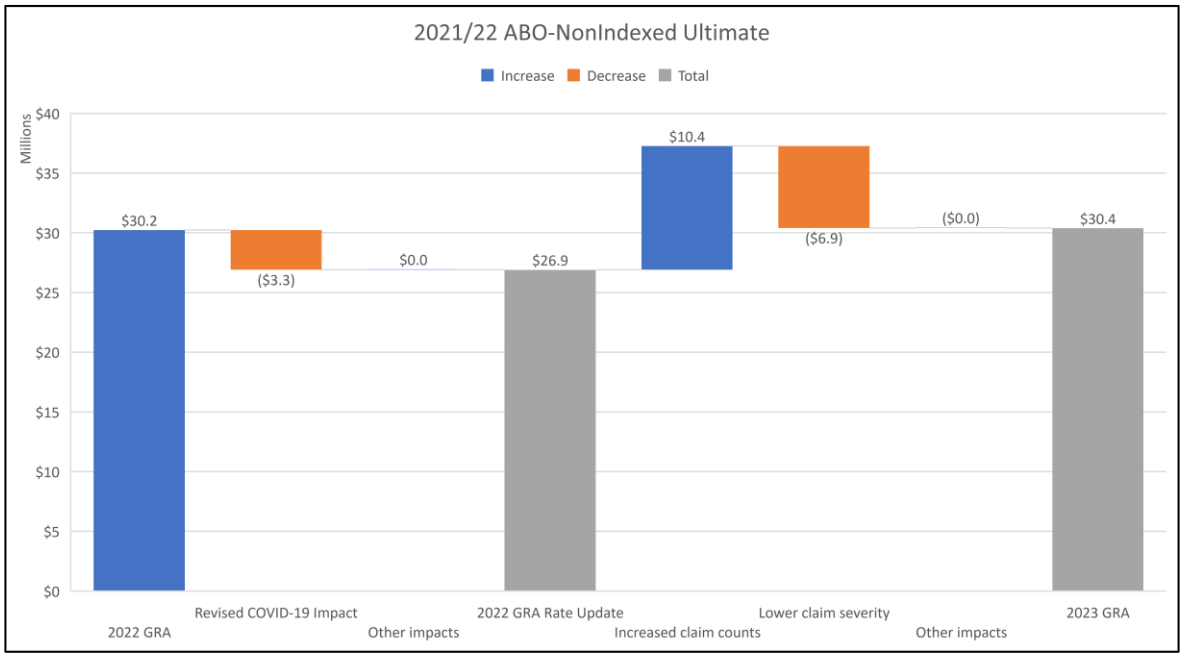
Rationale for Question:

To understand the reasons behind the changes from the last evidence filed by MPI to the current GRA.

RESPONSE:

The largest change in assumptions over the three forecasts was the estimated claim frequency. In the 2022 GRA, MPI assumed a gradual return to normal claim frequency by September 30, 2021. For the rate update, the gradual return to normal was extended to March 31, 2022. This corresponded to a decrease of 16.5% to collision claims which was applied to PIPP frequency, compared to the 6.1% reduction in PIPP claims assumption in the 2022 GRA. This resulted in a favourable $3.3 million decrease. The claim frequency during November 2021 through March 2022 was much higher than expected. At the end of the 2021/22 year, actual ABO-Nonindexed claims were 38.5% higher than previously forecasted, resulting in an increase of approximately $10.4 million in estimated ABO-Nonindexed claims incurred. As a result of this disconnect, MPI assumes ABO-NonIndexed claim counts are no longer impacted by the WFH assumption. This was partially offset by lower claim severity resulting in an overall increase of $6.9 million in ABO-NonIndexed claims incurred. The waterfall chart below shows these impacts.

Figure 1 Assumption Impacts from the 2022 GRA through 2023 GRA – ABO-NonIndexed



PUB (MPI) 2-44

Part and Chapter:	**Part V Forecasting – CI Claims Incurred**	**Page No.:**	
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Changes In Claims Incurred Projection**		
Sub Topic:			

Preamble to IR:

In the 2022 GRA, in the Round 1 Information Requests, PUB (MPI) 1-9, MPI provided the estimated impact of the CERP on each of Extension and Basic lines of business (Public Liability, Collision, Comprehensive and Property Damage).

Question:

a) Please provide a similar comparison showing the estimated impact of CERP on each of Extension and Basic, comparing the 2021 GRA, the 2022 GRA Forecast and the 2023 GRA Forecast.

b) Please provide details on the take up of Extension coverage from Basic policyholders who had previously not had any Extension coverage and compare that with the assumptions provided at the 2021 and 2022 GRAs.

Rationale for Question:

To understand the current view of MPI on the impact of the CERP.

RESPONSE:

a) Please see *Figure 1* comparing the impact of CERP on Extension claims costs by coverage for the 2022 and 2023 GRAs. Please see *Figure 2* comparing the impact of CERP on Basic claims costs by coverage for the 2022 and 2023 GRAs.

Figure 1 Impact of CERP on Extension Claims Costs by Coverage for the 2022 and 2023 GRAs

Line No.	Accident Year	Public Liability	Collision	Comprehensive	Property Damage	Total
			2022 GRA Forecast			
1	***($000)***					
2	**2022/23**	($1,092)	$13,815	$13,071	($208)	$25,586
3	**2023/24**	($1,092)	$13,670	$13,441	($208)	$25,811
4	**2024/25**	($1,092)	$13,510	$13,822	($208)	$26,032
5	**2025/26**	-	-	-	-	-
			2023 GRA Forecast			
7	**Accident Year**	**Public Liability**	**Collision**	**Comprehensive**	**Property Damage**	**Total**
9	***($000)***					
10	**2022/23**	($1,092)	$14,064	$10,332	($208)	$23,096
11	**2023/24**	($1,092)	$13,910	$10,582	($208)	$23,192
12	**2024/25**	($1,092)	$13,740	$10,837	($208)	$23,277
13	**2025/26**	($1,092)	$13,720	$11,130	($208)	$23,550
			2023 GRA Forecast less 2022 GRA Forecast			
15	**Accident Year**	**Public Liability**	**Collision**	**Comprehensive**	**Property Damage**	**Total**
17	***($000)***					
18	**2022/23**	$0	$249	($2,739)	$0	($2,490)
19	**2023/24**	$0	$240	($2,859)	$0	($2,619)
20	**2024/25**	$0	$230	($2,985)	$0	($2,755)
21	**2025/26**	-	-	-	-	-

Figure 2 Impact of CERP on Basic Claims Costs by Coverage for the 2022 and 2023 GRAs

Line No.	2022 GRA Forecast					
	Accident Year	**Public Liability**	**Collision**	**Comprehensive**	**Property Damage**	**Total**
1	***($000)***					
2	**2022/23**	$1,050	($15,410)	($16,309)	$450	($30,219)
3	**2023/24**	$1,050	($15,261)	($16,719)	$450	($30,480)
4	**2024/25**	$1,050	($15,096)	($17,140)	$450	($30,736)
5	**2025/26**	-	-	-	-	-
6	**2023 GRA Forecast**					
7						
8	**Accident Year**	**Public Liability**	**Collision**	**Comprehensive**	**Property Damage**	**Total**
9	***($000)***					
10	**2022/23**	$1,050	($14,804)	($12,436)	$450	($25,740)
11	**2023/24**	$1,050	($14,642)	($12,694)	$450	($25,837)
12	**2024/25**	$1,050	($14,463)	($12,959)	$450	($25,922)
13	**2025/26**	$1,050	($14,442)	($13,267)	$450	($26,209)
14	**2023 GRA Forecast less 2022 GRA Forecast**					
15						
16	**Accident Year**	**Public Liability**	**Collision**	**Comprehensive**	**Property Damage**	**Total**
17	***($000)***					
18	**2022/23**	$0	$606	$3,873	$0	$4,479
19	**2023/24**	$0	$619	$4,024	$0	$4,643
20	**2024/25**	$0	$633	$4,182	$0	$4,814
21	**2025/26**	-	-	-	-	-

b) Please see *Figure 3* comparing customer distribution for the reduced deductible product and actual customer adoption.

Figure 3 Distribution of Customers by Deductible Level

Line No.		Level of Coverage			
1	**Deductible Level**	**$750**	**$500**	**$300**	**$200**
2	**Customer Adoption (%) - 2021 GRA Forecast**	11%	4%	11%	75%
3	**Customer Adoption (%) - 2021 Actuals April 1 - June 30**	3%	11%	10%	75%
4	**Customer Adoption (%) - 2022 Actuals April 1 - July 31**	4%	11%	9%	75%
5	*Rounding may affect totals				

PUB (MPI) 2-45

Part and Chapter:	**Part VI Accepted Actuarial Practice – RM Ratemaking**	**Page No.:**	**36**
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Pure Premium Trends**		
Sub Topic:			

Preamble to IR:

MPI selects pure premium trends based on overall indicated exponential trends by coverage by major class. These trends differ from the trends selected in the Claims Incurred section of the GRA

Question:

a) Please compare the selected pure premium trends by coverage to the frequency and severity trends by coverage selected in the Claims Incurred section.

b) Where the trends differ by a material amount, please explain the sources of the differences in trend.

Rationale for Question:

To better understand the selected pure premium trends used to calculate the Major Class premium levels.

RESPONSE:

a) A complete summary of the selected frequency and severity trends by coverage, sub coverage, repair and total loss, and claim severity size can be found in *PUB (MPI) 2-32*. These selected severity and frequency trends were used to create the forecasted ultimates by coverage. The coverage-level forecasted ultimates in

Figures 1 and 2 below were taken from the 2023 GRA and then divided by the HTA Earned Units to derive the forecasted pure premiums. The corresponding forward-looking trends are the average growth rate from 2022/23 to 2026/27 of pure premiums. For example, 4.56% Collision forward trend was calculated as follows:

Collision forward trend = (603.03 / 504.57) ^ (1/4) - 1 = 4.56%

The past trends for Figure 1 and Figure 2 are the selected trends in *Ratemaking RM Appendix 9 Table 6*.

Figure 1 Comparison of Pure Premium Trends – Other than PIPP

Line No.	Accident Loss Year	HTA Earned Units[1]	Ultimate Incurred[2] Bodily Injury	Property Damage	Collision	Comprehensive	Pure Premium[3] Bodily Injury	Property Damage	Collision	Comprehensive
1	**2022/23**	932,897	5,670,563	48,977,185	470,713,143	94,351,391	6.08	52.50	504.57	101.14
2	**2023/24**	942,908	5,802,042	49,172,024	497,471,234	98,936,995	6.15	52.15	527.59	104.93
3	**2024/25**	953,029	5,926,516	49,094,091	525,734,483	103,781,335	6.22	51.51	551.65	108.90
4	**2025/26**	963,262	6,042,509	48,991,610	555,586,456	108,901,967	6.27	50.86	576.78	113.06
5	***2026/27***	973,606	6,148,378	48,862,893	587,115,281	114,317,839	6.32	50.19	603.03	117.42
6	[1] HTA Earned Units are from Volume Factor REV.1.1					**Forward Trend**	0.96%	-1.12%	4.56%	3.80%
7	[2] Ultimate Incurred are from the corresponding sections in Part V Claims Incurred					**Past Trend**	1.25%	1.00%	4.00%	3.00%
8	[3] Pure Premium = Ultimate Incurred / HTA Earned Units									

Figure 2 Comparison of Pure Premium Trends - PIPP

Line No.	Accident Loss Year	HTA Earned Units[1]	Ultimate Incurred[2] Weekly Indemnity	ABO-Indexed	ABO-NonIndexed	Pure Premium[3] Weekly Indemnity	ABO-Indexed	ABO-NonIndexed
1	**2022/23**	932,897	92,674,935	60,835,308	33,245,966	99.34	65.21	35.64
2	**2023/24**	942,908	98,404,434	63,134,264	34,002,402	104.36	66.96	36.06
3	**2024/25**	953,029	102,705,352	64,334,023	34,776,133	107.77	67.50	36.49
4	**2025/26**	963,262	107,079,522	65,411,425	35,567,558	111.16	67.91	36.92
5	***2026/27***	973,606	111,306,004	66,225,910	36,377,082	114.32	68.02	37.36
6	[1] HTA Earned Units are from Volume Factor REV.1.1				**Forward Trend**	3.57%	1.06%	1.19%
7	[2] Ultimate Incurred are from the corresponding sections in Part V Claims				**Past Trend**	0.00%	0.00%	0.00%
8	[3] Pure Premium = Ultimate Incurred / HTA Earned Units							

b) The forward and past trends are relatively close with the exception of Property Damage. The forecast for Property Damage uses the 2015 – 2019 trend which assumes a 3% decline per year (see *PUB (MPI) 2-32* for a summary of frequency

trends). Collision and Comprehensive forward trends are slightly higher due to increased severity of total loss claims in recent accident years.

In Figure 2, past trends were selected based on ultimates at the current benefit level, which excludes inflation. The forward trend includes the assumed forecasted Manitoba CPI forecast as outlined in *Investments Chapter Figure INV-40 Manitoba CPI Forecast*. The assumed inflation results in an increase in the forward trend of Weekly Indemnity and ABO-Indexed by approximately 2.70%. ABO-NonIndexed forward trend is 1.19% as a result of the selected weighted severity growth trend of 1.19% since frequency is assumed to be flat.

PUB (MPI) 2-46

Part and Chapter:	**PUB (MPI) 1-41 b)** **Part VII – Investments** **Part V Forecasting – CI Claims Incurred**	**Page No.:**	
PUB Approved Issue No:	**9. Claims Forecasting**		
Topic:	**Claims Duration**		
Sub Topic:			

Preamble to IR:

PUB (MPI) 1-41(b) Figure 1 provides the distribution of the cash flows for the next 10 years after the valuation date. In the figure, MPI pays a higher portion of the claims in earlier periods, which reduces the duration of the claims.

MPI indicated the revision of several paid loss development factors due to emerging experience and referred to the External Actuary Review Policy Liabilities EAR Attachment A – Actuary Report Oct 31, 2021.

Reviewing the noted EAR, page 7 of 343 states:

> *"Specifically for Accident Benefits-Other Indexed we increased the initial development factors as well as the tail factors due to a recent increase in development patterns. For Accident Benefits-Other Non-Indexed we reduced development factors based on recent development trends. The changes in loss development factors resulted in a $13.9 million increase in actuarial present value (APV) unpaid claims, which includes an increase of $2.2 million in internal loss adjustment expenses (ILAE)."*

Further into the EAR, starting on page 22 is a line-by-line description of changes which includes the following (listing below the coverages with changes of over $1 million):

Accident Benefits – Weekly Indemnity: Loss development factors (both incurred and paid) were revised to reflect the changes in reserving approach and recent experience.

The impact of these loss development factor revisions is a decrease in undiscounted IBNR of $1.4 million.

Accident Benefits – Other Indexed: Loss development factors (both incurred and paid) were revised to reflect the changes in reserving approach and recent experience. The impact of these revisions is an increase in undiscounted IBNR of $17.6 million.

Accident Benefits – Other Non-Indexed: Loss development factors (both incurred and paid) were revised to recognize the Permanent Impairment initiative. The impact of these revisions is a decrease in undiscounted IBNR of $6.0 million.

Question:

Given the overall increase in IBNR due to changes in loss development factor selections, explain how the payment pattern has accelerated. Provide numerical details where possible. Normally an increase due to loss development factors would result in a slowdown in payment pattern.

Rationale for Question:

To better understand changes in duration.

RESPONSE:

There are two factors that are impacting the distribution of the cash flows showing in *PUB 1-41(b) Figure 1*. One is the loss development factors (LDFs) and the other is the undiscounted unpaid losses (Case +IBNR).

The LDFs selection (incurred or paid) would impact the amount of IBNR for each insurance year as valuation methods such as Chain Ladder and Bornhuetter-Ferguson depend on the selected LDFs to derive the ultimate loss estimate. However, only the paid LDFs determine the payment pattern. Changes to paid LDFs at different development periods may impact the cash flow percentage for the same fiscal year since insurance years are at different maturities.

For the ABO Indexed coverage, the increase to IBNR stated in EAR is mainly from increases in the incurred LDFs. This does not necessitate a change in the payment pattern as the payment pattern is based on the paid LDF selections. The impact of the slight change in the paid LDFs to the cash flows is minimal (see *Figure 1-2*). However, the higher unpaid losses, from changes in the incurred LDFs, results in a change to the expected future cash flows since the payment pattern is applied to the revised unpaid loss balance, and those unpaid amounts vary by the maturity of the insurance year. This changes the distribution of the cash flows (i.e., higher amount of cash flows being recognized in earlier periods) as this is dependent on the maturity of the insurance year. *Figure 1* through Figure 5 show the analysis of the cash flow distribution change for the next 10 fiscal years due to paid and incurred LDFs changes.

For comprehensive coverage, there was a change in the paid LDFs which changed the payment pattern and the total unpaid amount, as the ultimate loss estimate for all insurance years except for the current year are based on the Paid Development method. This change accelerated the cash flow for earlier periods and decreased the duration. *Figures 6 through 8* show the analysis of the cash flow distribution change over the next 10 years due to the paid LDFs changes.

Further to the first round response, even without any LDF updates, the unpaid amount would change as case reserves change with time and new experience emerges. This also impacts the IBNR and may change the unpaid distribution across insurance years, as well as the cash flow distribution. For example, comparing the Collision unpaid losses for the current insurance year between year-end valuations (as at end of March 2022 and March 2021), there is a $62M increase in unpaid losses; $115M vs. $53M. This resulted in a higher cash flow for 2023. See *Figures 9 through 11* for details.

Figure 1 Comparison Due to ABO Indexed Paid LDFs Change

Figure 1-1 Change in the Payment Pattern of ABO Indexed for Development Periods 12-132 Months

Line No.	Paid LDFs at the Valuation Date	Development Period 12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132
1	March 31,2022	23.06%	6.97%	3.97%	2.88%	2.09%	1.83%	1.88%	1.94%	2.00%	2.06%
2	March 31,2021	23.18%	7.01%	3.99%	2.75%	1.95%	1.83%	1.88%	1.94%	2.00%	2.06%
3	Difference	-0.12%	-0.04%	-0.02%	0.13%	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%

Figure 1-2 Change in the Expected Cash Flow of ABO Indexed Over Next 10 Years

Line No.	Paid LDFs at the Valuation Date	Fiscal Year 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	March 31,2022	10.18%	7.50%	6.71%	6.25%	5.94%	5.75%	5.59%	5.17%	4.65%	4.31%
2	March 31,2021	10.18%	7.48%	6.68%	6.22%	5.93%	5.75%	5.60%	5.17%	4.66%	4.32%
3	Difference	0.00%	0.01%	0.03%	0.03%	0.01%	0.00%	-0.01%	0.00%	-0.01%	-0.01%

Figure 1-3 Change in the ABO Indexed Unpaid Amount

Line No.	Insurance Year	Paid LDFs at the Valuation Date March 31,2022	March 31,2021	Difference
1	1994	11,769	11,769	0
2	1995	17,029	17,029	0
3	1996	8,638	8,638	0
4	1997	10,530	10,530	0
5	1998	8,016	8,016	0
6	1999	10,787	10,787	0
7	2000	7,213	7,213	0
8	2001	14,079	14,079	0
9	2002	15,927	15,927	0
10	2003	13,768	13,768	0
11	2004	19,599	19,599	0
12	2005	18,587	18,587	0
13	2006	23,907	23,907	0
14	2007	26,191	26,191	0
15	2008	13,812	13,812	0
16	2009	19,066	19,066	0
17	2010	17,415	17,415	0
18	2011	23,446	23,446	0
19	2012	16,981	16,981	0
20	2013	14,215	14,215	0
21	2014	13,010	13,010	0
22	2015	17,935	17,935	0
23	2016	34,453	34,453	0
24	2017	29,718	29,718	0
25	2018	19,791	19,791	0
26	2019	32,255	32,086	168
27	2020	38,452	38,452	0
28	2021	49,868	49,868	0
29	**Total**	**546,453**	**546,285**	**168**

Figure 2 MPI Automobile Insurance Division Development of Direct & Agency Unpaid Claims As of March 31, 2022

Accident Benefits - Other (Indexed)
Paid LDFs at March 31,2022
($000)

Line No.	Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending March 31									
					2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**1994**	11,267	502	11,769	1,903	1,825	1,750	1,677	1,606	1,538	1,472			
2	**1995**	16,237	792	17,029	2,455	2,356	2,260	2,167	2,076	1,989	1,904	1,822		
3	**1996**	8,030	608	8,638	1,128	1,083	1,039	997	956	916	877	840	804	
4	**1997**	9,740	790	10,530	1,260	1,210	1,162	1,115	1,070	1,025	983	941	901	863
5	**1998**	7,075	941	8,016	887	853	819	787	755	724	694	665	637	610
6	**1999**	9,491	1,296	10,787	1,113	1,071	1,029	989	949	911	874	838	803	769
7	**2000**	5,873	1,340	7,213	698	672	647	622	597	573	550	528	506	485
8	**2001**	12,305	1,775	14,079	1,286	1,239	1,192	1,147	1,102	1,059	1,017	976	936	897
9	**2002**	14,048	1,879	15,927	1,379	1,329	1,280	1,232	1,185	1,139	1,094	1,051	1,008	967
10	**2003**	11,598	2,170	13,768	1,134	1,094	1,054	1,015	977	940	904	868	834	800
11	**2004**	17,284	2,315	19,599	1,560	1,486	1,433	1,381	1,330	1,281	1,232	1,184	1,137	1,092
12	**2005**	16,005	2,582	18,587	1,361	1,371	1,306	1,260	1,214	1,169	1,125	1,083	1,041	1,000
13	**2006**	20,942	2,965	23,907	1,651	1,629	1,641	1,564	1,508	1,454	1,400	1,348	1,296	1,246
14	**2007**	22,746	3,445	26,191	1,844	1,681	1,659	1,672	1,593	1,536	1,481	1,426	1,372	1,320
15	**2008**	10,880	2,932	13,812	1,062	898	818	808	814	775	748	721	694	668
16	**2009**	15,611	3,455	19,066	1,591	1,344	1,136	1,035	1,022	1,030	981	946	912	878
17	**2010**	14,613	2,802	17,415	1,391	1,337	1,129	954	870	859	865	824	795	766
18	**2011**	19,320	4,126	23,446	1,687	1,738	1,671	1,411	1,192	1,087	1,073	1,081	1,030	993
19	**2012**	13,232	3,749	16,981	1,109	1,142	1,177	1,131	955	807	736	726	732	697
20	**2013**	10,769	3,446	14,215	848	873	899	926	890	752	635	579	572	576
21	**2014**	10,083	2,927	13,010	712	733	755	778	801	770	650	550	501	495
22	**2015**	14,177	3,758	17,935	905	932	960	989	1,018	1,049	1,008	851	720	656
23	**2016**	30,009	4,444	34,453	1,609	1,657	1,707	1,758	1,811	1,865	1,921	1,847	1,559	1,318
24	**2017**	25,925	3,793	29,718	1,505	1,317	1,357	1,398	1,440	1,483	1,527	1,573	1,512	1,277
25	**2018**	16,958	2,833	19,791	1,293	937	820	845	870	896	923	951	979	941
26	**2019**	29,525	2,730	32,255	2,667	1,933	1,401	1,226	1,263	1,301	1,340	1,380	1,421	1,464
27	**2020**	29,105	9,347	38,452	4,871	2,777	2,012	1,459	1,276	1,315	1,354	1,395	1,436	1,480
28	**2021**	29,278	20,590	49,868	14,725	4,452	2,538	1,839	1,333	1,167	1,201	1,238	1,275	1,313
29	**Total**	**452,126**	**94,327**	**546,453**	**55,633**	**40,968**	**36,652**	**34,179**	**32,474**	**31,409**	**30,570**	**28,231**	**25,414**	**23,572**
30	Cash Flow Distribution (% paid for fiscal year)				10.18%	7.50%	6.71%	6.25%	5.94%	5.75%	5.59%	5.17%	4.65%	4.31%
31	Development Months			12	24	36	48	60	72	84	96	108	120	132
32	Paid Factor to Ultimate			4.5628	2.2236	1.9252	1.7884	1.7008	1.6425	1.5946	1.5482	1.5031	1.4593	1.4168
33	Cumulative % Paid			21.92%	44.97%	51.94%	55.92%	58.80%	60.88%	62.71%	64.59%	66.53%	68.53%	70.58%
34	Incremental % Paid to Ult				23.06%	6.97%	3.97%	2.88%	2.09%	1.83%	1.88%	1.94%	2.00%	2.06%

Figure 3 MPI Automobile Insurance Division Development of Direct & Agency Unpaid Claims as of March 31, 2022

Accident Benefits - Other (Indexed)
Paid LDFs at March 31,2022
($000)

Line No.	Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending March 31									
					2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**1994**	11,267	502	11,769	1,903	1,825	1,750	1,677	1,606	1,538	1,472			
2	**1995**	16,237	792	17,029	2,455	2,356	2,260	2,167	2,076	1,989	1,904	1,822		
3	**1996**	8,030	608	8,638	1,128	1,083	1,039	997	956	916	877	840	804	
4	**1997**	9,740	790	10,530	1,260	1,210	1,162	1,115	1,070	1,025	983	941	901	863
5	**1998**	7,075	941	8,016	887	853	819	787	755	724	694	665	637	610
6	**1999**	9,491	1,296	10,787	1,113	1,071	1,029	989	949	911	874	838	803	769
7	**2000**	5,873	1,340	7,213	698	672	647	622	597	573	550	528	506	485
8	**2001**	12,305	1,775	14,079	1,286	1,239	1,192	1,147	1,102	1,059	1,017	976	936	897
9	**2002**	14,048	1,879	15,927	1,379	1,329	1,280	1,232	1,185	1,139	1,094	1,051	1,008	967
10	**2003**	11,598	2,170	13,768	1,134	1,094	1,054	1,015	977	940	904	868	834	800
11	**2004**	17,284	2,315	19,599	1,523	1,489	1,436	1,384	1,333	1,283	1,234	1,186	1,140	1,094
12	**2005**	16,005	2,582	18,587	1,364	1,339	1,308	1,262	1,216	1,171	1,128	1,085	1,043	1,002
13	**2006**	20,942	2,965	23,907	1,654	1,633	1,603	1,566	1,511	1,456	1,403	1,350	1,298	1,248
14	**2007**	22,746	3,445	26,191	1,847	1,684	1,663	1,632	1,595	1,538	1,483	1,428	1,375	1,322
15	**2008**	10,880	2,932	13,812	1,064	899	820	809	794	776	749	722	695	669
16	**2009**	15,611	3,455	19,066	1,594	1,346	1,137	1,037	1,024	1,005	982	947	913	879
17	**2010**	14,613	2,802	17,415	1,393	1,339	1,131	956	871	860	844	825	796	767
18	**2011**	19,320	4,126	23,446	1,690	1,741	1,673	1,413	1,194	1,089	1,075	1,055	1,031	994
19	**2012**	13,232	3,749	16,981	1,111	1,144	1,178	1,133	956	808	737	727	714	698
20	**2013**	10,769	3,446	14,215	849	874	900	927	892	753	636	580	573	562
21	**2014**	10,083	2,927	13,010	713	734	756	779	802	771	651	550	502	495
22	**2015**	14,177	3,758	17,935	906	933	961	990	1,020	1,050	1,009	852	720	657
23	**2016**	30,009	4,444	34,453	1,610	1,659	1,709	1,760	1,813	1,867	1,923	1,849	1,561	1,319
24	**2017**	25,925	3,793	29,718	1,409	1,323	1,363	1,404	1,446	1,489	1,534	1,580	1,519	1,283
25	**2018**	16,958	2,833	19,791	1,245	879	826	851	876	902	929	957	986	948
26	**2019**	29,525	2,561	32,086	2,682	1,849	1,307	1,227	1,264	1,302	1,341	1,381	1,422	1,465
27	**2020**	29,105	9,347	38,452	4,917	2,803	1,933	1,365	1,282	1,321	1,360	1,401	1,443	1,487
29	**Total**	**452,126**	**94,159**	**546,285**	**55,637**	**40,881**	**36,490**	**34,002**	**32,407**	**31,426**	**30,591**	**28,245**	**25,437**	**23,596**
30	Cash Flow Distribution (% paid for fiscal year)				10.18%	7.48%	6.68%	6.22%	5.93%	5.75%	5.60%	5.17%	4.66%	4.32%
31	Development Months			12	24	36	48	60	72	84	96	108	120	132
32	Paid Factor to Ultimate			4.5391	2.2120	1.9152	1.7791	1.6960	1.6418	1.5940	1.5475	1.5025	1.4587	1.4162
33	Cumulative % Paid			22.03%	45.21%	52.21%	56.21%	58.96%	60.91%	62.74%	64.62%	66.56%	68.55%	70.61%
34	Incremental % Paid to Ult				23.18%	7.01%	3.99%	2.75%	1.95%	1.83%	1.88%	1.94%	2.00%	2.06%

Figure 4 Comparison Due to ABO Indexed Incurred LDFs Change

Figure 4-1 Change in the Payment Pattern of ABO Index for Development Periods 12 to 132 Months

Line No.	Incurred LDFs at the Valuation Date	Development Period 12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132
1	March 31,2022	23.18%	7.01%	3.99%	2.75%	1.95%	1.83%	1.88%	1.94%	2.00%	2.06%
2	March 31,2021	23.18%	7.01%	3.99%	2.75%	1.95%	1.83%	1.88%	1.94%	2.00%	2.06%
3	Difference	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Figure 4-2 Change in the Expected Cash Flow of ABO Indexed Over Next 10 Years

Line No.	Incurred LDFs at the Valuation Date	Fiscal Year 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	March 31,2022	10.18%	7.48%	6.68%	6.22%	5.93%	5.75%	5.60%	5.17%	4.66%	4.32%
2	March 31,2021	10.01%	7.47%	6.69%	6.24%	5.95%	5.77%	5.62%	5.19%	4.67%	4.33%
3	Difference	0.17%	0.02%	-0.01%	-0.01%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.01%

Figure 4-3 Change in the ABO Indexed Unpaid Amount

Line No.	Insurance Year	Incurred LDFs at the Valuation Date March 31,2022	March 31,2021	Difference
1	1994	11,769	11,470	299
2	1995	17,029	16,621	408
3	1996	8,638	8,379	259
4	1997	10,530	10,229	301
5	1998	8,016	7,700	316
6	1999	10,787	10,424	363
7	2000	7,213	6,893	319
8	2001	14,079	13,698	381
9	2002	15,927	15,555	372
10	2003	13,768	13,390	377
11	2004	19,599	19,217	382
12	2005	18,587	18,174	413
13	2006	23,907	23,392	514
14	2007	26,191	25,631	560
15	2008	13,812	13,353	459
16	2009	19,066	18,514	552
17	2010	17,415	16,838	577
18	2011	23,446	22,792	653
19	2012	16,981	16,391	589
20	2013	14,215	13,680	535
21	2014	13,010	12,539	471
22	2015	17,935	17,336	598
23	2016	34,453	33,706	747
24	2017	29,718	29,059	659
25	2018	19,791	19,204	587
26	2019	32,086	31,776	310
27	2020	38,452	38,974	(523)
28	2021	49,868	43,757	6,111
29	**Total**	**546,285**	**528,695**	**17,590**

Figure 5 MPI Automobile Insurance Division Development of Direct & Agency Unpaid Claims as of March 31, 2022

Accident Benefits - Other (Indexed)
Paid and Incurred LDFs at March 31,2021
($000)

Line No.	Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending March 31										
					2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
1	**1994**	11,267	203	11,470	1,854	1,779	1,705	1,634	1,565	1,499	1,434				
2	**1995**	16,237	384	16,621	2,396	2,300	2,206	2,115	2,026	1,941	1,858	1,779			
3	**1996**	8,030	349	8,379	1,094	1,050	1,008	967	927	888	851	815	780		
4	**1997**	9,740	489	10,229	1,224	1,176	1,129	1,083	1,039	996	955	914	875	838	
5	**1998**	7,075	625	7,700	852	819	787	756	725	696	667	639	612	586	561
6	**1999**	9,491	933	10,424	1,076	1,035	995	955	917	880	844	810	776	743	712
7	**2000**	5,873	1,020	6,893	667	642	618	594	571	548	526	504	484	463	444
8	**2001**	12,305	1,394	13,698	1,251	1,205	1,160	1,116	1,073	1,030	989	949	911	873	837
9	**2002**	14,048	1,506	15,555	1,347	1,298	1,250	1,203	1,157	1,112	1,069	1,026	985	945	906
10	**2003**	11,598	1,793	13,390	1,103	1,064	1,025	988	950	914	879	844	811	778	746
11	**2004**	17,284	1,933	19,217	1,494	1,460	1,408	1,357	1,307	1,258	1,210	1,163	1,118	1,073	1,030
12	**2005**	16,005	2,169	18,174	1,333	1,309	1,279	1,234	1,189	1,145	1,102	1,060	1,019	979	940
13	**2006**	20,942	2,450	23,392	1,618	1,598	1,568	1,533	1,478	1,425	1,372	1,321	1,270	1,221	1,173
14	**2007**	22,746	2,885	25,631	1,808	1,648	1,627	1,597	1,561	1,506	1,451	1,398	1,345	1,294	1,244
15	**2008**	10,880	2,473	13,353	1,029	869	793	782	768	751	724	698	672	647	622
16	**2009**	15,611	2,903	18,514	1,548	1,307	1,105	1,007	994	976	954	920	887	854	822
17	**2010**	14,613	2,225	16,838	1,347	1,295	1,094	924	843	832	816	798	770	742	714
18	**2011**	19,320	3,472	22,792	1,643	1,692	1,627	1,374	1,161	1,058	1,045	1,025	1,002	967	932
19	**2012**	13,232	3,159	16,391	1,072	1,104	1,137	1,093	923	780	711	702	689	674	650
20	**2013**	10,769	2,911	13,680	817	841	867	892	858	725	612	558	551	541	529
21	**2014**	10,083	2,456	12,539	687	708	729	751	773	743	628	530	484	477	469
22	**2015**	14,177	3,159	17,336	876	902	929	957	986	1,015	976	824	696	635	627
23	**2016**	30,009	3,697	33,706	1,576	1,623	1,672	1,722	1,773	1,826	1,881	1,809	1,527	1,291	1,177
24	**2017**	25,925	3,134	29,059	1,378	1,294	1,333	1,373	1,414	1,456	1,500	1,545	1,485	1,254	1,060
25	**2018**	16,958	2,246	19,204	1,208	853	801	825	850	876	902	929	957	920	777
26	**2019**	29,525	2,251	31,776	2,656	1,832	1,294	1,215	1,252	1,289	1,328	1,368	1,409	1,451	1,395
27	**2020**	29,105	9,869	38,974	4,984	2,841	1,959	1,384	1,300	1,339	1,379	1,420	1,463	1,507	1,552
28	**2021**	29,278	14,479	43,757	13,007	3,933	2,242	1,546	1,092	1,025	1,056	1,088	1,121	1,154	1,189
29	**Total**	**452,126**	**76,569**	**528,695**	**52,944**	**39,475**	**35,344**	**32,976**	**31,473**	**30,530**	**29,720**	**27,437**	**24,697**	**22,906**	**21,105**
30	Cash Flow Distribution (% paid for fiscal year)				10.01%	7.47%	6.69%	6.24%	5.95%	5.77%	5.62%	5.19%	4.67%	4.33%	
31	Development Months			12	24	36	48	60	72	84	96	108	120	132	
32	Paid Factor to Ultimate			4.5391	2.2120	1.9152	1.7791	1.6960	1.6418	1.5940	1.5475	1.5025	1.4587	1.4162	1.3750
33	Cumulative % Paid			22.03%	45.21%	52.21%	56.21%	58.96%	60.91%	62.74%	64.62%	66.56%	68.55%	70.61%	72.73%
34	Incremental % Paid to Ult				23.18%	7.01%	3.99%	2.75%	1.95%	1.83%	1.88%	1.94%	2.00%	2.06%	

Figure 6 Comparison Due to Comp Paid LDFs Change

Figure 6-1 Change in the Payment Pattern of Comp for Development Periods 12 to 132 months

Line No.	Paid LDFs at the Valuation Date	Development Period 12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132
1	March 31,2022	19.02%	2.47%	0.54%	0.25%	0.15%	0.05%	0.00%	0.00%	0.00%	0.00%
2	March 31,2021	19.33%	2.47%	0.59%	0.25%	0.15%	0.05%	0.00%	0.00%	0.00%	0.00%
3	Difference	-0.31%	0.00%	-0.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Figure 6-2 Change in the Expected Cash Flow of Comp Over Next 10 Years

Line No.	Paid LDFs at the Valuation Date	Fiscal Year 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	March 31,2022	81.31%	12.61%	3.60%	1.59%	0.71%	0.18%	0.00%	0.00%	0.00%	0.00%
2	March 31,2021	81.23%	12.59%	3.73%	1.57%	0.70%	0.18%	0.00%	0.00%	0.00%	0.00%
3	Difference	0.08%	0.02%	-0.13%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%

Figure 6-3 Change in the Comp Unpaid Amount

Line No.	Insurance Year	Incurred LDFs at the Valuation Date March 31,2022	March 31,2021	Difference
1	2004	-	-	0
2	2005	-	-	0
3	2006	-	-	0
4	2007	-	-	0
5	2008	-	-	0
6	2009	-	-	0
7	2010	-	-	0
8	2011	-	-	0
9	2012	-	-	0
10	2013	-	-	0
11	2014	-	-	0
12	2015	-	-	0
13	2016	59	59	0
14	2017	146	146	0
15	2018	582	582	0
16	2019	864	908	(43)
17	2020	2,994	3,037	(43)
18	2021	20,605	20,605	0
19	Total	**25,250**	**25,336**	**(86)**

Figure 7 MPI Automobile Insurance Division Development of Direct & Agency Unpaid Claims as of March 31, 2022

Comprehensive - Basic
Paid LDFs at March 31,2022
($000)

Line No.	Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending March 31									
					2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**2003 & Prior**	1	-	1	1									
2	**2004**	-	-	-	-									
3	**2005**	-	-	-	-									
4	**2006**	-	-	-	-									
5	**2007**	-	-	-	-									
6	**2008**	-	-	-	-									
7	**2009**	-	-	-	-									
8	**2010**	-	-	-	-									
9	**2011**	-	-	-	-									
10	**2012**	-	-	-	-									
11	**2013**	-	-	-	-									
12	**2014**	1	(1)	-	-									
13	**2015**	4	(4)	-	-									
14	**2016**	29	30	59	59	-	-	-	-	-	-	-	-	-
15	**2017**	6	140	146	109	36	-	-	-	-	-	-	-	-
16	**2018**	1,422	(840)	582	323	194	65	-	-	-	-	-	-	-
17	**2019**	794	70	864	474	217	130	43	-	-	-	-	-	-
18	**2020**	756	2,238	2,994	2,136	470	215	129	43	-	-	-	-	-
19	**2021**	13,335	7,270	20,605	17,429	2,265	499	228	137	46	-	-	-	-
20	**Total**	**16,348**	**8,903**	**25,251**	**20,531**	**3,183**	**909**	**401**	**180**	**46**	**-**	**-**	**-**	**-**
21	Cash Flow Distribution (% paid for fiscal year)				81.31%	12.61%	3.60%	1.59%	0.71%	0.18%	0.00%	0.00%	0.00%	0.00%
22														
23	Development Months			12	24	36	48	60	72	84	96	108	120	132
24	Paid Factor to Ultimate			1.2901	1.0359	1.0100	1.0045	1.0020	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
25	Cumulative % Paid			77.51%	96.53%	99.01%	99.55%	99.80%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%
26	Incremental % Paid to Ult				19.02%	2.47%	0.54%	0.25%	0.15%	0.05%	0.00%	0.00%	0.00%	0.00%

Figure 8 MPI Automobile Insurance Division Development of Direct & Agency Unpaid Claims as of March 31, 2022

Comprehensive - Basic
Paid LDFs at March 31,2021
($000)

Line No.	Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending March 31 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**2003 & Prior**	1	-	1	1									
2	**2004**	-	-	-	-									
3	**2005**	-	-	-	-									
4	**2006**	-	-	-	-									
5	**2007**	-	-	-	-									
6	**2008**	-	-	-	-									
7	**2009**	-	-	-	-									
8	**2010**	-	-	-	-									
9	**2011**	-	-	-	-									
10	**2012**	-	-	-	-									
11	**2013**	-	-	-	-									
12	**2014**	1	(1)	-	-									
13	**2015**	4	(4)	-	-									
14	**2016**	29	30	59	59	-	-	-	-	-	-	-	-	-
15	**2017**	6	140	146	109	36	-	-	-	-	-	-	-	-
16	**2018**	1,422	(840)	582	323	194	65	-	-	-	-	-	-	-
17	**2019**	794	114	908	517	217	130	44	-	-	-	-	-	-
18	**2020**	756	2,281	3,037	2,136	513	215	129	43	-	-	-	-	-
19	**2021**	13,335	7,270	20,605	17,436	2,229	536	225	135	45	-	-	-	-
20	**Total**	**16,348**	**8,989**	**25,337**	**20,581**	**3,190**	**946**	**397**	**178**	**45**	**-**	**-**	**-**	**-**
21	Cash Flow Distribution (% paid for fiscal year)				81.23%	12.59%	3.73%	1.57%	0.70%	0.18%	0.00%	0.00%	0.00%	0.00%
22														
23	Development Months			12	24	36	48	60	72	84	96	108	120	132
24	Paid Factor to Ultimate			1.2960	1.0364	1.0105	1.0045	1.0020	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
25	Cumulative % Paid			77.16%	96.49%	98.96%	99.55%	99.80%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%
26	Incremental % Paid to Ult				19.33%	2.47%	0.59%	0.25%	0.15%	0.05%	0.00%	0.00%	0.00%	0.00%

Figure 9 Comparison Due to Coll Unpaid Change for the Current Year

Figure 9-1 Change in the Payment Pattern of Coll for Development Periods 12 to 132 Months

Line No.	Unpaid for the current year at the Valuation Date	Development Period 12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132
1	**March 31,2022**	18.68%	1.28%	0.25%	0.10%	0.05%	0.05%	0.00%	0.00%	0.00%	0.00%
2	**March 31,2021**	18.68%	1.28%	0.25%	0.10%	0.05%	0.05%	0.00%	0.00%	0.00%	0.00%
3	**Difference**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**

Figure 9-2 Change in the Expected Cash flow of Coll over Next 10 Years

Line No.	Unpaid for the current year at the Valuation Date	Fiscal Year 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**March 31,2022**	89.99%	7.02%	1.68%	0.74%	0.35%	0.23%	0.00%	0.00%	0.00%	0.00%
2	**March 31,2021**	88.41%	7.78%	2.15%	1.00%	0.45%	0.21%	0.00%	0.00%	0.00%	0.00%
3	**Difference**	**1.57%**	**-0.76%**	**-0.47%**	**-0.26%**	**-0.10%**	**0.02%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**

Figure 9-3 Change in the Coll Unpaid Amount

Line No.	Insurance Year	Unpaid for current year at 202203 valuation: Case Reserve	Selected IBNR	Total Unpaid	Unpaid for current year at 202103 valuation: Case Reserve	Selected IBNR	Total Unpaid	Difference: Case Reserve	Selected IBNR	Total Unpaid
1	**2004**	0	0	0	0	0	0	0	0	0
2	**2005**	0	0	0	0	0	0	0	0	0
3	**2006**	0	0	0	0	0	0	0	0	0
4	**2007**	0	0	0	0	0	0	0	0	0
5	**2008**	0	0	0	0	0	0	0	0	0
6	**2009**	0	0	0	0	0	0	0	0	0
7	**2010**	0	0	0	0	0	0	0	0	0
8	**2011**	2	0	2	2	0	2	0	0	0
9	**2012**	3	0	3	3	0	3	0	0	0
10	**2013**	0	0	0	0	0	0	0	0	0
11	**2014**	1	0	1	1	0	1	0	0	0
12	**2015**	9	0	9	9	0	9	0	0	0
13	**2016**	19	0	19	19	0	19	0	0	0
14	**2017**	16	204	220	16	204	220	0	0	0
15	**2018**	63	614	677	63	614	677	0	0	0
16	**2019**	188	1,626	1,814	188	1,626	1,814	0	0	0
17	**2020**	724	4,247	4,971	724	4,247	4,971	0	0	0
18	**2021**	98,711	16,367	115,078	40,766	12,305	53,071	57,945	4,062	62,007
19	**Total**	**99,736**	**23,057**	**122,793**	**41,791**	**18,995**	**60,786**	**57,945**	**4,062**	**62,007**

Figure 10 MPI Automobile Insurance Division Development of Direct & Agency Unpaid Claims as of March 31, 2022

Collision - Basic
($000)

Line No.	Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending March 31									
					2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**2003 & Prior**	-	-	-	-									
2	**2004**	-	-	-	-									
3	**2005**	-	-	-	-									
4	**2006**	-	-	-	-									
5	**2007**	-	-	-	-									
6	**2008**	-	-	-	-									
7	**2009**	-	-	-	-									
8	**2010**	-	-	-	-									
9	**2011**	2	-	2	2									
10	**2012**	3	-	3	3									
11	**2013**	-	-	-	-									
12	**2014**	1	-	1	1									
13	**2015**	9	-	9	9									
14	**2016**	19	-	19	19									
15	**2017**	16	204	220	110	110								
16	**2018**	63	614	677	338	169	169	-	-	-	-	-	-	-
17	**2019**	188	1,626	1,814	1,006	403	202	202	-	-	-	-	-	-
18	**2020**	724	4,247	4,971	3,681	715	287	144	144	-	-	-	-	-
19	**2021**	98,711	16,367	115,078	105,327	7,221	1,404	563	282	282	-	-	-	-
20	**Total**	**99,736**	**23,057**	**122,793**	**110,496**	**8,620**	**2,062**	**908**	**425**	**282**	**-**	**-**	**-**	**-**
21	Cash Flow Distribution (% paid for fiscal year)				89.99%	7.02%	1.68%	0.74%	0.35%	0.23%	0.00%	0.00%	0.00%	0.00%
22	Development Months			12	24	36	48	60	72	84	96	108	120	132
23	Paid Factor to Ultimate [b]			1.2564	1.0176	1.0045	1.0020	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
24	Cumulative % Paid [b]			79.59%	98.27%	99.55%	99.80%	99.90%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%
25	Incremental % Paid to Ult				18.68%	1.28%	0.25%	0.10%	0.05%	0.05%	0.00%	0.00%	0.00%	0.00%

Figure 11 MPI Automobile Insurance Division Development of Direct & Agency Unpaid Claims as of March 31, 2022

Collision - Basic

Current Year Unpaid at the Same Amount of March 31,2021 valuation

($000)

Line No.	Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending March 31									
					2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**2003 & Prior**	-	-	-	-									
2	**2004**	-	-	-	-									
3	**2005**	-	-	-	-									
4	**2006**	-	-	-	-									
5	**2007**	-	-	-	-									
6	**2008**	-	-	-	-									
7	**2009**	-	-	-	-									
8	**2010**	-	-	-	-									
9	**2011**	2	-	2	2									
10	**2012**	3	-	3	3									
11	**2013**	-	-	-	-									
12	**2014**	1	-	1	1									
13	**2015**	9	-	9	9									
14	**2016**	19	-	19	19									
15	**2017**	16	204	220	110	110								
16	**2018**	63	614	677	338	169	169	-	-	-	-	-	-	-
17	**2019**	188	1,626	1,814	1,006	403	202	202	-	-	-	-	-	-
18	**2020**	724	4,247	4,971	3,681	715	287	144	144	-	-	-	-	-
19	**2021**	40,766	12,305	53,071	48,574	3,330	647	260	130	130	-	-	-	-
20	**Total**	**41,791**	**18,995**	**60,786**	**53,743**	**4,729**	**1,305**	**605**	**274**	**130**	**-**	**-**	**-**	**-**
21	Cash Flow Distribution (% paid for fiscal year)				88.41%	7.78%	2.15%	1.00%	0.45%	0.21%	0.00%	0.00%	0.00%	0.00%
22	Development Months			12	24	36	48	60	72	84	96	108	120	132
23	Paid Factor to Ultimate [b]			1.2564	1.0176	1.0045	1.0020	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
24	Cumulative % Paid [b]			79.59%	98.27%	99.55%	99.80%	99.90%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%
25	Incremental % Paid to Ult				18.68%	1.28%	0.25%	0.10%	0.05%	0.05%	0.00%	0.00%	0.00%	0.00%

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Part and Chapter:	**CAC (MPI) 1-4** **Part III – BMK Appendix 4**	**Page No.:**	**1 of 5**
PUB Approved Issue No:	**12. Operational Benchmarking**		
Topic:	**Total Gross Expenses per Adjusted Policy in Force**		
Sub Topic:			

Preamble to IR:

Question:

a) Please provide a schedule comparing the components of the Gross Total Expenses with SGI and ICBC.

b) Please indicate whether SGI and or ICBC are undertaking transformational initiatives like MPI currently.

Rationale for Question:

To understand reasons for differences in metric between Corporations.

RESPONSE:

a) The Gross Total Expenses consist of operational expenses allocated to the Basic Line of Business, Commissions, Premium Taxes, and Road Safety/Loss Prevention. MPI does not have a granular segmentation of costs per Crown entity. MPI will request this information during the next Crown Benchmarking exercise.

b) MPI's Crown benchmarking discussions did not cover any transformational undertakings within SGI and ICBC, not that would allow for a comprehensive response to this question. MPI did review with SGI and ICBC key system updates that are taking place, and it was noted that both ICBC and SGI are in the process

of updating their respective policy systems and updating and aligning for adoption of IFRS 17 Insurance standards.

PUB (MPI) 2-48

Part and Chapter:	**PUB (MPI) 1-76(d)** **Part VII Investments – RSR Rate Stabilization Reserve**	**Page No.:**	**6**
PUB Approved Issue No:	**18. Capital Management Plan**		
Topic:	**Capital Management Plan**		
Sub Topic:			

Preamble to IR:

PUB (MPI) 1-76 (d) response provided a proposed schedule in which MPI would file a rebate application with PUB, that would generally align with the GRA, and would issue a customer rebate in February following.

Question:

a) Would MPI agree that the timing difference between the proposed process and the process followed in the last two years of Special Rebate Applications is that the rebate is based on the already closed fiscal year, instead of the projected results of the current fiscal year?

b) If MPI were to start to experience an adverse year, following the end of the closed fiscal year, would MPI still expect to apply for the same rebate, or would MPI envision the rebate being adjusted?

Rationale for Question:

To better understand the proposed rebate process.

RESPONSE:

a) MPI agrees with the timing difference as described.

b) MPI would base a proposed rebate on the closed fiscal year. However, the proposed rebate would be contingent on the forecast for future year having a MCT above 100%.

PUB (MPI) 2-49

Part and Chapter:	**PUB (MPI) 1-1(c) Appendix 3**	**Page No.:**	
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects, Including Project Nova and Other Initiatives**		
Topic:	**Project Nova**		
Sub Topic:			

Preamble to IR:

Question:

Please summarize the issues identified by management and specifically issues identified by PWC warranting the contracting with McKinsey and Company at the September 28, 2021 Technology Committee Meeting.

Rationale for Question:

To understand the issues around the re-baseline of Project Nova.

RESPONSE:

As MPI and PWC worked closely and collaboratively to identify the issues that ultimately led MPI to re-baseline Project NOVA, separately categorizing the issues identified by management with those identified by PWC is not possible. However, MPI and PWC did jointly identify the following main issues:

- Scope increase in digital
- Teams having divided focus
- Limited resources & capabilities
- Turnover
- Immature Centres of Excellence
- Sequencing

- Leadership consistency & ownership
- Architectural runway
- General Contractor Inexperience

PUB (MPI) 2-50

Part and Chapter:	**PUB(MPI) 1-1(c) Appendix 3**	**Page No.:**	**17**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects, Including Project Nova and Other Initiatives**		
Topic:	**Project Nova**		
Sub Topic:			

Preamble to IR:

Question:

a) Please explain the reasons for each of the redactions to the Technology Committee meeting minutes.

b) Please file a copy of the unredacted minutes of the Technology Committee meeting minutes.

c) Please file a copy of the slide deck Setting Up MPI for Success-Partnership Proposal presented at the February 8, 2002 meeting.

Rationale for Question:

To understand corporate decisions that affect Basic.

RESPONSE:

a) The minutes provided were responsive to the specific minute topics requested in *PUB (MPI) 1-1*. PUB (MPI) 1-1 did not request minutes related to routine procedural matters or other matters not relevant to the rate application, thus those specific minutes were properly redacted.

b) Please see *Appendix 1 – Board of Directors Committee Meetings Technology - Confidential*.

c) Please see *Appendix 2 – Nova Setting Up MPI for Success – Confidential*.

Appendix 1:
Board of Directors Committee Meetings Technology

This material is the subject of a confidential motion.

Appendix 2:
Nova Setting Up MPI for Success Partnership

This material is the subject of a confidential motion.

PUB (MPI) 2-51

Part and Chapter:	**PUB (MPI) 1-81**	**Page No.:**	**1**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects, including Project Nova and Other Initiatives Planned for or Ongoing in the Rating Years.** **(a) Project Nova re-Baseline, Budget, and Financing Options, including Debt Financing.**		
Topic:			
Sub Topic:			

Preamble to IR:

Question:

Please provide a table which lists, describes, denotes potential risk impact and level of mitigation due to flattened delivery on Project Nova for each of the organizational capacity constraints reviewed.

Rationale for Question:

To understand risk of delivery constraints mitigated via the flattened cycle resulting in organizational capacity constraints.

RESPONSE:

2022 Re-baseline followed a pragmatic approach to identify all of the program issues and risks. Once the issues and risks were understood the re-baseline recommendation ensured we had a tactical and strategic approach to address the issues and risks.

The following tables represent our re-baseline approach as well as identify issues and risks that were identified and our steps to address under the new schedule.

Figure 1 Nova Program Rebaseline Approach

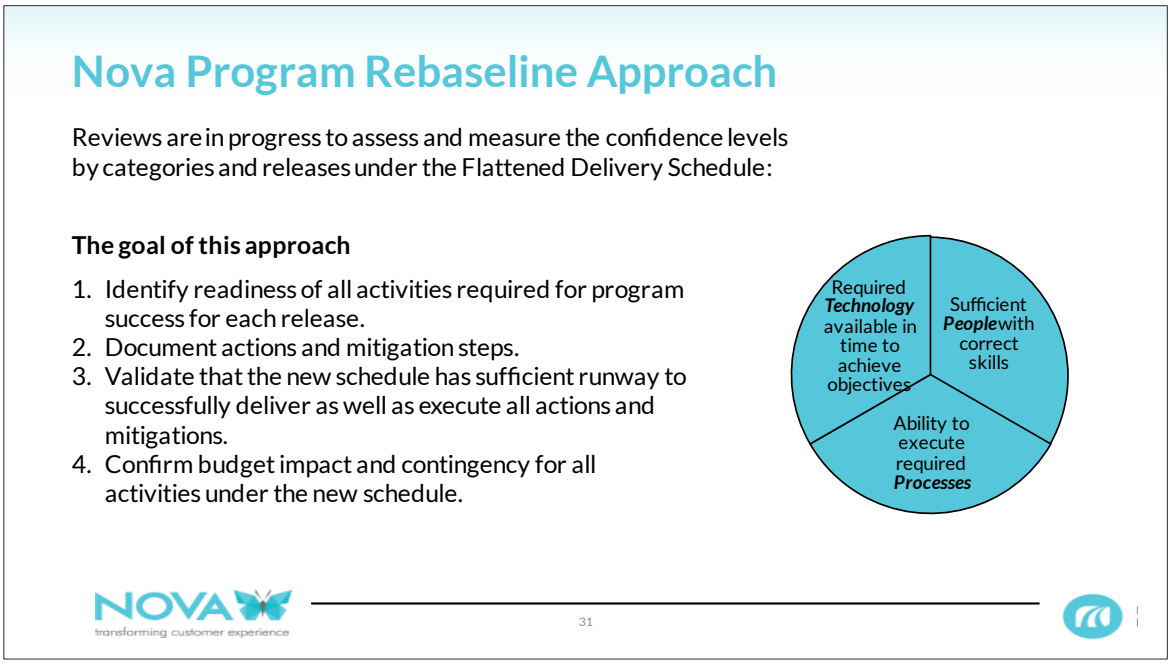


Figure 2 Progress with Program Issues Impacting Releases

Progress With Program Issues Impacting Releases

10 key categories, and tactical and strategic activities to enable Nova's success:

	Tactical	Strategic
General Contractorinexperience	• Applying Solution Management focus • Completedexternal program assessments	• Organizational General Contractor capabilities development under Strategy and Portfolio Management Directorate
*Immature Centres of Excellence (CoEs)	• Testing and integration • Leveraging external partners for immediate maturity	• Deliver IT enablers • Accelerate of IT CoEmaturity
*Operational Readiness	• Engaging Accentureon R1A	• Mature Organizational Change Management to deliver R2A and beyond without System Integrator support
*ArchitecturalRunway (AR)	• Prioritizing AR alignment to Programincrement (PI)	• Mature Enterprise Architecture • Plan AR at least 1 PI ahead
*Consistent leadership and ownership	• Leveragingexternal resources to fill gaps • Shifting to business ownership	• Develop key leadership capabilities corporately • Mature business ownership

*Strategic objectives to be achieved organizationally to completely mitigate and support Nova objectives.

Figure 3 Progress with Program Issues Impacting Releases

Progress With Program Issues Impacting Releases

10 key categories, and tactical and strategic activities to enable Nova's success:

	Tactical	Strategic
Sequencing	• ImplementingSolution Management • Accelerating End to End process design & mapping	• Leverage new Business Architecture directorate • Flatten Release Schedule (de-risk)
Turnover	• Leveraging external partners to fill capacity gaps • OnboardingIT bubble staff	• Execute organizational succession planning & OrganizationalReadiness pipeline
Limited resourcesand capabilities	• Leveraging external partners to fill capability gaps • Identifyingdomain gaps	• Mature organizationworkforce planning • Flatten Release Sched (de-risk)
Divided focus among teams	• Extending R1A & R2A • Prioritizing PI objectives to Solution Management	• Flatten Release Sched (less parallel work)
Scopeincrease in Digital	• Validating sprint capacity • Right-sizing story point measurements	• Engage KPMG to deliver additional Billing scope

*Strategic objectives to be achieved organizationally to completely mitigate and support Nova objectives.

PUB (MPI) 2-52

Part and Chapter:	**PUB (MPI) 1-85**	**Page No.:**	**1**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects, including Project Nova and Other Initiatives Planned for or Ongoing in the Rating Years.** **(a) Project Nova re-Baseline, Budget, and Financing Options, including Debt Financing.**		
Topic:			
Sub Topic:			

Preamble to IR:

Question:

a) Please indicate based on current activities in 2022 whether expected contingency will be closer to 20%, 30%, or 40%.

b) Please indicate whether level of contingency utilized for Project NOVA lifetime to date and within the current GRA.

Rationale for Question:

To understand current viewpoint of budgeted contingency given progression on Project Nova since the February 2022 business case was approved.

RESPONSE:

a) MPI currently anticipates needing approximately 15% of the budgeted contingency for Project NOVA Releases R1 and R2.

For Releases R3 and R4, MPI will better understand the budget allocation for each release, including contingency, on completion of their respective discoveries. MPI plans to complete these discoveries by the end of this fiscal year.

b) For financial reporting, MPI used 30% of the Project NOVA contingency lifetime to date and within the current GRA. MPI has yet to use any contingency funds post 2022 Re-Baseline.

PUB (MPI) 2-53

Part and Chapter:	**PUB (MPI) 1-94**	**Page No.:**	**1**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects, including Project Nova and Other Initiatives Planned for or Ongoing in the Rating Years.** **(a) Project Nova re-Baseline, Budget, and Financing Options, including Debt Financing.**		
Topic:			
Sub Topic:			

Preamble to IR:

Question:

Please overlay onto the Project Nova planned Program Increment schedule the delivery date of each capital project Project Nova is dependent on.

Rationale for Question:

To enhance the understanding impact of Project Nova relative to other capital projects.

RESPONSE:

Figure 1 Project Nova PI, Sprint, and Capital Project Estimated Delivery date

Line No.	PI	Task Name	Start	Finish	Capital Project Estimated delivery date
1	**Program Increment 6**		**25-Apr-22**	**17-Jul-22**	
2		Sprint 15	25-Apr-22	23-May-22	
3		Sprint 16	24-May-22	19-Jun-22	
4		Sprint 17	20-Jun-22	17-Jul-22	Decommission enhanced cards - Decommissioning of cards were done
5					in June 2022, the remaining work shouldn't impact Nova
6		Testing	18-Jul-22	14-Aug-22	IAM Solution and Deployment - completed July 2022
7		**PI-7 Planning**	11-Jul-22	13-Jul-22	
8	**Program Increment 7**		**18-Jul-22**	**10-Oct-22**	
9		Sprint 18	18-Jul-22	14-Aug-22	
10		Sprint 19	15-Aug-22	11-Sep-22	
11		Sprint 20	12-Sep-22	10-Oct-22	
12		Testing	11-Oct-22	6-Nov-22	
13		**PI-8 Planning**	4-Oct-22	6-Oct-22	
14	**Program Increment 8**		**11-Oct-22**	**1-Jan-23**	
15		Sprint 21	11-Oct-22	6-Nov-22	Crypto Key Management - estimated date of completion October 2022
16		Sprint 22	7-Nov-22	4-Dec-22	eTransfer - estimated date of completion Nov 2022
17					eCash - estimated date of completion Nov 2022
18					Data Warehouse - estimated date of completion Nov 2022
19		Sprint 23	5-Dec-22	1-Jan-23	eSignature - estimated date of completion Dec 2022
20		Testing	2-Jan-23	29-Jan-23	
21		**PI-9 Planning**	12-Dec-22	16-Dec-22	
22	**Program Increment 9**		**2-Jan-23**	**26-Mar-23**	
23		Sprint 24	2-Jan-23	29-Jan-23	
24		Sprint 25	30-Jan-23	26-Feb-23	
25		Sprint 26	27-Feb-23	26-Mar-23	
26		Testing	27-Mar-23	23-Apr-23	
27		**PI-10 Planning**	20-Mar-23	22-Mar-23	
28	**Program Increment 10**		**27-Mar-23**	**18-Jun-23**	
29		Sprint 27	27-Mar-23	23-Apr-23	
30		Sprint 28	24-Apr-23	21-May-23	
31		Sprint 29	22-May-23	18-Jun-23	
32		Testing	19-Jun-23	16-Jul-23	
33		**PI-11 Planning**	12-Jun-23	14-Jun-23	
34	**Program Increment 11**		**19-Jun-23**	**10-Sep-23**	
35		Sprint 30	19-Jun-23	16-Jul-23	
36		Sprint 31	17-Jul-23	13-Aug-23	
37		Sprint 32	14-Aug-23	10-Sep-23	
38		Testing	11-Sep-23	8-Oct-23	Enterprise Monitoring was being replaced by Network Operations Centre
39					as a Service (NoCaas) - estimated date of completion Sep 2023
40		**PI-12 Planning**	4-Sep-23	6-Sep-23	

PUB (MPI) 2-54

Part and Chapter:	**PUB (MPI) 1-99**	**Page No.:**	**1**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects, including Project Nova and Other Initiatives Planned for or Ongoing in the Rating Years.** **(a) Project Nova re-Baseline, Budget, and Financing Options, including Debt Financing.**		
Topic:			
Sub Topic:			

Preamble to IR:

Question:

Please add to Figure 2 to denote whether

i. the position is new for 2022/23.
ii. the position is current filled or open.
iii. the position has had any turnover in 2022/23.

Rationale for Question:

To enhance the understanding current resource readiness state for Project Nova.

RESPONSE:

Figure 1 Nova Assigned Resources

Line No.	MPI Role	Currently Filled or Open	Total FTE's Per Role: Incremental FTE's	Total FTE's Per Role: Non-Incremental FTE's	Status of Roles: Incremental: New for 2022/23	Status of Roles: Incremental: Turnover for 2022/23	Status of Roles: Non-Incremental: New for 2022/23	Status of Roles: Non-Incremental: Turnover for 2022/23
1	Accountant	Filled		1			1	
2	Accounts Receivable Representative	Filled		0.05				
3	Analyst	Filled	3	9.9			0.9	
4	Application Services Lead	Filled		3				
5	Assistant Manager, Financial Operations	Filled		0.4				
6	Broker Services Administrator	Filled		0.35			0.25	0.1
7	Business Analyst	Filled	3	2.5				
8	Business Architect	Filled		3.5				
9	Business Process Architect	Filled		3				1
10	Change Analyst	Filled		1			1	
11	Clerk 2 - Nova Program Management Office	Filled	1					
12	Corporate Controller	Filled		0.2				
13	Customer Care Lead	Filled		2				
14	Customer Service Controller	Filled		1				
15	Data Architect	Filled		0.9				
16	Database Administrator	Filled		0.1				
17	Director, Change and Knowledge Management	Filled		0.8				
18	Director, Customer Experience	Filled		0.5				
19	Director, Nova Program Delivery	Filled	1					
20	Director, Nova Technical Solutions	Filled	1					
21	Director, Product and Pricing	Filled		0.5				
22	Driver Records Coordinator	Filled		0.25				
23	Information Security Architect	Filled		0.5				
24	Information Security Officer	Filled		0.15				
25	Instructional Designer	Filled		3			2	
26	IRP Prorate Officer	Filled		1				
27	IT Risk and Compliance Management Analyst	Filled		0.1				
28	Legal Counsel 3	Filled		0.2				

Nova Assigned Resources *(cont'd)*

Line No.	MPI Role	Currently Filled or Open	Total FTE's Per Role		Status of Roles			
					Incremental		Non-Incremental	
			Incremental FTE's	Non-Incremental FTE's	New for 2022/23	Turnover for 2022/23	New for 2022/23	Turnover for 2022/23
29	**Manager, Cybersecurity & IT GRC**	Filled		0.15				
30	**Manager, Data Science**	Filled		0.03				
31	**Manager, Design and Digital Media**	Filled		0.1				
32	**Manager, IT Support & Operations**	Filled		0.2				
33	**Manager, KMS Projects**	Filled		1				
34	**Manager, Organizational Change Management**	Filled		1				
35	**Manger, KMS**	Filled		1				
36	**Model Office Coordinator**	Open		1			1	1
37	**Network Analyst**	Filled		0.05				
38	**Organizational Change Management Consultant**	Filled		2				
39	**Product Manager**	Filled	4					
40	**Product Owner**	Filled	6			1		
41	**Professional Intern**	Filled		1			1	
42	**Program Administrative Assistant**	Filled		0.8				
43	**Program Administrator**	Filled	1		1			
44	**Program Manager, Project Nova**	Filled	1			1		
45	**Programmer**	Filled	4	7.05			0.1	
46	**Project Coordinator**	Filled	1					
47	**Project Manager**	Filled	2	0.9				
48	**Scrum Master**	Filled	1	0.33				
49	**Senior Communications Specialist**	Filled	1					
50	**Senior Data Architect**	Filled		0.05				
51	**Senior Network Analyst**	Filled		0.25				
52	**Senior Project Manager**	Filled	1			1		
53	**Senior UI/UX Designer**	Filled		1			1	
54	**Senior UX Developer**	Filled		2				
55	**Service Centre Representative**	Filled		0.7				
56	**SME - Business Analyst**	Filled	2					

Nova Assigned Resources *(cont'd)*

Line No.	MPI Role	Currently Filled or Open	Total FTE's Per Role		Status of Roles			
					Incremental		Non-Incremental	
			Incremental FTE's	Non-Incremental FTE's	New for 2022/23	Turnover for 2022/23	New for 2022/23	Turnover for 2022/23
57	SME - Communications Advisor	Filled	1					
58	SME - HR Business Partner	Filled	1					
59	SME - Instructional Designer	Filled	1					
60	SME - Resource Coordinator	Filled	1					
61	SME - Sr Underwriter	Filled	1					
62	SME - Supervisor, Instructional Design	Filled	1					
63	SME - Supervisor, Technical Communications	Filled	1					
64	SME - Systems User Analyst	Filled	4	1				1
65	SME - Value Management Coordinator	Filled		0.25				
66	Solutions Architect	Filled		1.5				
67	Sr Accounting Clerk	Filled		0.75			0.75	
68	Sr Database Administrator	Filled		0.2				
69	Sr Driver Records Processing Clerk	Filled		0.25				
70	Sr Underwriter	Filled	1					
71	Supervisor, Records and Information Management	Filled		0.03				
72	Supervisor, Customer Service Centre	Filled		1				
73	Supervisor, Identity Management	Filled		0.25				
74	Supervisor, Instructional Design	Filled	1					
75	Supervisor, Medical Assessment	Filled		0.25				
76	Supervisor, Technical Communications	Filled	1					
77	Supervisor, Underwriting	Filled		1			1	
78	Supervisor, Vehicle Safety	Filled		0.25				
79	Supervisor, Vehicle Safety Programs	Filled		0.25				
80	System Architect	Filled		5.5				

Nova Assigned Resources *(cont'd)*

Line No.	MPI Role	Currently Filled or Open	Total FTE's Per Role		Status of Roles			
					Incremental		Non-Incremental	
			Incremental FTE's	Non-Incremental FTE's	New for 2022/23	Turnover for 2022/23	New for 2022/23	Turnover for 2022/23
81	**System User Analyst**	Filled		5				1
82	**Technical Communications Specialist**	Filled	1					
83	**Testing Analyst**	Filled	7	1		1		
84	**Testing Analyst - SME**	Filled	1					
85	**Underwriter**	Filled		1			1	
86	**Value Management Coordinator**	Filled		0.1				
87	**Vehicle Safety Support Clerk**	Filled		0.25				
88	**VP & Chief Transformation Officer**	Filled		0.8				
89	**TOTAL**		**56**	**77.14**	**1**	**4**	**11**	**4.1**

PUB (MPI) 2-55

Part and Chapter:	**CAC(MPI) 1-30** **Part IV – Project Nova Appendix 9**	**Page No.:**	**3 of 5**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects, Including Project Nova and Other Initiatives Planned for or Ongoing in the Rating Years**		
Topic:	**Project Nova Allocations Among Lines of Business**		
Sub Topic:			

Preamble to IR:

MPI based its previous Property and Casualty (P&C) allocation methodology on claims incurred volumes, which allocates costs based on the claims volumes. However, claims a disparity in cost allocations that did not align with the capital asset benefit of the correct line of business. Consequently, MPI incorrectly applied amortization to Basic, while the Extension or SRE line of business received the benefit of the asset.

Question:

a) To what extent did MPI incorrectly apply amortization to Basic and the actual and forecast years impacted by the error.

b) Please indicate to what extent the deferred expenditures on Project Nova incurred to date had been incorrectly assigned to Basic and to what extent have been reallocated to the correct line of business.

Rationale for Question:

To understand how Project Nova costs were allocated among lines of business.

RESPONSE:

a) and b)

Please see Error and Omissions filing *MPI Exhibit#42*. To date, no amortization has been applied for Project Nova. Amortization is scheduled to begin in 2025/26.

PUB (MPI) 2-56

Part and Chapter:	**MPI Exhibit #13**	**Page No.:**	**16 of 17**
PUB Approved Issue No:	**20. Asset Liability Management Study (in accordance with Directives 11.19 and 11.20 of Order 134/21)**		
Topic:	**ALM Study**		
Sub Topic:	**Basic Claims Portfolio Asset Mix Optimization - Inflation**		

Preamble to IR:

Question:

a) Please provide a narrative description of the results of each of the risk metrics with respect to the alternative modelled Basic Long portfolio mixes on page 17.

b) Please provide a narrative description of the results of the 10 Year annualized returns under alternative mixes for the Basic Long portfolio under various inflation scenarios and comment on benefits of changes to asset mixes.

c) Please provide commentary on the analysis provided on page 19 and comment on the relative performance of various portfolio mixes under the inflation scenarios. Based on the analysis, what changes in portfolio would be beneficial to meet inflation risk?

Rationale for Question:

To understand the analysis of alternative portfolio mixes.

RESPONSE:

a) The metrics modelled as part of the inflation scenarios include 10-year annualized returns and projected surplus. Analysis was conducted for the current mix, as well as three additional mixes ("midpoint") developed from the initial efficient frontier analysis: adding real return bonds, adding mortgages and real estate, and adding 3x long bonds and equities. See the responses to Parts (b) and (c) for further commentary on the impact on 10-year annualized returns and projected surplus.

b) 10-year annualized returns were projected under the Median scenario (from the baseline 1,000 stochastic scenarios) and compared under three specific inflation scenarios: Financial Repression, Pandemic Stagflation and Overheat.

Overall, the 10-year projected annualized returns of the Current mix are lower under all three inflation scenarios compared to the Median scenario. This is due to the fact that under all the inflationary scenarios, it is expected that bond yields will be higher (compared to the Median Scenario), putting downward pressure on bond valuations and deteriorate the Current mix which is invested 100% in bonds. Adding real return bonds as well as other non-fixed income asset classes (real estate, equities) improves the 10-year annualized returns. The comparative results depend on the inflation scenario modelled:

1. The Financial Repression scenario represents a scenario with higher inflation (compared to the baseline 2%) but one where central banks keep rates low to support overall growth. The addition of real return bonds in all three alternative mixes improves projected returns, relative to the Current mix, given the higher inflationary environment in this scenario. Furthermore, the overall support for economic growth means that projected returns for growth assets (such as real estate and equities) are strong. As a result, the alternative mixes that allocate to these asset classes are expected to have the highest 10-year projected annualized returns.

2. The Pandemic Stagflation scenario represents a scenario of simultaneous recession and high inflation. Similar to the Financial Repression scenario,

adding real return bonds in all three alternative mixes improves projected returns as real return bonds are expected to outperform nominal bonds in an inflationary environment. Conversely, the recessionary environment in this scenario means that growth assets are expected to underperform. As a result, the alternative asset mixes that allocate to real estate and equities are expected to have the lowest 10-year projected annualized returns.

3. The Overheat scenario involves central banks tightening monetary policy (raising interest rates) to curb inflation but doing so pre-emptively and triggering a recession. The addition of real return bonds in all three alternative mixes is not as attractive, relative to the Current mix since inflation is controlled. However, the addition of growth assets, which are still expected to have modest positive returns (especially after the initial recessionary shock in the early years of the projection), offsets this projection. Overall, the net impact is that the 10-year projected annualized returns are similar across the alternative mixes and scenarios.

c) The analysis on Slide 19 incorporates liabilities and projects the surplus year-by-year over 10 years. The comments made in (b) about the relative attractiveness of the alternative mixes from an asset-only perspective generally flow through to the asset-liability (i.e., surplus) projections. For example, under the Financial Repression scenario, alternative mixes that include real estate and equities have the highest 10-year projected annualized returns and also result in the highest projected surplus.

Under the Current mix, the surplus position is expected to deteriorate into a deficit under the Financial Repression and Pandemic Stagflation scenarios over 10 years. Under the Overheat scenario, a deficit is expected in the early years but the position rebounds into a surplus by the end of the projection. Overall, the Pandemic Stagflation scenario presents the most significant risk. Across all the scenarios modelled, adding real return bonds to the portfolio is the most beneficial to managing inflation risk as it results in higher surplus or lower deficit positions compared to the Current mix.

PUB (MPI) 2-57

Part and Chapter:	**PUB (MPI) 1-121(b)** **PUB(MPI) 1-133(b)** **CMMG(MPI) 1-3(c)**	**Page No.:**	
PUB Approved Issue No:	**20. Asset Liability Management Study (in accordance with Directives 11.19 and 11.20 of Order 134/21)**		
Topic:	**ALM Study**		
Sub Topic:	**Real Return Bonds and ALM**		

Preamble to IR:

MPI has developed no timeline for the implementation of the changes to the investment portfolios as it is currently focused on studying the issue of leverage and selecting specific asset mixes to recommend to the Investment Committee (IC).

MPI indicates that it continues to evaluate the use of leverage. As such, not further analysis is available at this time.

Question:

Please indicate if and when an analysis of leverage will be made available; if already available, please file the analysis and the investment portfolio mixes currently being studied and the respective risk-reward analysis.

Rationale for Question:

To understand MPI's investment strategy

RESPONSE:

The analysis regarding the use of leverage is not yet complete. As indicated in the response to *CMMG (MPI) 1-3(d)* "MPI will file the recommendations made to the Investment Committee after their review and approval by the Investment Committee".

The asset mixes being studied are outlined in Mercer's Phase Two reports:

1. *Part 7 Investments INV Attachment G – Mercer Report Asset Mix Optimization Basic Insurance Component June 2-22*

2. *Part 7 Investments INV Attachment H - Mercer Report Asset Mix Optimization NonBasic RSR, EXT, SRE, EFB, Portfolios Jun 2-22*

These reports were filed July 12, 2022 and include all of the risk and return metrics for each asset mix.

PUB (MPI) 2-58

Part and Chapter:	**PUB (MPI) 1-128(b)** **Part VII- Investments;** **INV Attachment G** **PUB (MPI) 1-79 (2019 GRA)**	**Page No.:**	
PUB Approved Issue No:	**20. Asset Liability Management Study (in accordance with Directives 11.19 and 11.20 of Order 134/21)**		
Topic:	**ALM Study**		
Sub Topic:	**Basic Claims Portfolio Asset Mix Optimization**		

Preamble to IR:

Mercer prepared alternative asset mixes including real return bonds in its 2019 study.

The question was for MPI to re-file the efficient frontier analysis to include the 2019 proposed asset mixes for the Basic Long Portfolio and provide a narrative description of the results along the efficient frontier of the various portfolios relative to the current asset mix through each step of the step-wise analysis.

This is to assess how the current asset mixes may differ from what Mercer had previously recommended.

MPI refused to answer the question, nor did it provide a rationale for its refusal to answer.

Question:

a) Please explain why MPI is refusing to respond to this information request.

b) If information is readily available, please provide the information.

Rationale for Question:

To understand the analysis of alternative portfolio mixes.

RESPONSE:

a) In the response to *PUB (MPI) 1-128(b)*, MPI provided the following rationale for refusing to answer the question:

> *"The request entails rehashing a previous study which would be expensive and asset mixes from an earlier study that made use of a different liability benchmark are not relevant to developing an asset mix policy on a go forward basis."*

b) The information is not readily available and, as indicated above, would require significant time, effort and cost to have Mercer produce what MPI believes would ultimately be a product that is of limited value.

PUB (MPI) 2-59

Part and Chapter:	**PUB (MPI) 1-132(a)** **Part VII- Investments; INV** **Attachment H, H5**	**Page No.:**	**10, 23-26**
PUB Approved Issue No:	**20. Asset Liability Management Study (in accordance with Directives 11.19 and 11.20 of Order 134/21)**		
Topic:	**ALM Study**		
Sub Topic:	**EFB Portfolio Asset Mix Optimization Analysis**		

Preamble to IR:

MPI is considering moving its funding of the defined benefits pension plan (i.e., the employer portion) from a payment funding basis to a Pre-Funding basis. Moving to a Pre-Funding basis would mean that MPI would contribute to the Civil Service Superannuation Fund at prescribed rates to cover both current and future obligations – this would result in the removal of the liability and a significant reduction in the Employee Future Benefits Liability and corresponding investment portfolio

Question:

a) Please file any MPI analysis that supports this change.

b) Please explain how the change in the funding arrangement would impact the MCT.

c) Please indicate how the change in the funding arrangement would impact the level of investment income and rates. Please file any analysis prepared indicating the impacts.

Rationale for Question:

To understand the impact of changes to the investment portfolio mix.

RESPONSE:

a) Please see attached presentations made to the Investment Committee of the MPI Board of Directors on August 5, 2021 (*Appendix 1*) and February 10, 2022 (*Appendix 2*).

b) There are two elements to this: firstly, on transition a gain or loss would be experienced due to the difference in discount rates used for accounting versus going concern, which would be used to determine necessary assets to transfer. This difference would impact available capital; and second, the removal assets backing pension would result in the removal of capital required for various credit and investment risks, and therefore increase the MCT (see slide 8 of the August 5, 2021 Board submission for further details).

c) The change in funding method would result in the removal of the assets backing pension which would result in reduced investment income. This reduction would be offset by the removal of the interest cost, a contra amount to investment income. Therefore the amount reflected in investment income would remain essentially the same, except to the extent the EFB portfolio exceeds or falls short of the actuarially determined interest cost.

Pension Funding

Payment Funding vs Pre-Funding

Investment Committee Meeting

MANITOBA PUBLIC INSURANCE

Background

MPI offers staff a defined benefit pension plan, participating under the Civil Service Superannuation Act (CSSA)

- At present, MPI is contributing to the Civil Service Superannuation Fund (CSSF) based on the pay-as-you-go method of funding (payment funding). Under this method, no advance funding payments for the employer share of the cost of pensions are made to the CSSF.

- Each month, MPI makes payments to the CSSF to reimburse it for a portion (currently about 44%) of each pension payment to retired employees

- MPI has however, established a specific portfolio to fund future pension obligations.

Funding Options

Which funding method is best suited for MPI?

1. Payment Funding

- Pay monthly share only as payments made to pensioners
- Carry a liability for future pension obligation and associated assets on balance sheet

2. Pre-Funding

- Make monthly payments to satisfy current and future employer pension obligations.
- The prefunding employer contribution rate is 0.9% less than the employee on pensionable earnings up to the CPP maximum pensionable earnings and the same as the employee on Pensionable Earnings above that maximum.
- Carry no liability for future pension obligation and associated assets on balance sheet*

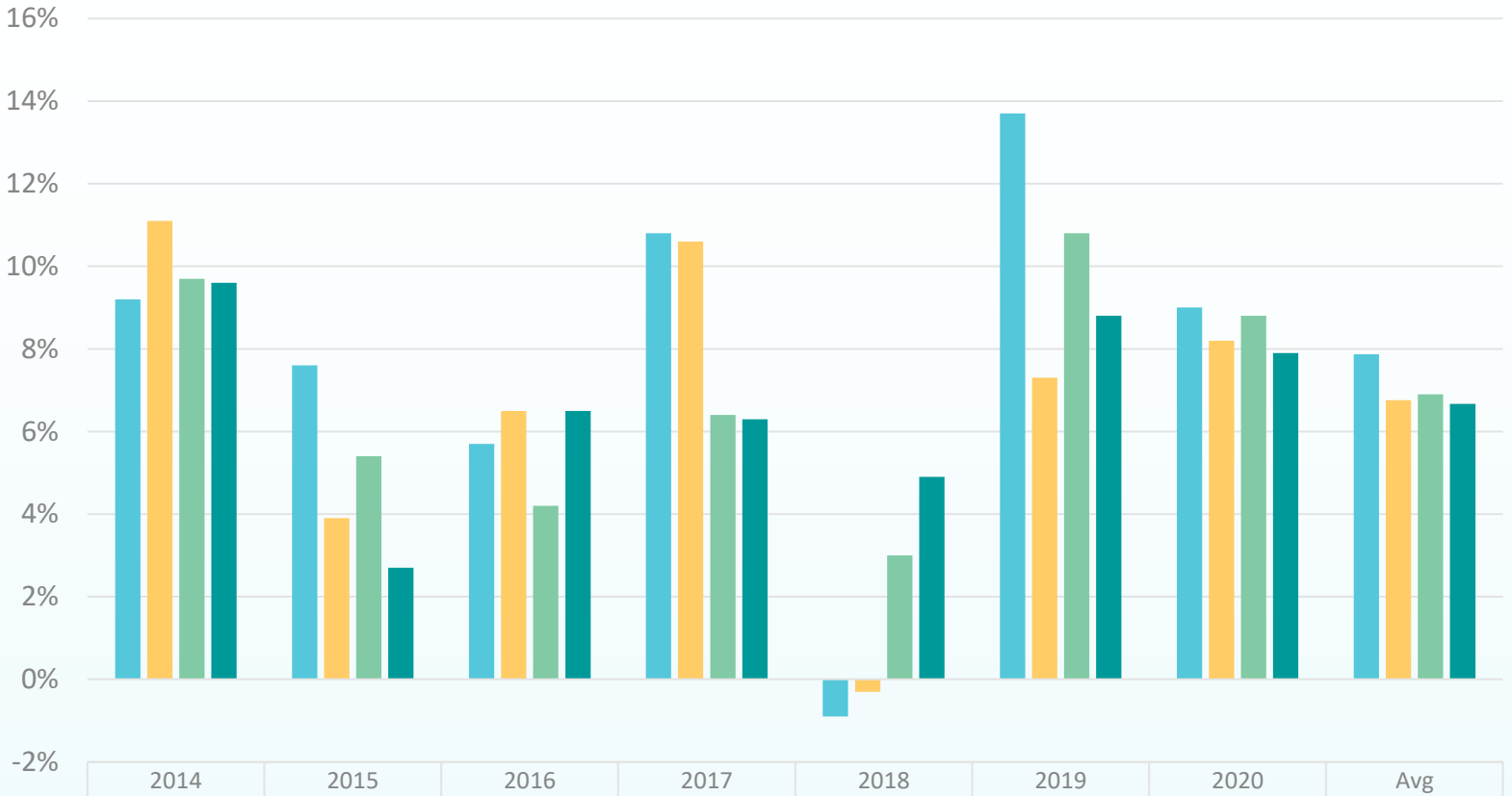
** Except for a small balance of approx. 6% for 'off-side' CRA accounts for high earners*

Key Decision Criteria

Points Supporting Payment Funding	Points which are indifferent to either approach	Points Supporting Pre-Funding
Control	Rates of Return	Volatility Reduction
	Administrative Burden	Capital
	MPI Experience*	Simplicity
		Transitional Impacts

**pending actuarial input/analysis*

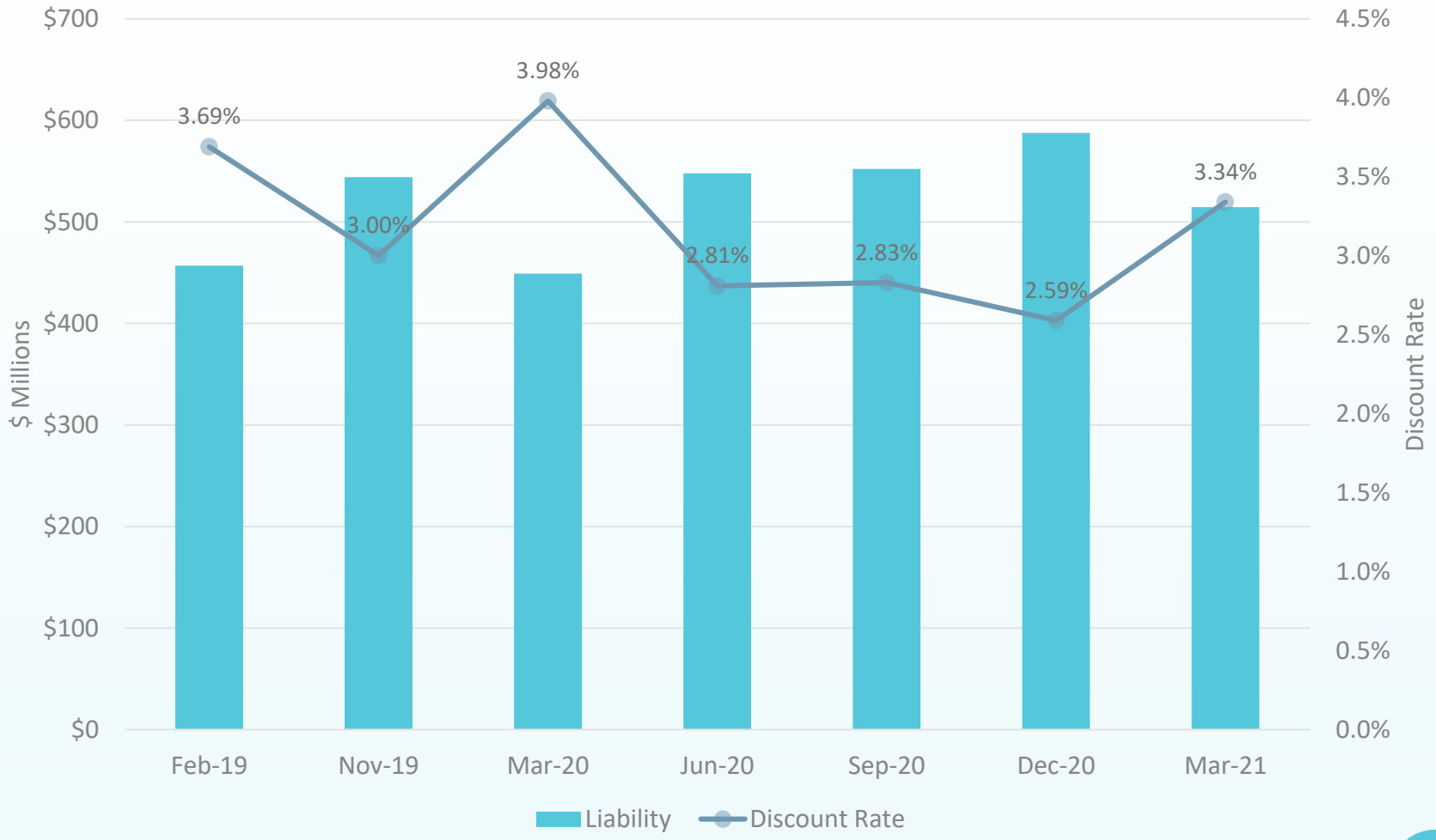
Investment Returns



	2014	2015	2016	2017	2018	2019	2020	Avg
CSSB 26/74	9.2%	7.6%	5.7%	10.8%	-0.9%	13.7%	9.0%	7.9%
EFB Simulated 40/60	11.1%	3.9%	6.5%	10.6%	-0.3%	7.3%	8.2%	6.8%
CSSB Adjusted 70/30	9.7%	5.4%	4.2%	6.4%	3.0%	10.8%	8.8%	6.9%
MPI 70/30	9.6%	2.7%	6.5%	6.3%	4.9%	8.8%	7.9%	6.7%

Provision for Employee Future Benefits

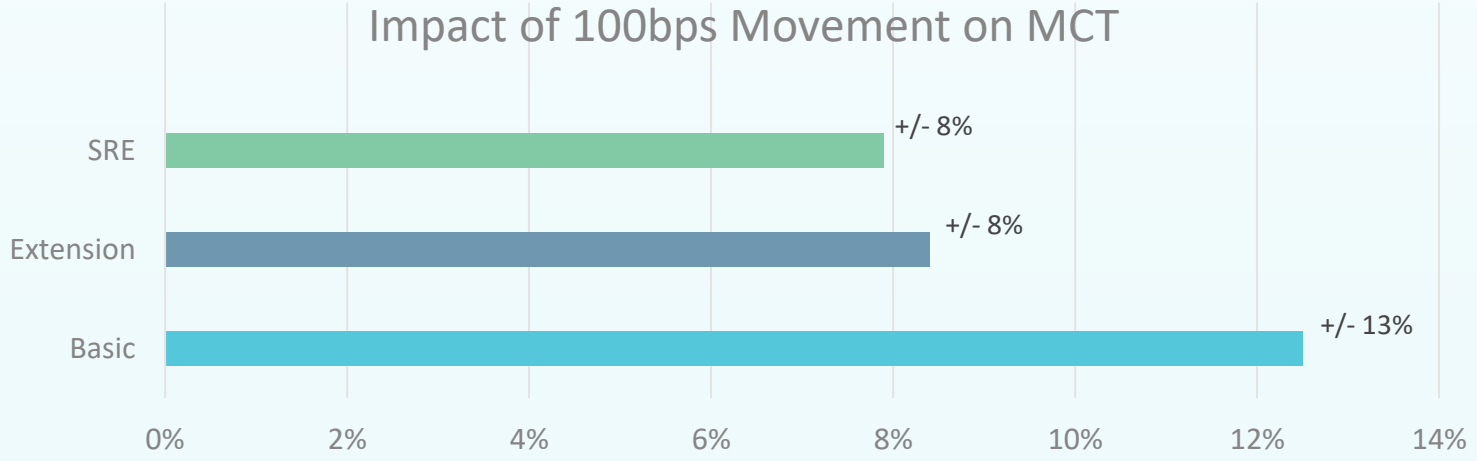
Discount Rate Volatility



Financial Volatility

The Pension liability moves dramatically with changes in prevailing interest rates

- For every 100bps of movement in corporate bonds, the pension liability moves by $93-99M
- Assuming a rough 30% hedge in assets, net capital available is impacted by $65-69M
- These impacts do not currently impact Net Income, however they do flow to Total Equity and MCT
  - Upon adoption of IFRS 17 & 9, these impacts are expected to flow through Net Income
- Risk Appetite: Low overall appetite for net income volatility, which should not exceed +/- $50M over 4 years relative to budget.



Capital

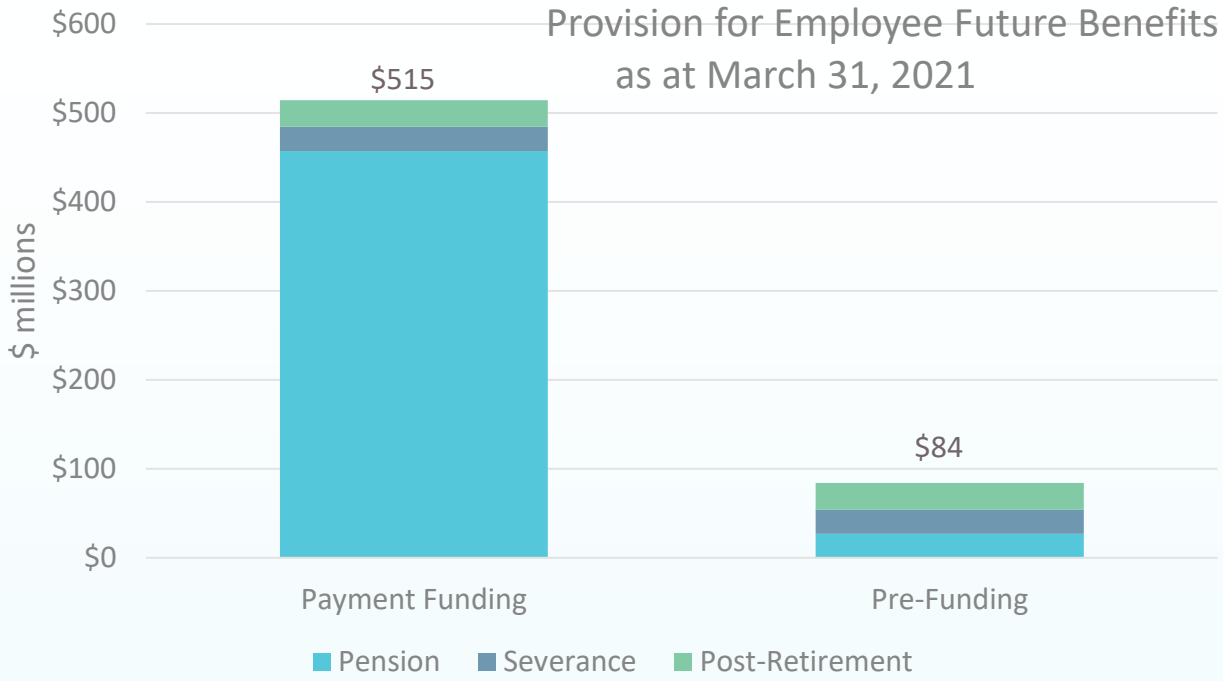
EFB Assets Attract Various Capital Charges

- EFB assets carry capital charges totaling approximately $60M*
  - Interest rate, Foreign Exchange, Equity, Real Estate, & Credit Risk
- Removal of the assets from the Balance Sheet would free up capital which could be deployed for other purposes (Rebate)

	Basic	Extension	SRE
Capital Required	$45M	$4M	$4M
Capital Required at Target	$45M	$8M	$12M
MCT % Impact	+13%	+18%	+24%

**net of diversification credit and margin required (÷ 1.5)*

Administrative Burden



- No material change in employee data transmission to CSSB
- EFB Portfolio would remain, however at about one-fifth of the portfolio size
- While a shift to Pre-Funding would simplify things; there would not be any material savings from an administrative or FTE standpoint

Impact on Rate Setting

There is no material impact to the break-even cost of Basic vehicle premiums, however capital build/release impacts would be nearly eliminated as OCI volatility is reduced

	Payment Funding	Pre-Funding	Change
Current Service Cost	$17M	-	+ $17M
Interest Cost	15M	-	+ 15M
Investment Income	15M	-	- 15M
Prescribed Match Contributions	-	11M	- 11M
Net P&L Annual Impact	- $17M	- $11M	+ $6M
Impact on AAP Rate Setting			~ 0.5%
Remeasurement of Pension (OCI): Volatility reduction on Available Capital	100%	6%	-94%

Control

- How much to set aside to fund the obligation
- Determination of the asset allocation and fund managers
- As currently structured; management, or its shareholder could theoretically withdraw these funds and deem them to be directed for other purposes

- 2020 CSSB Actuarial Opinion: We hereby certify that, in our opinion, the assets of the Fund, together with future investment income, and the current contribution levels, are inadequate to provide the benefits promised by the Fund, in respect of service completed up to the Valuation Date based on the actuarial assumptions and methodology used in this Report. Without the necessary contribution increases and/or favourable future experience, assets will not be sufficient to provide the benefits.

- While the onus and financial liability will always ultimately fall to the employers responsible for meeting the pension obligations, moving to a prefunding basis would place additional reliance and trust in the CSSB
- Ellement recommends that a 2.0% increase separately of both employer and employee contributions is minimally required to restore the financial health of the CSSF if no Plan benefit amendments are made provided actuarial assumptions will on average be realized in the future.

Control

- A call to fund the plan deficit may come at some point in the future
  - MPI is currently in a solid financial position however this status could change in the future
  - The underfunded portion of the liability could be addressed in a few ways:
    - Set up as a specific liability – this is not required and the possibility is being assessed with our auditors. This outcome would have direct input on transitional gain/loss impacts
    - If the unfunded liability could not be established under IFRS, assets could still be set aside however this would cause complications under assessments of available capital as these would not be restricted assets

MPI Experience vs Pool

- Pro: MPI concern about managing adverse experience on the registered assets may be "perceived" to be diminished as the MPI investment and/or demographic risk would be pooled with the larger CSSF group of participating employers.

- Con: MPI would no longer benefit from any potential future "MPI" investment and/or demographic experience that it may "perceive" to occur in the future to assist in funding its share of the CSSA benefits. Such otherwise MPI experience would be pooled with all the participants under the CSSF.

- The Risk and Reward of better/worse MPI performance/experience are both removed under the Pre-Funding scenario. Demographic factors include: salary levels, terminations, retirement timing, & mortality

- This difference/impact is currently assessed as immaterial by the pension actuary however a study to determine this is expected to be completed by the end of August

Transitional Impacts

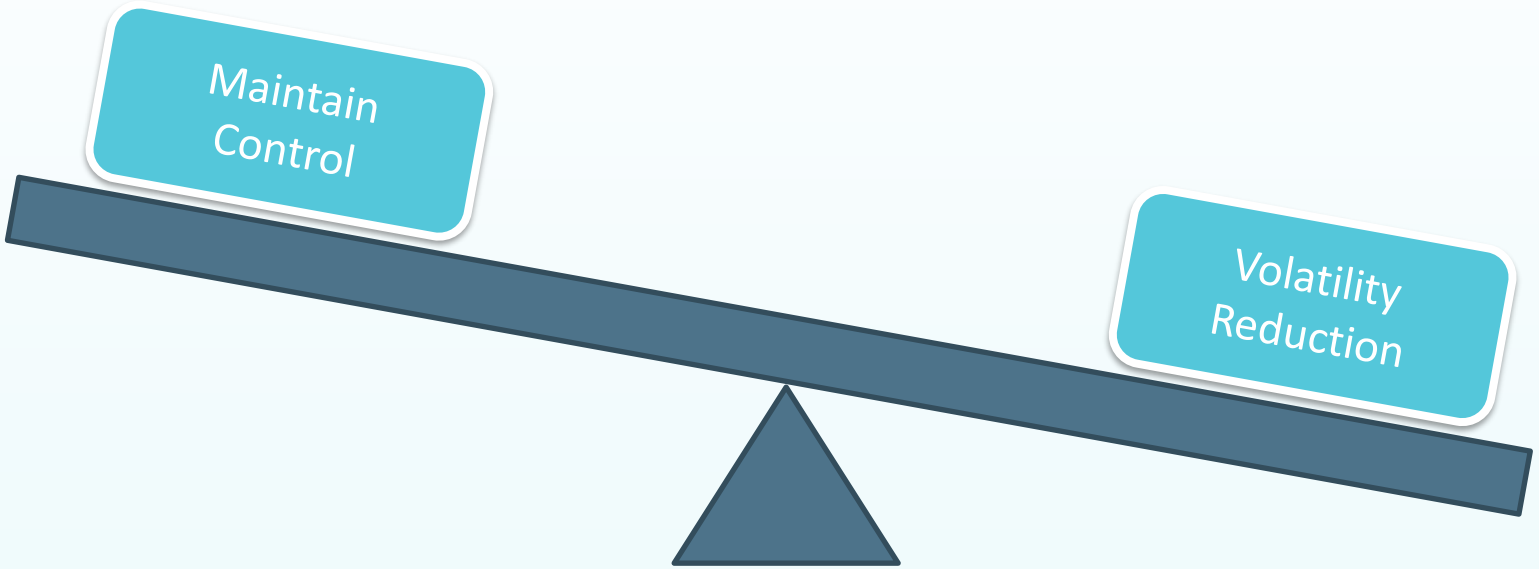
On transition, assets would be required to transfer to the CSSF on a going concern basis

- Ellement has provided an estimate of the required funds that would need to be transferred
- This includes a Contribution to Basic Funded Ratio Deficit which reduces the amount required
- Offside pension obligations pursuant to the Canada Revenue Agency (CRA) cannot be transferred to the registered CSSF and must remain an accounting liability of MPI.

	$Millions
Carrying Value Liability (Jun, 2021)	$475.9
Estimated Retained Carrying Value (Jun, 2021)	28.0
Liability removed from books	447.9
Required Transfer to the CSSF	233.2
Gain on Transition *(subject to change based on interest rate movements leading up to transaction)*	**$214.6**

The Big Question

The Decision boils down to Control vs Volatility



Next Steps

- Work with Ellement to determine if any historical difference exists between MPI and the CSSF demographic experience
  - And if so; to what degree and likelihood of continuing into the future is expected
- Incorporate any IC feedback into analysis
- Formulate final recommendation
- Consider transitional impacts for 2022 Budget inclusion (if required)
- Bring final recommendation to the Board
- Develop action/transition plan and engage relevant stakeholders (if required)

Questions ?

Appendix 1

Other Considerations

- Employee Impact – employees will not be directly impacted by the method of employer funding selected
- Investment management fees – a reduction in the size of MPI's overall investment portfolio would not cause a material increase in investment management fees as the portfolio post carve-out would still be of sufficient scale ($3B+)
- Impact on pool of default of an employer – this would be uncharted territory and would be a political and legal issue. If an employer became insolvent the likely outcomes would be reduced or eliminated benefits of pensioners, the burden to be spread across remaining participating employers, or the Province would cover that defaulting employers costs

Appendix 2

Government Approvals

- Government has not yet been engaged in this process
- Legislative changes and/or a Order in Council (OIC) would be required
- Based on discussion with MBLL, they're experience making the change to a pre-funder was quite smooth and straightforward after the 'legal' aspects were dealt with
- Based on discussions with the General Manager of the CSSB and the Pension Actuary, there are no perceived significant obstacles to making such a switch in funding status

Pension Funding Update

Payment Funding vs Pre-Funding

Investment Committee Meeting

MANITOBA PUBLIC INSURANCE

Background

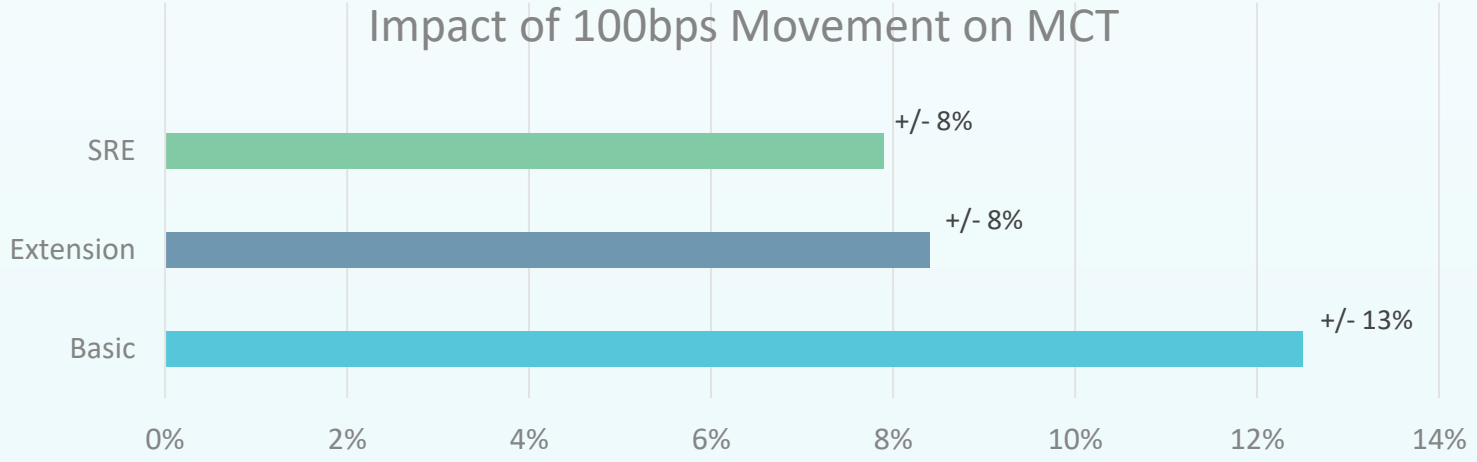
At the August, 2021 IC Meeting the Merits of Payment vs Pre-Funding of Pension was discussed

- In order to reduce financial statement volatility and to simplify administration, Pre-funding the pension is under consideration
- Two key take-aways arose from the August meeting
    1. The need to confirm if any potential disadvantage would exist for MPI if it entered the multi-employer plan and experienced blended pooling with the broader demographics under the CSSF
    2. Explore the possibility of establishing a liability for any amount of pension obligation that is deemed as actuarially underfunded

Why? To Reduce Financial Volatility

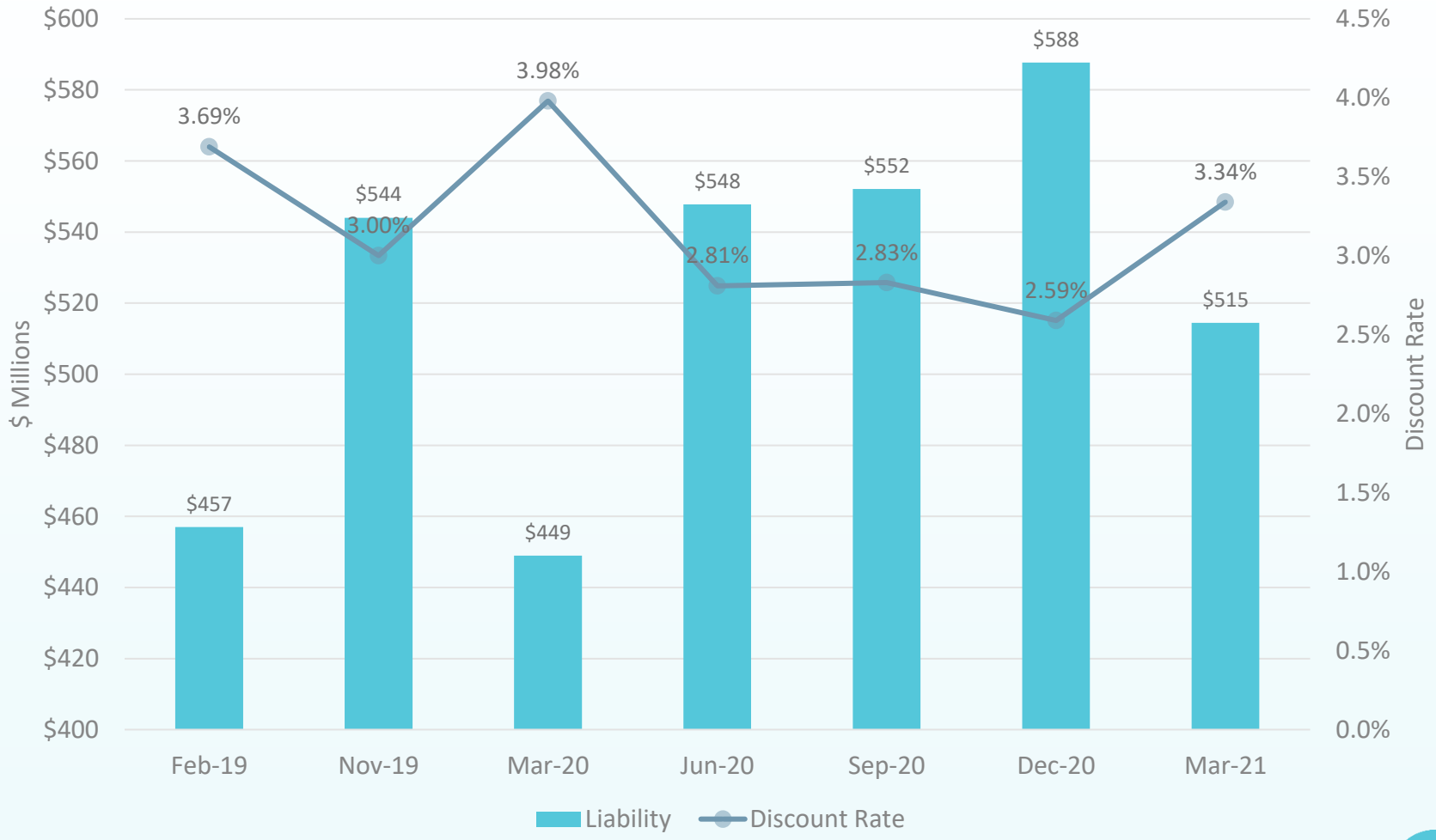
The Pension liability moves dramatically with changes in prevailing interest rates

- For every 100bps of movement in corporate bonds, the pension liability moves by $93-99M
- Assuming a rough 30% hedge in assets, net capital available is impacted by $65-69M
- These impacts do not currently impact Net Income, however they do flow to Total Equity and MCT
  - Upon adoption of IFRS 17 & 9, pension assets ($560M) mark-to-market valuations will flow through Net Income
- Risk Appetite: Low overall appetite for net income volatility, which should not exceed +/- $50M over 4 years relative to budget.



Provision for Employee Future Benefits

Discount Rate Volatility



MPI vs Broader Pool Experience

Is it to MPI's detriment to enter the pool and assume the demographic makeup of the larger pool demographics?

The Ellement Consulting Group completed an Experience Study in the fall

- The study scope covered the following demographic experience:
  - Assumed Salary Increase Rates ⇧
  - Retirement Rates ⇔
  - Termination Rates ⇔
  - Disability Rates ⇔
  - Death Rates (Pre/Post-Retirement) ⇔
- Overall, the CSSF pension plan has a slightly greater margin of caution relative to the salary and demographic accounting used for the MPI pension plan liabilities. Most of the additional margin is derived through a more cautious salary experience assumption. There may be a slight advantage for MPI to consider moving from its current standalone accounting position based on the salary and demographic assumptions reviewed in this memorandum.

CSSF Funding Position

The current funding status of the CSSF has been actuarially determined as inadequate

- We discussed the notion of establishing a liability for this underfunded portion

Analysis:

- Not possible as it would fly in exact contradiction to removing the liability in the first place after meeting settlement accounting criteria
  - i.e. We cannot on one hand say that we have no further liability and remove the obligation and on the other hand say that we do have a potential liability equal to the underfunded portion
- The Liability would be removed in one of two ways, depending on the direction from the Government:
  1. Outright removal of the liability (language in the CCSA)
  2. Addition of an offsetting receivable from Government equal to the pension liability (Gov letter of direction accepting the liability)

Transitional Impacts

On transition, assets would be required to transfer to the CSSF on a going concern basis

- Ellement has provided an estimate of the required funds that would need to be transferred; this amount varies from our balance sheet liability:
  i. Accounting discount rate vs going concern and;
  ii. Entering the pool on par with existing participants at less than 100% funded

- Offside pension obligations pursuant to the Canada Revenue Agency (CRA) cannot be transferred to the registered CSSF and must remain an accounting liability of MPI.

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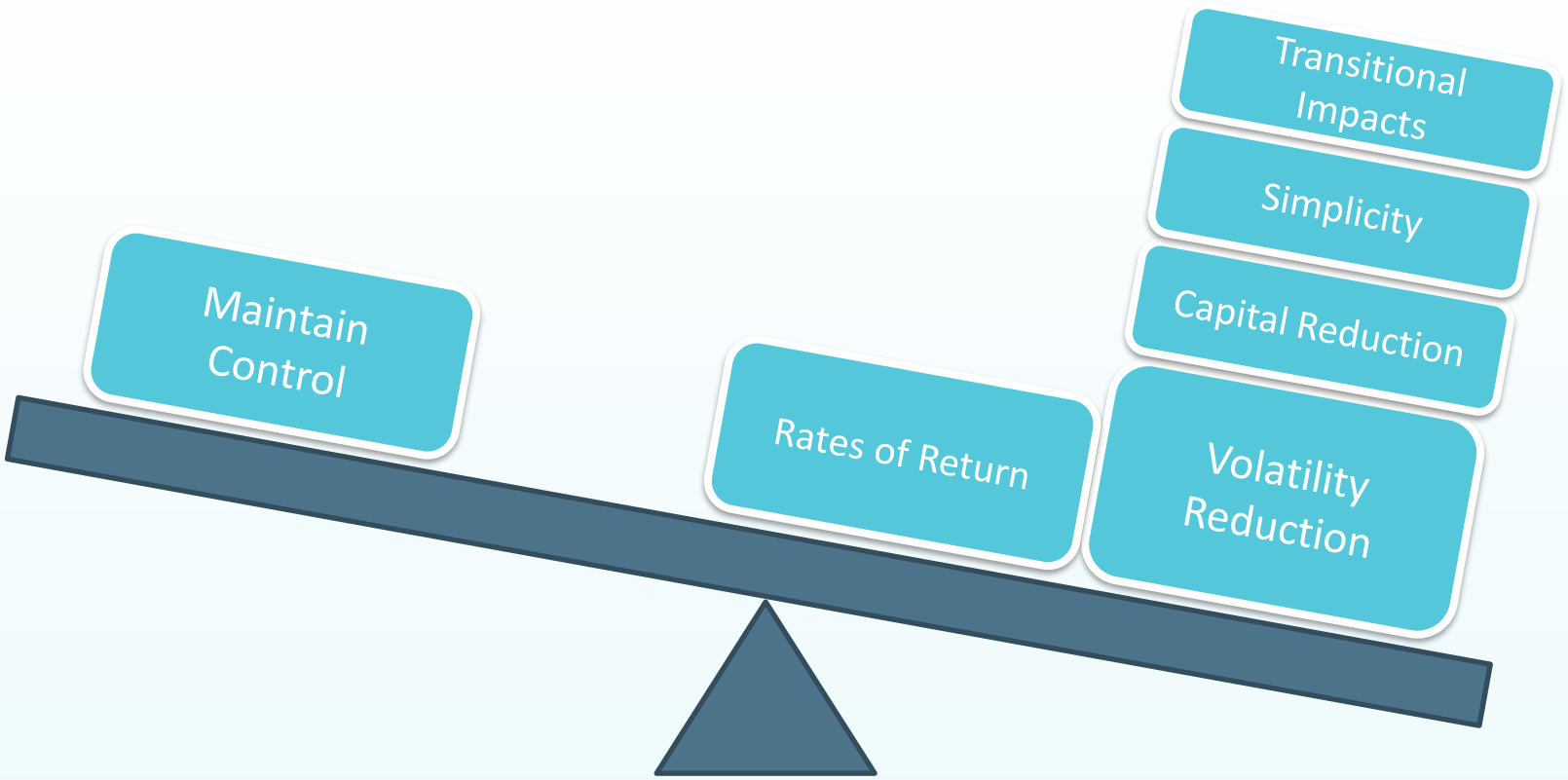
Key Decision Criteria



Summary

- Material financial statement volatility reduction can be achieved by removing the pension liability (gross or net)
- Keeping a partial liability on the books based on the underfunded level and representing the potential for a future call is not likely possible
- Government would need to be approached for alignment and to establish the necessary authority to move from payment funder to a pre-funder status

Recommendation

That the members recommend the Board of Directors authorize management to formally engage Government to seek a change in the defined benefit pension plan employer funding from a payment to a pre-funding status under the *Civil Service Superannuation Act*.

Questions ?