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Actuarial Valuation Report as at December 31, 2022

Civil Service Superannuation Fund

CRA Registration No. 345827
OSPC Registration No. 345827

July 2023

NOTICE TO READER – This Report is Privileged and Confidential

The primary purpose of this engagement is to prepare a report that provides a funding recommendation based on our understanding of the Pension Benefits Act and Regulations of Manitoba, the Income Tax Act, and the Canadian Institute of Actuaries Standards of Practice in effect at the date of this report. The list of intended purposes of this report is noted in the Terms of Engagement discussed in Section 3.

Additionally, the intended recipients are noted in the Terms of Engagement and no party other than the parties noted shall rely upon the information presented herein. The recipient shall neither reproduce the report nor parts thereof unless reproduction is necessary for its evaluation and approved by Ellement Consulting Group (Ellement). The recipient agrees to protect the confidentiality of the information contained in this report and shall take all the necessary and reasonable measures to prevent the unauthorized use, disclosure, or distribution of the report or parts thereof. The recipient agrees not to use, amend, adapt, convert, translate, or exploit the contents of this document without written consent from Ellement, nor allow Ellement's competitors or unintended recipients to have access to its contents.

An actuarial valuation report is a snapshot of a pension plan's estimated financial condition and health at a particular point in time; it does not predict the pension plan's future financial condition or its ability to pay benefits indefinitely. The actual financial condition and contribution adequacy will be more favourable, or less favourable, depending on actual experience, when the next formal actuarial valuation report is prepared. Further, the financial condition and health may change due to a change in assumptions, a change in the provisions in the plan text, or a change in governing legislation.

Over time, a pension plan's actual cost will depend on several factors, including but not limited to:

- the level of the benefits the pension plan provides;
- the number of individuals paid benefits, the age at which their benefit is settled, and the length of time benefits are paid in retirement;
- the amount of expenses incurred for operating and investing; and
- the amount earned on any invested assets.

These amounts and other variables are uncertain and impossible to predict with precision at any particular point in time.

Due to the nature of our engagement, the actuarial assumptions, as described in Appendix IV (going concern assumptions) and Appendix V (solvency/hypothetical wind-up assumptions), have been selected to develop results for a single scenario from the range of possibilities for each valuation basis. Actual experience will differ from the results based on the assumptions from the single scenario illustrated herein. In addition, different assumptions or scenarios may also be within the reasonable range and results based on those assumptions would be different. Differences between actual experience and the selected assumptions may prove to be significant or material. As such, frequent monitoring and periodic valuations are recommended. In any case, the actuary will review the selected assumptions at the next actuarial valuation date and may make adjustments for a number of factors including changes in regulatory requirements, plan experience, and changes in expectations about the future.

Due to the limited scope of our engagement, other than the Plausible Adverse Scenarios discussed in Section 10, an analysis of the potential range of future measurements of the pension plan's financial health due to alternative actuarial assumptions, future experience, changes to the benefit level, or changes in legislation was not performed, nor was it required to be performed.

Given the intended purpose of the engagement and the uncertainty in the financial condition and health of the pension plan into the future described above, decisions about benefit reductions or enhancements, benefit security and sustainability, investment policy, funding policy, and benefit policy should be made only after careful consideration of alternative future financial conditions and scenarios, and not solely based on an actuarial valuation report or reports focused on a particular point in time.

TABLE OF CONTENTS

APPENDICES

1. ACTUARIES' OPINION

This Actuarial Valuation Report (Report/Valuation) has been prepared to determine the funding requirements of the Civil Service Superannuation Fund (Fund) and present the results of the Report on a going concern, solvency, and hypothetical wind-up basis as at December 31, 2022 (Valuation Date), and the adequacy of the contributions being paid to finance basic benefits and pay expenses. This Valuation concerns itself with the basic portion of the benefits (Basic Account) financed by the Fund as defined under the Civil Service Superannuation Act (Plan or CSSA) as at December 31, 2022. A separate report is prepared on the Superannuation Adjustment Account (Indexing Account) which is responsible for indexing pensions on and after July 1, 1977, and separate employer reports on the portion of the benefits not financed by the Fund.

The Fund self-insures all benefits and therefore is exposed to investment and demographic risks which must continue to be monitored in the future. Benefits may alternatively be purchased at an insurance carrier to eliminate a portion of these risks. This strategy may be cost effective in an appropriate economic climate and should be reviewed on an on-going basis by the Civil Service Superannuation Board (Board).

We note the following:

- The Notice to Reader at the beginning of this Report describes the uncertainty implicit in the actuarial assumptions and calculations.
- The value of the Fund's assets would be less than the actuarial liabilities if the Fund had been hypothetically wound up on the Valuation Date. The solvency and hypothetical wind-up position is provided for disclosure and information purposes only as the Plan is exempt from solvency funding requirements pursuant to Paragraph 4.5(2)(b) of the Regulations to the Manitoba Pension Benefits Act.
- Contribution rates in respect of future service were increased by a total of 2.00% of salary (2012-2015), however, no program of contribution increases has been established to eliminate the deficit in respect of past service at this time (for additional details refer to the Terms of Engagement – Additional Information and Commentary).
- We are not aware of any other matters or subsequent events occurring other than those identified in this Report which would materially adversely affect the financial position as of December 31, 2022. Emerging experience differing from the assumptions, will result in gains or losses, which will be revealed in subsequent valuations.

In our opinion:

- The financial data (Appendix I) is sufficient and reliable for the purpose of the Report.
- The membership data (Appendix II) on which the Report is based are sufficient and reliable for the purpose of the Report.
- The benefits used in the calculations are based on the Plan provisions as amended to the Valuation Date (Appendix III).
- The assumptions (Appendices IV & V) are appropriate for the purpose of the Report.
- The methods employed in the valuation are appropriate for the purpose of the Report.
- This Report has been prepared and our opinions have been given in accordance with accepted actuarial practice in Canada.

We hereby certify that, in our opinion, the assets of the Fund, together with future investment income, and the current contribution levels, are <u>inadequate</u> 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 <u>not</u> be sufficient to provide the benefits. Contribution increases have been recommended in the past and should be considered in the near future if the deficit persists. It is essential that the investment and demographic experience continue to be monitored to evaluate changes in the financial health of the Plan and recommend appropriate actions.

This Report is subject to approval by the appropriate regulatory authorities. It is recommended the Board continue to monitor the inadequacy of the contribution rates, so that it ensures the financial health of the Fund. It is required that the next actuarial valuation report occur no later than December 31, 2023.

Respectfully submitted,
ELLEMENT CONSULTING GROUP

K. Meilleur

Kyle Meilleur, FSA, FCIA
Winnipeg, Manitoba
July 6, 2023

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July 6, 2023

2. EXECUTIVE SUMMARY

This Report has been prepared for the Plan as at December 31, 2022 for the primary purpose of establishing the funding recommendation for the Plan until the next such actuarial valuation is performed.

The information below provides a summary of the results and key assumptions of this Report but is not intended to replace the detailed information presented in the Report. The results have been prepared as at December 31, 2022, with comparative results as at December 31, 2021.

Going Concern Valuation	31-Dec-2022	31-Dec-2021
Assets Available for Basic Benefits	$ 4,585,648,000	$ 5,078,145,000
Liabilities for Basic Benefits	(5,761,288,000)	(5,710,056,000)
Surplus/(Unfunded Liability) Before Adjustments	**$ (1,175,640,000)**	**$ (631,911,000)**
Asset Smoothing Adjustment	229,574,000	(320,423,000)
Surplus/(Unfunded Liability) After Adjustments	**$ (946,066,000)**	**$ (952,334,000)**
Going Concern Ratio Before Adjustments	**79.59%**	**88.93%**
Going Concern Ratio After Adjustments	**83.58%**	**83.32%**
Key Assumptions		
Discount Rate	**6.00%**	5.75%
Salary Increase Rate	2.50% plus merit scale	2.50% plus merit scale
Mortality Table	CPM2014 Public Table Proj. Scale B	CPM2014 Public Table Proj. Scale B
Mortality Table Adjustment Factors	**1.05 M / 1.05 F**	1.043 M / 1.003 F

Solvency / Hypothetical Wind-up Valuation	31-Dec-2022	31-Dec-2021
Assets Available for Basic Benefits	$ 4,585,648,000	$ 5,078,145,000
Hypothetical Wind-up Expenses	(22,928,000)	(25,391,000)
Liabilities for Basic Benefits	(6,117,574,000)	(7,108,515,000)
Solvency Excess/(Deficiency)	**$ (1,554,854,000)**	**$ (2,055,761,000)**
Solvency Ratio	**74.58%**	**71.08%**
Hypothetical Wind-up Excess/(Deficiency)	**$ (1,554,854,000)**	**$ (2,055,761,000)**
Hypothetical Wind-up Ratio	**74.58%**	**71.08%**
Key Assumptions		
Commuted Value Interest Rates	**6.00%**	5.75%
Annuity Purchase Interest Rate	**4.91%**	2.84%
Mortality Table	CPM2014 Table Proj. Scale B	CPM2014 Table Proj. Scale B

Annual Contribution Requirements	2023 <CPPE / ≥CPPE **	2022 <CPPE / ≥CPPE
Required Contributions for Basic Benefits:		
Employee Required Contributions	8.00% / 9.00%	8.00% / 9.00%
Employer (Matching) Required Contributions	7.10% / 9.00%	7.10% / 9.00%
Blended Required Contributions	**7.92% / 9.00%**	**7.92% / 9.00%**
Indexing Account Allocation	(0.84%) / (0.92%)	(0.84%) / (0.92%)
Total Required Contributions for Basic Benefits	**7.08% / 8.08%**	**7.08% / 8.08%**
Total Theoretical Contributions for Basic Benefits	(6.18%) / (7.06%)	(6.87%) / (7.84%)
Contribution Margin/(Deficiency) for Basic Benefits	**0.90% / 1.02%**	**0.21% / 0.24%**

** Contribution Requirements are represented as a percentage of earnings below/above the Canada Pension Plan Earnings (CPPE).

3. TERMS OF ENGAGEMENT

We are pleased to present the results of the actuarial valuation as of December 31, 2022, for the Plan. Further to the Notice to Reader found at the beginning of the Report, we note the following terms of engagement and other important information.

Purpose

Ellement has been engaged by the Board to perform an actuarial valuation as of December 31, 2022, in accordance with the Pension Benefits Act and Regulations (PBA) of Manitoba, the Income Tax Act, and applicable Standards of Practice developed by the Canadian Institute of Actuaries (CIA). The previous valuation, as of December 31, 2021, was also performed by Ellement. The general purpose of the actuarial valuation is to provide a funding recommendation. Specifically, the purpose of this Report is to:

- Determine the financial position of the Plan on the following bases:
    - (i) Going Concern;
    - (ii) Solvency; and
    - (iii) Hypothetical Wind-up.
- Confirm the best estimate assumptions and the Board's direction regarding the level of Margin for Adverse Deviation (MfAD). See Appendix IV for more details regarding MfAD in the Going Concern Valuation;
- Establish the contribution requirements of the Plan until the next actuarial valuation report is required; and
- Satisfy legislative requirements and filings.

The results of this Report may not be appropriate for any other purpose, other than the purposes listed above.

The analysis and recommendations presented in this Report is not intended to be a legal opinion and Ellement is not a law firm. If you require a legal opinion on the material reviewed in this Report, we recommend securing the advice of legal counsel.

Intended Recipients and Users

The intended recipients and users of this Report include the following:

- The Civil Service Superannuation Board;
- The Province of Manitoba;
- The Liaison Committee;
- The Advisory Committee;
- The Manitoba Office of the Superintendent of the Pension Commission; and
- The Canada Revenue Agency.

Legislative Updates

No legislative changes since the last filed report.

Additional Information and Commentary

In respect of future service, contribution rates of employees and matching employers to the Basic Account were increased to eliminate the contribution deficiency so that future benefit accruals do not cause an unfunded liability in the Fund. A small future service contribution margin now exists but should be monitored closely, especially if a more cautious actuarial basis is adopted or if the average age of the actives increases significantly in the future.

In respect of past service, it is recommended that the Province of Manitoba, the Liaison Committee, and the Advisory Committee be informed that the current going concern unfunded liability of $946,066,000 could be amortized by 15 annual payments of $105,344,000 (assumes 10.2% is allocated to the Indexing Account). Although the Plan is exempt from the regulatory going concern and solvency funding, the parties must be made aware that it may become a requirement in the future if future excess investment and/or demographic experience is not generated in the Fund.

Any contribution increases to employees in excess of 9.00% (on a blended basis) of salary will require the approval of the Canada Revenue Agency to ensure continued tax deductibility of such employee contributions.

Subsequent Events

Emerging experience differing from the assumptions after December 31, 2022, will result in gains or losses, which will be revealed in subsequent valuations.

We are not aware of any other matters or subsequent events occurring since the completion of this Report which would materially affect the financial position of the Fund as at December 31, 2022.

4. GOING CONCERN VALUATION

The going concern valuation provides an assessment of the Plan's financial position at the valuation date on the premise that the Plan continues on into the future indefinitely. On the basis of the asset information, membership data, going concern assumptions and methods and Plan provisions described in the Appendices, the going concern financial position of the Plan as at the valuation date is shown in the following table. Amounts have been rounded to the nearest thousand.

	31-Dec-2022		31-Dec-2021	
ASSETS AVAILABLE FOR BASIC BENEFITS	**$**	**% of Liabilities**	**$**	**% of Liabilities**
Net Assets Available for Benefits	$ 5,190,929,000		$ 5,747,623,000	
Superannuation Adjustment Account	(605,281,000)		(669,478,000)	
Assets Available for Basic Benefits	**$ 4,585,648,000**	**79.59%**	**$ 5,078,145,000**	**88.93%**
LIABILITIES FOR BASIC BENEFITS				
Active Participants:				
▫ not eligible to retire	$ 1,337,378,000	23.21%	$ 1,325,068,000	23.20%
▫ eligible to retire reduced	246,245,000	4.27%	258,974,000	4.54%
▫ eligible to retire unreduced	572,079,000	9.93%	566,080,000	9.91%
	$ 2,155,702,000	37.41%	$ 2,150,122,000	37.65%
Other Participants:				
▫ not eligible to retire	87,103,000	1.51%	78,780,000	1.38%
▫ eligible to retire reduced	28,566,000	0.50%	26,437,000	0.46%
▫ eligible to retire unreduced	8,126,000	0.14%	8,010,000	0.14%
▫ valuation accounts payable	25,121,000	0.44%	23,701,000	0.42%
	$ 148,916,000	2.59%	$ 136,928,000	2.40%
Pensions in Payment:				
▫ retirement pensions	3,264,787,000	56.67%	3,242,146,000	56.78%
▫ survivors' pensions	191,883,000	3.33%	180,860,000	3.17%
	$ 3,456,670,000	60.00%	$ 3,423,006,000	59.95%
Total Liabilities for Basic Benefits	**$ 5,761,288,000**	**100.00%**	**$ 5,710,056,000**	**100.00%**
Surplus/(Unfunded Liability) Before Adjustments	**$ (1,175,640,000)**		**$ (631,911,000)**	
Asset Smoothing Adjustment	229,574,000		(320,423,000)	
Surplus/(Unfunded Liability) After Adjustments	**$ (946,066,000)**		**$ (952,334,000)**	
Going Concern Ratio Before Adjustments	**79.59%**		**88.93%**	
Going Concern Ratio After Adjustments	**83.58%**		**83.32%**	
Liability % for those members that are retired or eligible to retire		74.8%		75.0%
Liability % for those members that are not retired or eligible to retire		25.2%		25.0%

* The Plan is exempt from the funding requirements of the Manitoba Pension Benefits Act. No program of contribution increases has been established to eliminate the unfunded liability in respect of past service at this time. Contribution rate increases have been recommended in the past and should be considered in the near future if the unfunded liability persists.

5. SOLVENCY / HYPOTHETICAL WIND-UP VALUATION

The solvency valuation is a financial assessment of the Plan that is required under The Pension Benefits Act and Regulations (PBA) of Manitoba and is performed in accordance with requirements prescribed by this Act. It is intended to provide an assessment of the Plan's financial position assuming a plan termination basis. The standards of practice of the Canadian Institute of Actuaries also requires that a valuation be prepared on a plan termination basis. This valuation is referred to as a hypothetical wind-up valuation. Given that the market value of assets is used to determine the funded position on a plan termination basis, the solvency valuation and hypothetical wind-up valuation are identical for the purposes of this Report.

On the basis of the asset information, membership data, solvency assumptions and methods and Plan provisions described in the Appendices, as well as the requirements of the PBA, the solvency financial position of the Plan as at the valuation date is shown below. Amounts shown have been rounded to the nearest thousand.

	31-Dec-2022		31-Dec-2021	
ASSETS AVAILABLE FOR BASIC BENEFITS	**$**	**% of Liabilities**	**$**	**% of Liabilities**
Net Assets Available for Benefits	$ 5,190,929,000		$ 5,747,623,000	
Superannuation Adjustment Account	(605,281,000)		(669,478,000)	
Assets Available for Basic Benefits	$ 4,585,648,000		$ 5,078,145,000	
Hypothetical Wind-up Expenses	(22,928,000)		(25,391,000)	
Solvency Assets Available for Basic Benefits	**$ 4,562,720,000**	**74.58%**	**$ 5,052,754,000**	**71.08%**
LIABILITIES FOR BASIC BENEFITS				
Active Participants:				
▫ not eligible to retire	$ 1,080,868,000	17.67%	$ 1,058,167,000	14.90%
▫ eligible to retire reduced	321,232,000	5.25%	424,423,000	5.97%
▫ eligible to retire unreduced	750,379,000	12.27%	919,416,000	12.94%
	$ 2,152,479,000	35.19%	$ 2,402,006,000	33.81%
Other Participants:				
▫ not eligible to retire	61,852,000	1.01%	60,705,000	0.85%
▫ eligible to retire reduced	35,989,000	0.59%	42,947,000	0.60%
▫ eligible to retire unreduced	10,655,000	0.17%	13,149,000	0.18%
▫ valuation accounts payable	25,121,000	0.41%	23,701,000	0.33%
	$ 133,617,000	2.18%	$ 140,502,000	1.96%
Pensions in Payment:				
▫ retirement pensions	3,621,202,000	59.19%	4,337,469,000	61.02%
▫ survivors' pensions	210,276,000	3.44%	228,538,000	3.21%
	$ 3,831,478,000	62.63%	$ 4,566,007,000	64.23%
Total Liabilities for Basic Benefits	**$ 6,117,574,000**	**100.00%**	**$ 7,108,515,000**	**100.00%**
Solvency Excess/(Deficiency)	**$ (1,554,854,000)**		**$ (2,055,761,000)**	
Solvency Ratio	**74.58%**		**71.08%**	
Liability % for those members that are retired or eligible to retire		80.91%		83.92%
Liability % for those members that are <u>not</u> retired or eligible to retire		19.09%		16.08%
Hypothetical Wind-up Position				
Solvency Excess/(Deficiency)	$ (1,554,854,000)		$ (2,055,761,000)	
Adjustment for Hypothetical Wind-Up	-		-	
Hypothetical Wind-up Excess/(Deficiency)	**$ (1,554,854,000)**		**$ (2,055,761,000)**	
Hypothetical Wind-up Ratio	**74.58%**		**71.08%**	

* The solvency finanical position is provided for information only as the Plan is exempt from solvency funding requirements pursuant to Paragraph 4.5(2)(b) of the Regulations to the Manitoba Pension Benefits Act.

6. ANALYSIS OF RESULTS – GOING CONCERN

Cash Flow Gain/(Loss) Analysis		Financial Position: Assets	Liabilities	Surplus/ (Unfunded)
Going Concern Position 31-Dec-2021 (Report)		**$ 4,757,722,000**	**$ 5,710,056,000**	**$ (952,334,000)**
Adjustments	- Asset Smoothing Adjustment: Removed	320,423,000	-	320,423,000
Going Concern Position 31-Dec-2021 (Before Adjustments)		**$ 5,078,145,000**	**$ 5,710,056,000**	**$ (631,911,000)**
Contributions	- Normal Actuarial Cost	161,022,000	153,160,000	7,862,000
Gross Investment Income	- Net Expected Interest	286,667,000	322,944,000	(36,277,000)
	- Net Investment Gain/(Loss)	(599,757,000)	-	(599,757,000)
Benefits	- Benefit Experience & Operating Expenses Expected	(340,429,000)	(340,429,000)	-
Experience	- ITA Maximum Pensionable Salary Limit Change	-	5,269,000	(5,269,000)
	- Salary Experience - Incl. Retroactive Salary Adjustment	-	33,367,000	(33,367,000)
	- Demographic Experience	-	1,946,000	(1,946,000)
Methodology et al	- Data, Methodology, et al	-	22,677,000	(22,677,000)
Going Concern Position 31-Dec-2022 (Preliminary)		**$ 4,585,648,000**	**$ 5,908,990,000**	**$ (1,323,342,000)**
Actuarial	- Change in Election for Deferred	-	40,353,000	(40,353,000)
	- Change indexation in deferral period to 0.85%	-	6,010,000	(6,010,000)
	- Change in Retirement Scale	-	19,771,000	(19,771,000)
	- Change in Termination Scale	-	(12,531,000)	12,531,000
	- Change in Salary Merit Scale	-	(15,650,000)	15,650,000
	- Change in Pension Size Mortality Adjustment	-	(24,010,000)	24,010,000
	- Change in Annual Interest Discount Rate to 6.00%	-	(161,645,000)	161,645,000
Going Concern Position 31-Dec-2022 (Before Adjustments)		**$ 4,585,648,000**	**$ 5,761,288,000**	**$ (1,175,640,000)**
Adjustments	- Asset Smoothing Adjustment: Re-Established	229,574,000	-	229,574,000
Going Concern Position 31-Dec-2022 (Report)		**$ 4,815,222,000**	**$ 5,761,288,000**	**$ (946,066,000)**

The previous valuation indicated a deficit of $631,911,000 after removing the smoothing adjustment. The deficit position increased by $543,729,000 to $1,175,640,000 prior to reflecting the asset smoothing adjustment. The change in the deficit can be summarized as follows:

- The contribution margin during the year was $7,862,000. This means that the effective employer contributions made during 2022 were greater than the amount necessary to fund the annual Normal Actuarial Cost for future service (does not address inadequacy for past service deficit).
- The plan's net rate of return (after fees and expenses) in 2022 was approximately -6.26%. The plan was expected to earn 5.75% after fees and expenses. The plan also earned expected interest on its opening deficit and in-year transactions. The result was that the combined investment loss of $636,034,000 (599,757,000 + 36,277,000).
- The combined net gains and losses for all the remaining components, excluding assumption changes, was a net loss of $63,259,000. This was primarily driven by losses due to retroactive salary increases.
- The combined net gains and losses for all assumption changes was a net gain of $147,702,000 primarily due to increasing the discount rate by 25 basis points from 5.75% to 6.00% and increasing the pension size adjustment factor to 1.050 for males and females.

7. CONTRIBUTION REQUIREMENT

The projected unit credit valuation method has been used in this Valuation. Under this method, the expected cost in each year after the valuation date is equal to the cost of benefits expected to be credited for service in the next year. This expected cost is expressed as a level percentage of salary each year. These percentages are commonly called the theoretical contribution rates or normal actuarial cost for basic benefits.

In the following table, we have compared the required contribution rates and the normal actuarial cost for basic benefit rates (below/above Canada Pension Plan Earnings (CPPE)) on the basis of age, sex, and salary distribution, as exists for present active participants (refer to Appendix II - Page 2).

	2023			2022		
		< CPPE / ≥ CPPE *			< CPPE / ≥ CPPE	
Current Contributions for Basic Benefits (Expected)						
Employee Current Contributions:						
▫ not eligible to retire	$ 128,249,000	8.00%	9.00%	$ 122,067,000	8.00%	9.00%
▫ eligible to retire	17,172,000	8.00%	9.00%	16,721,000	8.00%	9.00%
▫ eligible to retire unreduced	19,301,000	8.00%	9.00%	18,293,000	8.00%	9.00%
▫ indexing account allocation	(16,802,000)	(0.84%)	(0.92%)	(16,022,000)	(0.84%)	(0.92%)
Employer (Matching) Current Contributions:						
▫ not eligible to retire	14,016,000	7.10%	9.00%	14,236,000	7.10%	9.00%
▫ eligible to retire	2,684,000	7.10%	9.00%	2,635,000	7.10%	9.00%
▫ eligible to retire unreduced	1,978,000	7.10%	9.00%	1,726,000	7.10%	9.00%
▫ indexing account allocation	(1,905,000)	(0.72%)	(0.92%)	(1,897,000)	(0.72%)	(0.92%)
Total Current Contributions for Basic Benefits	**$ 164,693,000**	**7.08% /**	**8.08%**	**$ 157,759,000**	**7.08% /**	**8.08%**
Normal Actuarial Cost for Basic Benefits (Expected)						
Active Participants:						
▫ not eligible to retire	$ 97,686,000	5.41% /	6.18%	$ 105,810,000	6.12% /	6.98%
▫ eligible to retire reduced	21,776,000	8.65% /	9.87%	22,654,000	9.23% /	10.53%
▫ eligible to retire unreduced	24,392,000	9.04% /	10.31%	24,696,000	9.73% /	11.10%
Blended Active Participant Theoretical Rate	$ 143,854,000	6.18% /	7.06%	$ 153,160,000	6.87% /	7.84%
Other Participants	-	0.00% /	0.00%	-	0.00% /	0.00%
Pensions in Payment	-	0.00% /	0.00%	-	0.00% /	0.00%
Total Normal Actuarial Cost for Basic Benefits	**$ 143,854,000**	**6.18% /**	**7.06%**	**$ 153,160,000**	**6.87% /**	**7.84%**
Contribution Margin/(Deficiency) for Basic Benefits	**$ 20,839,000**	**0.90% /**	**1.02%**	**$ 4,599,000**	**0.21% /**	**0.24%**

* Current contributions are represented as a percentage of earnings below/above the Canada Pension Plan Earnings (CPPE).

In respect of past service, it is recommended that the Province of Manitoba, the Liaison Committee, and the Advisory Committee be informed that the current going concern unfunded liability of $946,066,000 could be amortized by 15 annual payments of $105,344,000 (assumes 10.2% is allocated to the Indexing Account). Although the Plan is exempt from the regulatory going concern and solvency funding, the parties must be made aware that it may become a requirement if future excess investment and/or demographic experience is not generated in the Fund.

8. ANALYSIS OF RESULTS – SOLVENCY

The solvency interest rate assumption for annuity purchases has increased by 205 basis points (2.05%) from 2.86% to 4.91%. The solvency interest rate assumption for cash settlements has increased by 25 basis points (0.25%) from 5.75% to 6.00%. The cash settlement assumption utilizes the going concern assumption set following the recent passing of Bill 43 effective October 14, 2020.

Pursuant to the Standards of the Canadian Institute of Actuaries, it is required to disclose the incremental cost in the next year on a hypothetical wind-up/solvency basis. This incremental cost is estimated to be equal to $277,418,000 as at December 31, 2022.

The Incremental Cost on a solvency basis represents the present value at the Valuation Date of the expected aggregate change in the solvency liability between December 31, 2022 and December 31, 2023, adjusted upwards for expected benefit payments during this period.

The solvency Incremental Cost reflects expected decrements and related changes in membership status, accrual of service, expected changes in benefits, and a projection of pensionable earnings based on the going concern assumptions summarized in Appendix IV. The projection of the solvency liability to December 31, 2022 assumes that no new members enter the Plan for the purposes of determining the incremental cost.

9. SENSITIVITY ANALYSIS (DURATION)

The impact on pension liabilities and normal cost due to changes in the actuarial assumptions depends largely upon the number of years over which benefits will be paid and the exact pattern of the expected benefit cash flows.

The demographics of the group covered by a valuation basis have an impact on the resulting change in liability for a given change in an actuarial assumption.

Different parts of the valuation are affected differently by a change in a specific valuation assumption. One of the more significant assumptions is the assumed rate of return (discount rate).

There are rules of thumb to estimate the effect upon liabilities or normal cost due to a change in the assumed rate of return. These rules of thumb can be expressed mathematically by introducing the concept of duration where:

% change in liability/normal cost = - duration x % change in assumed rate

The approximation is usually quite good for small changes in the assumed rate (we will test a negative 0.25% change – the "Estimated Duration" shown below is the effect of a 0.25% decrease in the assumed rate of return).

The following table summarizes the application of the above formula to the Plan data as at December 31, 2022.

		Sensitivity of a Decrease in the Assumed Rate of Return			
Going Concern Liability Category	**6.00% Liability**	**5.75% Liability**	**$ Change in Liability**	**% Change in Liability**	**Estimated Duration**
Active Participants	$ 2,155,702,000	$ 2,234,418,000	$ 78,716,000	3.7%	14.6
Other Participants	148,916,000	155,120,000	6,204,000	4.2%	16.7
Pensions in Payment	3,456,670,000	3,533,395,000	76,725,000	2.2%	8.9
Total	**$5,761,288,000**	**$5,922,933,000**	**$ 161,645,000**	**2.8%**	**11.2**

		Sensitivity of a Decrease in the Assumed Rate of Return			
Normal Cost	**6.00% Normal Cost**	**5.75% Normal Cost**	**$ Change in Normal Cost**	**% Change in Normal Cost**	**Estimated Duration**
Total	**$ 143,854,000**	**$ 151,690,000**	**7,836,000**	**5.4%**	**21.8**

		Sensitivity of a Decrease in the Assumed Rate of Return			
Solvency Liability Category	**6.00%/4.91% Liability**	**5.75%/4.66% Liability**	**$ Change in Liability**	**% Change in Liability**	**Estimated Duration**
Active Participants	$ 2,152,479,000	$ 2,194,006,000	$ 41,527,000	1.9%	7.7
Other Participants	133,617,000	139,097,719	5,480,719	4.1%	16.4
Pensions in Payment	3,831,478,000	3,923,790,000	92,312,000	2.4%	9.6
Total	**$6,117,574,000**	**$6,256,893,719**	**$ 139,319,719**	**2.3%**	**9.1**

The higher the duration, the more sensitive the financial position of the Plan is to a change in actuarial assumptions. Active participant liabilities are generally more sensitive (volatile) to a change in the assumed rates than other participants. Pensions in payment liabilities are the least sensitive.

A 1% decrease in the going concern assumed rate of return would result in a 11.2% increase in the going concern liability and a 21.8% increase in the normal actuarial cost.

10. PLAUSIBLE ADVERSE SCENARIOS (PAS)

The CIA Standards of Practice require the disclosure of Plausible Adverse Scenarios (PAS). A PAS would be a scenario of adverse but plausible assumptions, relative to the best estimate assumptions otherwise selected for the valuation, about matters to which the Plan's financial condition is sensitive. As a result, the selection and application of a plausible adverse scenario is a stress-testing process on various risks to be considered at the Valuation Date.

The following disclosures of the change in the funded status of the Plan and the normal cost between the Valuation Date and the next valuation date under the selected PAS are not intended to be a comprehensive study of the risks inherent in the Plan, but rather an illustration of the sensitivity of the funded status and plan costs to certain key risks facing the Plan, that have a non-trivial probability of occurring within the short term.

Each of the scenarios below have been prepared on a standalone basis. These scenarios are not additive and should not be combined to design a combination scenario due to potential codependency's.

Scenario 1 – Interest Rate Risk

Under this scenario, the interest rates on fixed income assets decrease 25 basis points immediately and result in a 25-basis-point decline in the future return expectations on all the asset classes in which the plan is expected to invest, leading to a 25-basis-point decrease in the discount rate. This means the discount rate is reduced by 0.25% from 6.00% to 5.75%. All other assumptions remain unchanged. Fixed income asset values have been adjusted accordingly using a duration of 7.31.

This scenario is similar to the sensitivity test section of the report but adjusts for changes in the fixed income asset values and provides the impact on the Plan's funded ratio. The total assets available for Basic benefits increase from $4,585,648,000 in the base case to $4,606,520,000. The going concern liabilities increase from $5,761,288,000 to $5,922,933,000. The going concern ratio decreases from 79.59% in the base case to 77.77%. Estimated required normal cost increases from $143,854,000 to an estimated $151,690,000.

Scenario 2 – Deterioration of Assets

Under this scenario, equity values are reduced by 20% from the base case and there are no changes to other economic assumptions.

The total assets available for Basic benefits decrease from $4,585,648,000 in the base case to $3,812,508,000. The going concern ratio decreases from 79.59% to 66.17%.

Scenario 3 – Longevity Risk

Under this scenario, mortality is set back 1 year from current assumptions (i.e., each member has the mortality of the age 1 year younger).

The going concern liabilities increase from $5,761,288,000 in the base case to $5,856,727,000. The going concern ratio falls from 79.59% to 78.30%. Required normal cost increases from $143,854,000 to an estimated $145,877,000.

APPENDIX I

Asset Data

Total Assets Available for Basic Benefits (Source: Financial Statements)

	31-Dec-2022	31-Dec-2021
Assets		
Fixed Income Investments (market value)	$ 1,191,805,000	$ 1,633,105,000
Equity Investments (market value)	6,419,246,000	6,770,469,000
	$ 7,611,051,000	$ 8,403,574,000
Net Receivables/Payables (includes a Province Trust Account) (Note 5)	6,015,000	12,655,000
Debt due from the Province of Manitoba (Note 1)	1,826,000	1,826,000
Correctional Officers' Trust Account (Note 2)	(17,723,000)	(18,518,000)
Employer Trust Accounts (Note 3)	(128,860,000)	(137,402,000)
Money Purchase Accounts Plan (Note 4)	(55,501,000)	(53,697,000)
The Province of Manitoba Unfunded Pension Liability Trust Account 1 & 2 (Note 5)	(2,183,533,000)	(2,416,746,000)
Manitoba Hydro Enhanced Benefit Trust Account (Note 6)	(42,346,000)	(44,069,000)
	$ 5,190,929,000	$ 5,747,623,000
Superannuation Adjustment Account	(605,281,000)	(669,478,000)
Total Assets Available for Basic Benefits	**$ 4,585,648,000**	**$ 5,078,145,000**

Note 1: Under Section 24(1) of the CSSA, the Province of Manitoba assumed an accrued liability of $1,826,000 for its employees and pensioners as at May 1, 1939. The Province of Manitoba pays semi-annual interest at 4.00% per annum on this amount.

Note 2: Effective November 19, 1996, employees who are members of the Province of Manitoba's Corrections Component are required to contribute an additional 1.00% of pensionable earnings. These additional contributions, which are credited to this trust account, are intended to fund the additional pension benefits for eligible employees who may retire as early as age 50 with no reduction for early retirement providing age and qualifying service is equal to a total of 75 or greater.

Note 3: The Fund is responsible for providing enhanced benefits enacted in the 1992 legislation agreed to by the Employee Liaison Committee and the Employer Pension Advisory Committee. These benefits are 100% financed from the Fund's net assets available for benefits. To facilitate this funding, trust accounts were established for most employers participating in the Fund for their share of the actuarial valuation of these future benefit enhancements. Specific contributions from eligible employees are being transferred to the applicable trust account.

Note 4: Effective January 2, 1985, a separate Money Purchase Accounts Plan was established to enhance the portability of pensions. Contributors include employees, recipients of superannuation allowances, annuities, or pensions payable under the CSSA, or persons on whose behalf the Board is required or requested to transfer moneys to this Plan. Refunds are made upon written request by the contributor. Administrative costs are recovered by the Board.

Note 5: The Province of Manitoba has established a fund for the purpose of accumulating funds for the eventual retirement of the Province of Manitoba's unfunded pension obligation. Under the terms of March 6, 2001 and March 30, 2009 agreements between the Province of Manitoba and the Board, the Province of Manitoba established funds with the Board and the Province of Manitoba to which it is making the required payments to these funds. As well, the Province of Manitoba is making payments to this fund that are related to the Special Operating Agencies' unfunded pension liabilities. Payments received by the Board from the Province of Manitoba are held by the Board in trust for and on behalf of the Province of Manitoba and are invested by the Board on behalf of the Province of Manitoba. The payments received are not assets of the Plan and accordingly, they are accounted for by the Fund in the Unfunded Pension Liability Trust Accounts. These trust accounts earn investment income at a rate of return equal to the rate of return earned by the Fund. The Board receives an investment management fee for its services. The payments made by the Province of Manitoba to the Board do not reduce the accrued pension benefit obligations of the Fund. The Trust Agreements have been recently amended to make the trusts irrevocable. Accordingly, the assets in the Trust Accounts cannot be used for any purposes other than to fund the payments of pension benefits for which the Province of Manitoba is responsible and to pay the costs and expenses that are directly attributable to the administration of the Trust Accounts. In October 2007, The Financial Administration Act was amended to allow for withdrawals from the fund to pay, or fund the payment of, pension benefits for which the Province of Manitoba is responsible.

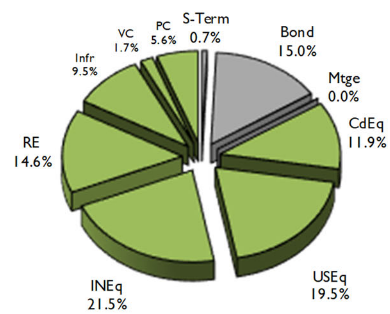
Note 6: Effective January 1, 2012, Manitoba Hydro employees with pensionable service after May 31, 2006 are eligible for an additional benefit. The Enhanced Hydro Benefit Plan enhances the formula used in calculating pension benefits from 1.6% to 1.7% of earnings up to the Canada Pension Plan average Yearly Maximum Pensionable Earnings at the time of retirement. Manitoba Hydro will fund the enhanced pension benefit through contributions to a trust account that will be used to fund the additional benefit to employees.

Market Value of Assets

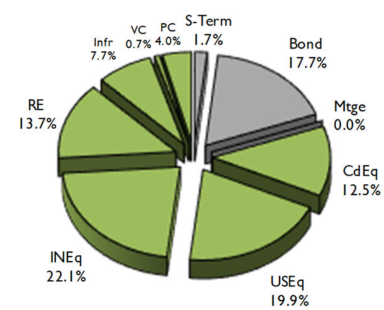
The following provides a summary of the assets of the Fund broken down by asset class with the target asset allocation also shown. The information below was taken from the financial statements prepared and provided to us by management. We have relied upon this information while preparing the Report.

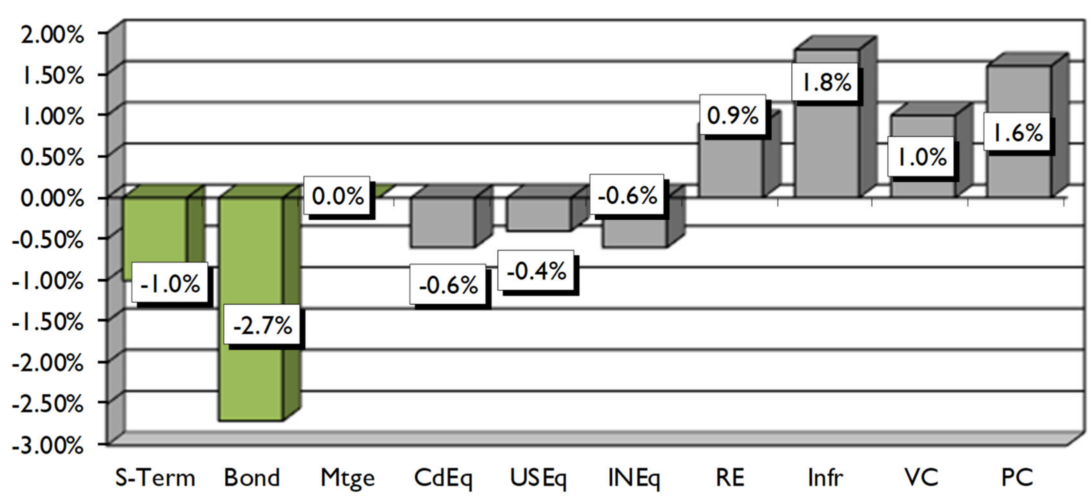
Asset Class Mix	31-Dec-2022		31-Dec-2021		Investment Policy
	Market Value	%	Market Value	%	Target
1 Short Term (S-Term)	49,702,000	0.7%	142,832,000	1.7%	1.0%
2 Bonds and Debentures (Bond)	1,138,845,000	15.0%	1,485,437,000	17.7%	20.5%
3 Mortgages (Mtge)	3,258,000	0.0%	4,836,000	0.0%	0.0%
Total Fixed Income	**$ 1,191,805,000**	**15.7%**	**$ 1,633,105,000**	**19.4%**	**21.5%**
4 Canadian Equities (CdEq)	905,697,000	11.9%	1,048,282,000	12.5%	11.5%
5 U.S. Equities (USEq)	1,484,414,000	19.5%	1,676,160,000	19.9%	17.5%
6 Non-North American Equities (INEq)	1,636,735,000	21.5%	1,856,808,000	22.1%	23.0%
7 Real Estate (RE)	1,112,964,000	14.6%	1,150,624,000	13.7%	11.5%
8 Infrastructure (Infr)	724,027,000	9.5%	646,131,000	7.7%	7.0%
9 Oil and Gas (Oil)	-	0.0%	-	0.0%	0.0%
10 Venture Capital (VC)	129,970,000	1.7%	58,544,000	0.7%	3.0%
11 Private Credit (PC)	425,439,000	5.6%	333,920,000	4.0%	5.0%
Total Equity	**$ 6,419,246,000**	**84.3%**	**$ 6,770,469,000**	**80.6%**	**78.5%**
Total Market Value	**$ 7,611,051,000**	**100.0%**	**$ 8,403,574,000**	**100.0%**	**100.0%**

31-Dec-2022
(84.3% Equity)



31-Dec-2021
(80.6% Equity)





Ellement

Historical Cash Flow: 84 Years (Basic Account and Indexing Account)

Year**	Opening Market Value	Fund & Pay-As-You-Go Contributions	Fund & Pay-As-You-Go Benefits	Expenses Operating	Expenses Investment	Investment Income	Closing Market Value	Net Return****
1939	$ 5,022,908	$ 452,383	$ (117,994)	$ (4,151)	$ -	$ 123,003	$ 5,476,149	2.37%
1940	5,476,149	462,964	(172,927)	(8,018)	-	130,602	5,888,770	2.33%
1941	5,888,770	594,089	(200,751)	(7,086)	-	181,856	6,456,878	2.99%
1942	6,456,878	455,779	(208,762)	(9,488)	-	189,072	6,883,479	2.88%
1943	6,883,479	440,959	(228,891)	(6,852)	-	203,731	7,292,426	2.92%
1944	7,292,426	441,331	(237,906)	(6,801)	-	121,812	7,610,862	1.65%
1945	7,610,862	476,802	(279,094)	(8,365)	-	243,235	8,043,440	3.16%
1946 *	8,043,440	495,588	(284,104)	(6,597)	-	184,284	8,432,611	2.26%
1947	8,432,611	778,339	(328,404)	(7,869)	-	236,658	9,111,335	2.73%
1948 *	9,111,335	792,068	(372,476)	(10,715)	-	(218,081)	9,302,131	1.34%
1949	9,302,131	905,065	(421,390)	(9,473)	-	262,446	10,038,779	2.75%
1950	10,038,779	994,024	(469,602)	(9,293)	-	286,002	10,839,910	2.78%
1951 *	10,839,910	1,179,579	(527,278)	(12,349)	-	(179,115)	11,300,747	(1.60%)
1952 *	11,300,747	1,344,962	(553,862)	(11,919)	-	(1,265,915)	10,814,013	2.60%
1953	10,814,013	1,462,734	(666,186)	(12,101)	-	341,695	11,940,155	3.05%
1954	11,940,155	1,611,842	(690,616)	(15,320)	-	341,770	13,187,831	2.76%
1955	13,187,831	1,663,647	(773,936)	(12,476)	-	434,896	14,499,962	3.19%
1956	14,499,962	1,790,935	(859,146)	(13,597)	-	384,823	15,802,977	2.57%
1957	15,802,977	2,130,165	(798,404)	(19,480)	-	523,979	17,639,237	3.18%
1958 *	17,639,237	2,395,882	(917,013)	(23,360)	-	764,898	19,859,644	4.16%
1959 *	19,859,644	2,661,599	(1,035,623)	(27,240)	-	1,039,120	22,497,500	5.03%
1960	22,497,500	4,144,352	(1,154,232)	(31,120)	-	1,246,736	26,703,236	5.20%
1961	26,703,236	2,927,316	(1,403,725)	(28,990)	-	1,485,022	29,682,859	5.41%
1962	29,682,859	3,196,204	(1,605,710)	(28,171)	-	1,668,806	32,913,988	5.48%
1963	32,913,988	3,558,599	(1,759,225)	(36,677)	-	1,873,563	36,550,248	5.54%
1964 *	36,550,248	3,877,559	(2,219,502)	(38,149)	-	1,979,089	40,149,245	5.30%
1965 *	40,149,245	3,160,279	(2,014,266)	(29,849)	-	1,570,949	42,836,358	3.86%
1966	42,836,358	3,725,529	(3,651,008)	(52,977)	-	2,274,524	45,132,426	5.31%
1967	45,132,426	4,369,950	(2,643,540)	(48,180)	-	2,449,109	49,259,765	5.33%
1968	49,259,765	5,053,832	(2,676,421)	(64,800)	-	2,701,658	54,274,034	5.36%
1969	54,274,034	5,854,684	(3,005,217)	(75,977)	-	3,091,166	60,138,690	5.55%
1970	60,138,690	6,680,379	(3,486,690)	(94,068)	-	4,980,327	68,218,638	8.07%
1971	68,218,638	7,799,868	(4,149,289)	(104,499)	-	4,261,235	76,025,953	6.09%
1972	76,025,953	9,167,547	(4,838,136)	(143,101)	-	6,082,486	86,294,749	7.79%
1973	86,294,749	10,468,999	(5,931,048)	(144,955)	-	5,923,884	96,611,629	6.69%
1974	96,611,629	13,415,988	(7,519,676)	(187,266)	-	7,034,969	109,355,644	7.07%
1975	109,355,644	17,478,089	(8,729,977)	(277,474)	-	8,459,738	126,286,020	7.45%
1976	126,286,020	21,560,004	(10,893,728)	(328,456)	-	10,454,455	147,078,295	7.95%
1977	147,078,295	25,723,575	(12,527,475)	(420,893)	-	12,779,529	172,633,031	8.33%
1978	172,633,031	28,820,421	(15,566,709)	(464,754)	(267)	16,514,075	201,935,797	9.22%
1979	201,935,797	30,972,133	(18,939,495)	(426,237)	(5,006)	20,277,643	233,814,835	9.76%
1980	233,814,835	35,610,583	(22,105,591)	(501,376)	(7,389)	24,502,748	271,313,810	10.19%
1981	271,313,810	40,077,511	(24,347,203)	(562,043)	(16,508)	30,878,819	317,344,386	11.07%
1982	317,344,386	46,310,086	(26,696,402)	(574,946)	(20,929)	39,173,814	375,536,009	11.98%
1983	375,536,009	55,246,946	(32,486,301)	(1,649,451)	(13,059)	46,079,767	442,713,911	11.93%
1984	442,713,911	55,247,692	(41,641,651)	(726,172)	(81,599)	52,113,402	507,625,583	11.58%
1985	507,625,583	60,726,998	(44,840,057)	(769,761)	(115,395)	60,619,735	583,247,103	11.74%
1986	583,247,103	66,731,516	(51,745,686)	(701,556)	(214,827)	67,587,082	664,903,632	11.41%
1987	664,903,632	74,154,000	(60,044,000)	(958,000)	(22,000)	71,783,368	749,817,000	10.69%
1988	749,817,000	82,966,000	(68,349,000)	(1,127,000)	(722,000)	30,951,000	793,536,000	4.00%
1989	793,536,000	87,444,000	(75,248,000)	(1,233,000)	(1,067,000)	141,327,000	944,759,000	17.55%
1990	944,759,000	95,317,000	(87,829,000)	(818,000)	(1,198,000)	94,997,000	1,045,228,000	9.89%
1991	1,045,228,000	104,335,000	(93,946,000)	(670,000)	(1,364,000)	180,752,000	1,234,335,000	17.08%
1992	1,234,335,000	107,405,000	(115,873,000)	(791,000)	(1,290,000)	93,632,000	1,317,418,000	7.51%
1993	1,317,418,000	114,699,000	(119,806,000)	(900,000)	(1,116,000)	230,089,000	1,540,384,000	17.42%
1994	1,540,384,000	117,886,000	(129,598,000)	(969,000)	(1,520,000)	3,382,000	1,529,565,000	0.12%
1995	1,529,565,000	121,492,000	(137,521,000)	(894,000)	(1,845,000)	252,094,000	1,762,891,000	16.45%
1996	1,762,891,000	127,112,000	(151,650,000)	(982,000)	(2,777,000)	239,112,000	1,973,706,000	13.50%
1997 ***	1,973,706,000	104,920,000	(546,688,000)	(736,000)	(2,117,000)	166,119,000	1,695,204,000	9.36%
1998	1,695,204,000	122,261,000	(129,544,000)	(785,000)	(1,981,000)	142,888,000	1,828,043,000	8.33%
1999	1,828,043,000	115,219,000	(135,216,000)	(712,000)	(2,398,000)	139,931,000	1,944,867,000	7.57%
2000	1,944,867,000	125,361,000	(147,650,000)	(964,000)	(2,664,000)	193,804,000	2,112,754,000	9.89%
2001	2,112,754,000	136,764,000	(156,626,000)	(845,000)	(2,164,000)	107,407,000	2,197,290,000	5.01%
2002	2,197,290,000	149,320,000	(168,974,000)	(1,037,000)	(2,490,000)	30,846,000	2,204,955,000	1.30%
2003	2,204,955,000	155,824,000	(179,152,000)	(1,274,000)	(3,142,000)	293,631,000	2,470,842,000	13.25%
2004	2,470,842,000	167,480,000	(194,500,000)	(1,283,000)	(4,019,000)	333,733,000	2,772,253,000	13.42%
2005	2,772,253,000	191,600,000	(213,939,000)	(1,478,000)	(4,312,000)	398,284,000	3,142,408,000	14.27%
2006	3,142,408,000	212,647,000	(237,555,000)	(1,540,000)	(4,035,000)	397,998,000	3,509,923,000	12.59%
2007	3,509,923,000	214,854,000	(260,704,000)	(1,482,000)	(5,459,000)	130,119,000	3,587,251,000	3.58%
2008	3,587,251,000	232,626,000	(284,319,000)	(1,265,000)	(2,152,000)	(613,093,000)	2,919,048,000	(17.28%)
2009	2,919,048,000	247,149,000	(294,503,000)	(1,484,000)	(3,409,000)	423,890,000	3,290,691,000	14.53%
2010	3,290,691,000	261,179,000	(319,276,000)	(1,461,000)	(3,743,000)	408,391,000	3,635,781,000	12.41%
2011	3,635,781,000	275,798,000	(350,744,000)	(1,485,000)	(2,370,000)	(92,444,000)	3,464,536,000	(2.64%)
2012	3,464,536,000	309,576,000	(401,978,000)	(1,623,000)	(1,928,000)	340,396,000	3,708,979,000	9.90%
2013	3,708,979,000	343,643,000	(436,905,000)	(1,696,000)	(3,236,000)	533,038,000	4,143,823,000	14.47%
2014 *****	4,143,823,000	423,880,000	(450,026,000)	(1,785,000)	(2,833,000)	371,883,000	4,484,942,000	8.94%
2015	4,484,942,000	394,059,000	(500,425,000)	(1,816,000)	(3,302,000)	339,883,000	4,713,341,000	7.60%
2016	4,713,341,000	417,161,000	(535,611,000)	(2,159,000)	(3,059,000)	250,398,000	4,840,071,000	5.32%
2017	4,840,071,000	452,684,000	(622,572,000)	(2,183,000)	(4,570,000)	502,762,000	5,166,192,000	10.48%
2018	5,166,192,000	473,798,000	(673,288,000)	(2,410,000)	(7,705,000)	(50,241,000)	4,906,346,000	(1.14%)
2019	4,906,346,000	477,483,000	(689,552,000)	(2,580,000)	(9,167,000)	649,967,000	5,332,497,000	13.35%
2020	5,332,497,000	531,423,000	(817,287,000)	(2,732,000)	(14,434,000)	454,827,000	5,484,294,000	8.49%
2021	5,484,294,000	523,659,000	(818,952,000)	(2,913,000)	(16,712,000)	578,247,000	5,747,623,000	10.53%
2022	**5,747,623,000**	**469,861,000**	**(669,941,000)**	**(3,056,000)**	**(24,233,000)**	**(329,325,000)**	**5,190,929,000**	**(6.26%)**
		$ 9,158,476,375	$ (11,644,513,325)	$ (60,880,448)	$ (151,029,979)	$ 7,883,853,469	"84-Year Average"	6.75%

Ellement

* Some numbers in 1958, 1959, and 1964 were estimated. 1946 is an 11-month "year", and 1965 is a 9-month "year". (Adjusted Book Value" 1939-1990 | Market Value: 1991-2007). In 1948, 1951 and 1952 transfers to reserves for possible future losses on account of investment principal were made, and special adjustments under the CSSA occurred.

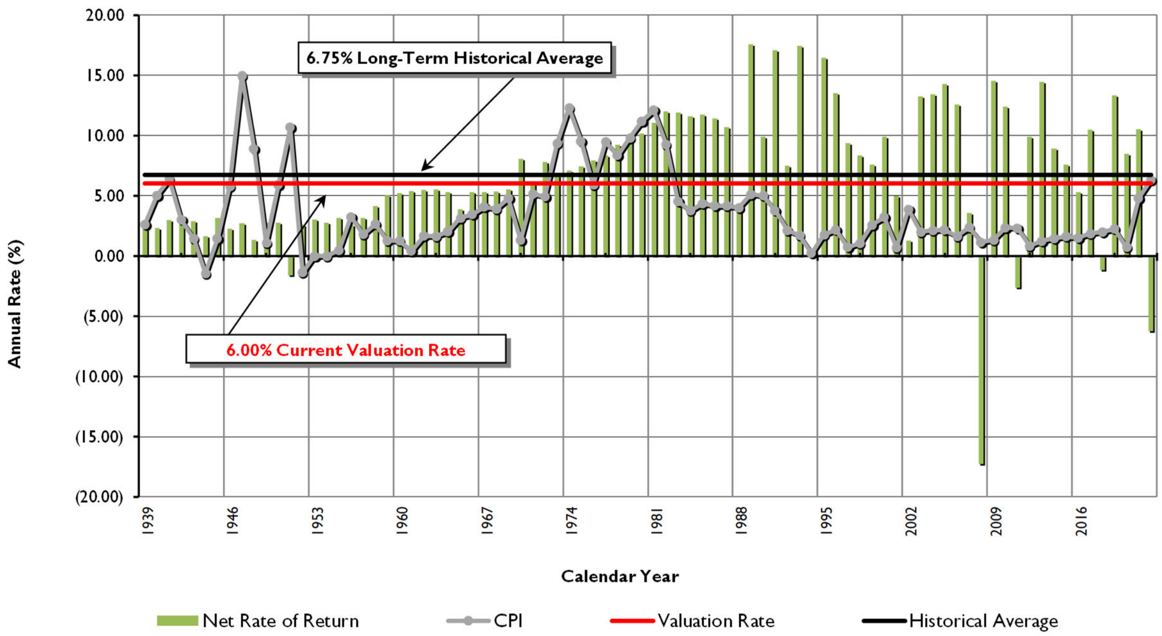
** Years 1939 to 1945 commenced on May 1, years 1946 to 1964 commenced on April 1. Thereafter, calendar years are reported.

*** The large decrease in assets in 1997 was due to the privatization of MTS.

**** Rates of return are arithmetical and are calculated on the basis of mid-year cashflow.

The volatility in recent asset values is due to the Auditor's requirement that market values be reported. Previously, adjusted book values were used. The Valuation Balance Sheet separately reflects a smoothing asset adjustment reserve to partially mitigate or neutralize this volatility.

*****The contributions for 2014 include the entry amount for employer liability funding equal to $59,672,000 (including indexing).



Historical Cash Flow: 5 Years (Basic Account)

Year**	Opening Market Value	Fund & Pay-As-You-Go Contributions	Fund & Pay-As-You-Go Benefits	Expenses Operating	Expenses Investment	Investment Income	Closing Market Value	Net Return****
2018	4,607,211,000	455,762,000	(642,163,000)	(2,410,000)	(7,705,000)	(45,173,000)	4,365,522,000	(1.17%)
2019	4,365,522,000	459,713,000	(655,752,000)	(2,580,000)	(9,167,000)	578,907,000	4,736,643,000	13.35%
2020	4,736,643,000	514,336,000	(780,461,000)	(2,732,000)	(14,434,000)	404,199,000	4,857,551,000	8.47%
2021	4,857,551,000	506,851,000	(780,087,000)	(2,913,000)	(16,712,000)	513,455,000	5,078,145,000	10.53%
2022	**5,078,145,000**	**451,904,000**	**(628,255,000)**	**(3,056,000)**	**(24,233,000)**	**(288,857,000)**	**4,585,648,000**	**(6.28%)**
		$ 2,388,566,000	$ (3,486,718,000)	$ (13,691,000)	$ (72,251,000)	$ 1,162,531,000	"5-Year Average"	4.98%

APPENDIX II

Membership Data

Membership Summary (records processed for liability calculations)

Category	31-Dec-2022 Males	31-Dec-2022 Females	31-Dec-2022 Total	31-Dec-2021 Males	31-Dec-2021 Females	31-Dec-2021 Total
Active Participants	13,393	13,356	26,749	13,342	13,294	26,636
Other Participants						
- Long-Term Disability *	58	126	184	48	123	171
- Deferred Annuities	1,746	1,875	3,621	1,676	1,785	3,461
- Transfers	11	3	14	15	6	21
	1,815	2,004	3,819	1,739	1,914	3,653
Pensions in Payment						
- Pensioners	11,068	10,244	21,312	10,952	9,931	20,883
- Survivors	455	2,908	3,363	439	2,851	3,290
	11,523	13,152	24,675	11,391	12,782	24,173
Total	**26,731**	**28,512**	**55,243**	**26,472**	**27,990**	**54,462**

* The LTD recipients who will receive an enhanced disability benefit (not a responsibility of the Fund) on cessation of LTD income are also reflected in the number of pensions in payment.

	31-Dec-2022 Number	31-Dec-2022 Average Age	31-Dec-2022 Fund Average Monthly Pension	31-Dec-2021 Number	31-Dec-2021 Average Age	31-Dec-2021 Fund Average Monthly Pension
Active Participants	26,749	45.1	$ 728	26,636	45.2	$ 726
Other Participants	3,819	49.5	376	3,653	49.4	350
Pensions in Payment	24,675	72.0	1,039	24,173	71.8	1,018
Total	**55,243**	**57.4**	**$ 843**	**54,462**	**57.3**	**$ 830**

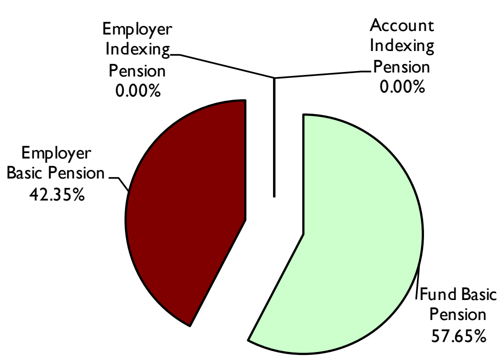
- The active participant average monthly pension which is the responsibility of the Fund has been estimated from salary and service data as these participants have not yet retired, disabled, terminated, or died and therefore have not had their pension determined explicitly by the Board.
- The total membership counts shown in the Report are different from the amounts reported in the General Manager's Report due to additional new entrants, retirements, disablements, terminations, and deaths following December 31, 2022, that were provided by the staff of the Board.
- This Report is in respect of Fund obligations. The Fund average monthly pension has been shown above which represents approximately 56% of the total pensions paid to participants after reflecting indexing. Additional information is shown on the following pages that detail Fund pension amounts as well as the pension amounts payable outside the Fund by the Indexing Account and the pay-as-you-go employers. The valuation of the obligations not belonging to the Fund is reported separately.

Active Participants Age Profile

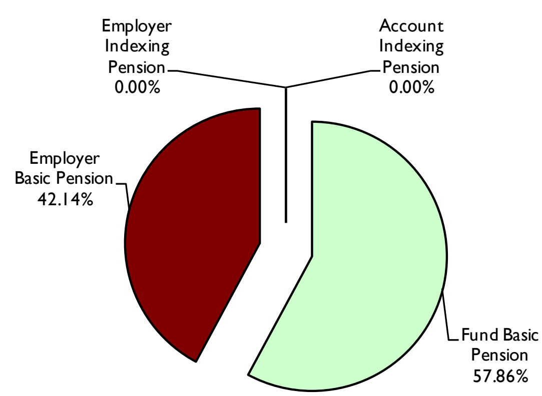
(This Report is in respect of Fund obligations only. Employer in the information below refers to pay-as-you-go employers. The Fund includes matching employer pension information.)

		Average Monthly Pension				
		Basic Pension		Indexing		
Age Band	Number	Fund	Employer	Employer	Account	Total
15 - 19	44	$ 11	$ 7	$ -	$ -	$ 18
20 - 24	671	38	23	-	-	61
25 - 29	1,787	131	85	-	-	216
30 - 34	2,839	302	218	-	-	520
35 - 39	3,703	490	363	-	-	853
40 - 44	3,990	676	486	-	-	1,161
45 - 49	4,054	857	631	-	-	1,489
50 - 54	4,034	1,056	769	-	-	1,825
55 - 59	3,334	1,143	858	-	-	2,001
60 - 64	1,748	1,007	751	-	-	1,758
65 - 69	545	993	732	-	-	1,725
70 - 74	-	-	-	-	-	-
75 - 79	-	-	-	-	-	-
80 - 84	-	-	-	-	-	-
85 - 89	-	-	-	-	-	-
90 - 94	-	-	-	-	-	-
95 - 99	-	-	-	-	-	-
≥ 100	-	-	-	-	-	-
31-Dec-2022	**26,749**	**$ 728**	**$ 535**	**$ -**	**$ -**	**$ 1,263**
31-Dec-2021	26,636	$ 726	$ 529	$ -	$ -	$ 1,255

31-Dec-2022



31-Dec-2021

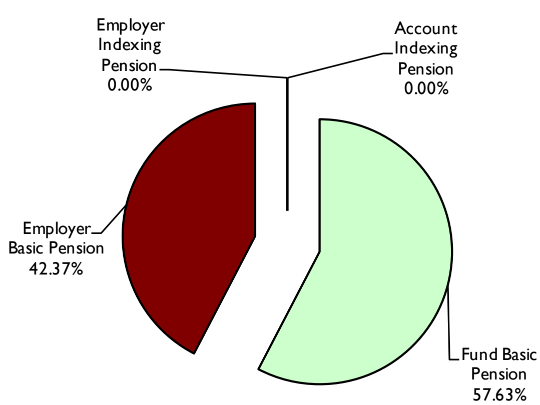


Other Participants Age Profile

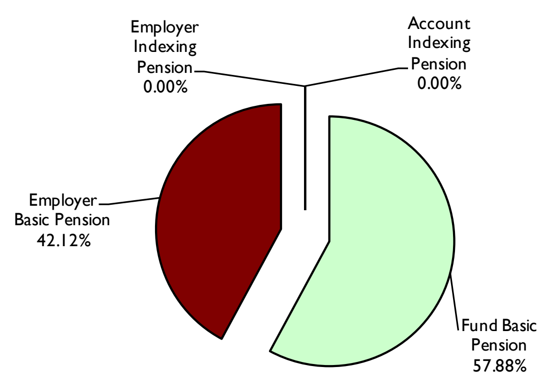
(This Report is in respect of Fund obligations only. Employer in the information below refers to pay-as-you-go employers. The Fund includes matching employer pension information.)

		Average Monthly Pension				
		Basic Pension		Indexing		
Age Band	Number	Fund	Employer	Employer	Account	Total
15 - 19	-	$ -	$ -	$ -	$ -	$ -
20 - 24	1	190	149	-	-	339
25 - 29	15	202	110	-	-	311
30 - 34	191	265	178	-	-	443
35 - 39	425	330	221	-	-	551
40 - 44	612	401	279	-	-	680
45 - 49	707	433	331	-	-	764
50 - 54	763	508	371	-	-	879
55 - 59	586	307	252	-	-	559
60 - 64	405	244	176	-	-	420
65 - 69	102	208	156	-	-	364
70 - 74	9	197	168	-	-	365
75 - 79	2	64	53	-	-	117
80 - 84	-	-	-	-	-	-
85 - 89	1	108	-	-	-	108
90 - 94	-	-	-	-	-	-
95 - 99	-	-	-	-	-	-
≥ 100	-	-	-	-	-	-
31-Dec-2022	**3,819**	**$ 376**	**$ 276**	**$ -**	**$ -**	**$ 652**
31-Dec-2021	3,653	$ 350	$ 255	$ -	$ -	$ 605

31-Dec-2022



31-Dec-2021

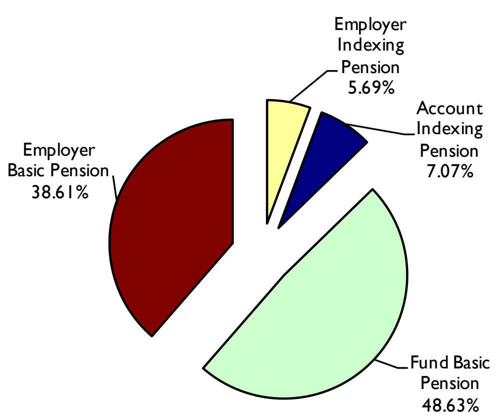


Pensions in Payment Age Profile

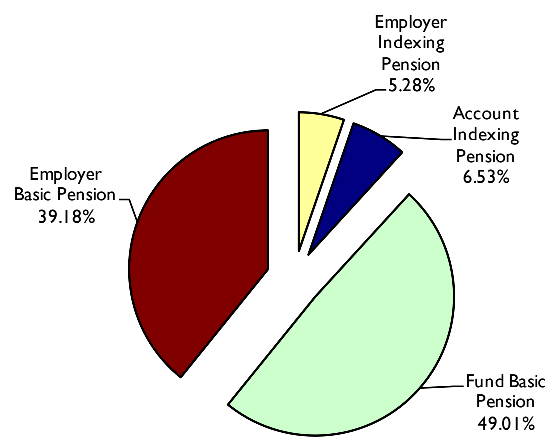
(This Report is in respect of Fund obligations only. Employer in the information below refers to pay-as-you-go employers. The Fund includes matching employer pension information.)

		Average Monthly Pension				
		Basic Pension		Indexing		
Age Band	Number	Fund	Employer	Employer	Account	Total
15 - 19	-	$ -	$ -	$ -	$ -	$ -
20 - 24	-	-	-	-	-	-
25 - 29	-	-	-	-	-	-
30 - 34	2	277	233	6	7	523
35 - 39	14	386	328	7	9	728
40 - 44	19	344	303	8	11	665
45 - 49	52	575	469	10	12	1,066
50 - 54	120	510	931	21	22	1,484
55 - 59	1,685	1,576	1,217	27	33	2,854
60 - 64	3,652	1,365	1,051	55	73	2,544
65 - 69	5,310	1,166	897	86	113	2,261
70 - 74	5,229	1,032	829	125	158	2,144
75 - 79	3,891	880	721	164	204	1,969
80 - 84	2,391	689	586	198	234	1,708
85 - 89	1,394	576	465	218	264	1,523
90 - 94	692	485	424	239	277	1,424
95 - 99	191	448	350	255	309	1,362
≥ 100	33	304	270	246	267	1,087
31-Dec-2022	**24,675**	**$ 1,039**	**$ 825**	**$ 121**	**$ 151**	**$ 2,137**
31-Dec-2021	24,173	$ 1,018	$ 814	$ 110	$ 136	$ 2,077

31-Dec-2022



31-Dec-2021

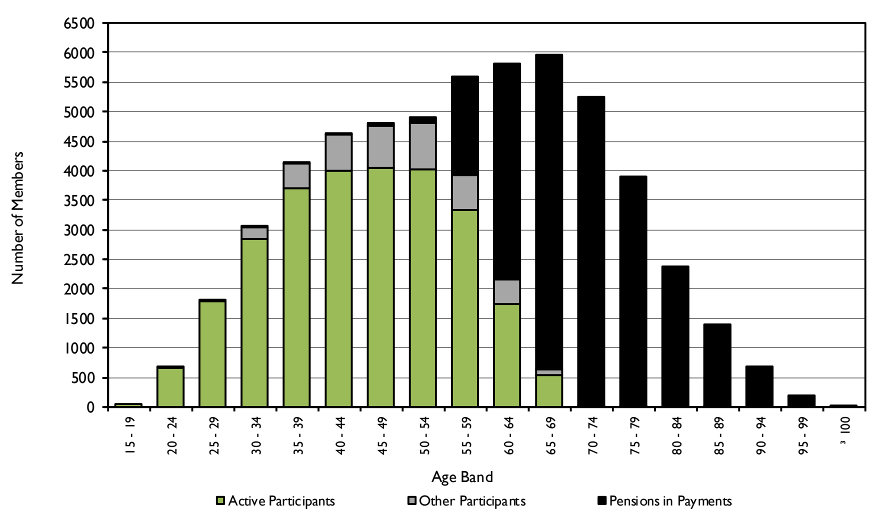


Total Membership Age Profile

(This Report is in respect of Fund obligations only. Employer in the information below refers to pay-as-you-go employers. The Fund includes matching employer pension information.)

		Average Monthly Pension				
		Basic Pension		Indexing *		
Age Band	Number	Fund	Employer	Employer	Account	Total
15 - 19	44	$ 11	$ 7	$ -	$ -	$ 18
20 - 24	672	38	24	-	-	62
25 - 29	1,802	132	85	-	-	217
30 - 34	3,032	299	215	-	-	515
35 - 39	4,142	473	348	0	0	821
40 - 44	4,621	638	457	0	0	1,095
45 - 49	4,813	792	586	0	0	1,378
50 - 54	4,917	958	711	1	1	1,670
55 - 59	5,605	1,186	903	8	10	2,106
60 - 64	5,805	1,179	899	35	46	2,159
65 - 69	5,957	1,134	869	76	100	2,180
70 - 74	5,238	1,030	828	125	157	2,141
75 - 79	3,893	879	720	164	204	1,968
80 - 84	2,391	689	586	198	234	1,708
85 - 89	1,395	576	464	218	264	1,522
90 - 94	692	485	424	239	277	1,424
95 - 99	191	448	350	255	309	1,362
≥ 100	33	304	270	246	267	1,087
31-Dec-2022	**55,243**	**$ 843**	**$ 647**	**$ 54**	**$ 67**	**$ 1,611**
31-Dec-2021	54,462	$ 830	$ 637	$ 49	$ 60	$ 1,576

* The indexing shown above is averaged over the total membership at each age band.



<u>Membership Distribution by Year</u> (extracted from General Manager's Report, unless noted)

	Participants			Pensions in Payment				
Year	Actives	Other	Total	Pensioners	Beneficiaries	Spouses	Total	Grand Total
1985	26,027	454	26,481	4,830	456	355	5,641	32,122
1986	28,182	568	28,750	5,191	489	370	6,050	34,800
1987	28,832	794	29,626	5,614	529	398	6,541	36,167
1988	29,107	1,153	30,260	6,003	597	423	7,023	37,283
1989	29,665	1,370	31,035	6,368	663	444	7,475	38,510
1990	30,350	1,562	31,912	6,670	719	482	7,871	39,783
1991	30,106	1,864	31,970	7,254	798	514	8,566	40,536
1992	29,921	2,058	31,979	7,739	870	545	9,154	41,133
1993	29,209	2,344	31,553	8,356	930	542	9,828	41,381
1994	28,544	2,608	31,152	8,679	1,031	558	10,268	41,420
1995	27,952	2,885	30,837	9,165	1,113	591	10,869	41,706
1996	27,629	2,705	30,334	9,690	1,188	604	11,482	41,816
1997	22,658	2,774	25,432	8,308	1,060	528	9,896	35,328
1998	22,980	2,842	25,822	8,573	1,160	533	10,266	36,088
1999	23,350	2,827	26,177	8,883	1,279	535	10,697	36,874
2000	23,575	2,933	26,508	9,096	1,313	590	10,999	37,507
2001	24,640	2,961	27,601	9,446	1,438	549	11,433	39,034
2002	24,885	2,982	27,867	9,874	1,509	542	11,925	39,792
2003	25,136	2,996	28,132	10,322	1,587	545	12,454	40,586
2004	26,659	2,952	29,611	10,772	1,674	553	12,999	42,610
2005	26,792	2,958	29,750	11,225	1,747	556	13,528	43,278
2006	27,112	2,893	30,005	11,704	1,829	568	14,101	44,106
2007	27,403	2,893	30,296	12,354	1,886	572	14,812	45,108
2008	27,978	3,024	31,002	12,908	1,961	581	15,450	46,452
2009	29,353	2,857	32,210	13,429	2,007	587	16,023	48,233
2010	29,983	2,901	32,884	14,011	1,992	658	16,661	49,545
2011	30,659	3,155	33,814	14,632	2,061	677	17,370	51,184
2012	30,693	3,270	33,963	15,253	2,110	665	18,028	51,991
2013	30,916	3,170	34,086	16,028	2,225	663	18,916	53,002
2014	30,675	3,276	33,951	16,580	2,357	579	19,516	53,467
2015	31,065	3,338	34,403	17,199	2,413	571	20,183	54,586
2016	30,760	3,345	34,105	17,753	2,470	570	20,793	54,898
2017	29,951	3,399	33,350	18,503	2,527	559	21,589	54,939
2018	28,714	3,496	32,210	19,370	2,572	550	22,492	54,702
2019	27,962	3,513	31,475	19,963	2,620	543	23,126	54,601
2020	26,891	3,457	30,348	20,386	2,684	535	23,605	53,953
2021	26,636	3,653	30,289	20,883	2,758	532	24,173	54,462
2022	**26,749**	**3,819**	**30,568**	**21,312**	**2,835**	**528**	**24,675**	**55,243 ***

* The actual membership records processed for liability calculations is shown in the above table and will differ from the General Manager's Report due to the inclusion of members who entered or retired between the end of 2022 and the date the valuation file was sent to the actuary.

Reconciliation

- Participant Reconciliation (extracted from General Manager's Report, unless noted)

Year	Jan. 1	Entered*	Withdrew	Retired	Disabled	Died	Dec. 31	
1985	25,673	2,271	(908)	(468)	(28)	(59)	26,481	
1986	26,481	3,857	(1,028)	(489)	(29)	(42)	28,750	
1987	28,750	2,787	(1,272)	(541)	(52)	(46)	29,626	
1988	29,626	2,655	(1,387)	(536)	(52)	(46)	30,260	
1989	30,260	2,710	(1,307)	(528)	(49)	(51)	31,035	
1990	31,035	2,718	(1,273)	(470)	(50)	(48)	31,912	
1991	31,912	2,311	(1,389)	(768)	(42)	(54)	31,970	
1992	31,970	1,844	(1,125)	(640)	(31)	(39)	31,979	
1993	31,979	1,739	(1,296)	(808)	(31)	(30)	31,553	
1994	31,553	1,438	(1,189)	(575)	(32)	(43)	31,152	
1995	31,152	1,675	(1,324)	(569)	(30)	(67)	30,837	
1996	30,837	2,353	(1,992)	(763)	(54)	(47)	30,334	
1997	30,334	(3,272)	(1,082)	(478)	(41)	(29)	25,432	
1998	25,432	2,155	(1,182)	(494)	(47)	(42)	25,822	
1999	25,822	2,040	(991)	(585)	(52)	(57)	26,177	
2000	26,177	2,024	(1,105)	(505)	(48)	(35)	26,508	
2001	26,508	2,803	(1,017)	(598)	(35)	(60)	27,601	
2002	27,601	2,068	(1,016)	(683)	(56)	(47)	27,867	
2003	27,867	1,993	(909)	(710)	(68)	(41)	28,132	
2004	28,132	3,196	(858)	(751)	(60)	(48)	29,611	
2005	29,611	2,074	(1,060)	(755)	(63)	(57)	29,750	
2006	29,750	2,388	(1,251)	(777)	(63)	(42)	30,005	
2007	30,005	2,538	(1,172)	(948)	(65)	(62)	30,296	
2008	30,296	3,126	(1,408)	(906)	(53)	(53)	31,002	
2009	31,002	3,415	(1,243)	(841)	(72)	(51)	32,210	
2010	32,210	2,860	(1,171)	(907)	(61)	(47)	32,884	
2011	32,884	3,050	(1,033)	(965)	(68)	(54)	33,814	
2012	33,814	2,950	(1,764)	(933)	(55)	(53)	33,959	
2013	33,959	2,869	(1,730)	(898)	(58)	(56)	34,086	
2014	34,086	2,595	(1,680)	(936)	(54)	(60)	33,951	
2015	33,951	3,327	(1,784)	(977)	(56)	(58)	34,403	
2016	34,403	2,469	(1,728)	(955)	(47)	(37)	34,105	
2017	34,105	2,415	(1,984)	(1,068)	(63)	(55)	33,350	
2018	33,350	2,237	(1,955)	(1,308)	(54)	(60)	32,210	
2019	32,210	2,051	(1,618)	(1,046)	(68)	(54)	31,475	
2020	31,475	1,539	(1,654)	(898)	(58)	(56)	30,348	
2021	30,348	3,200	(2,178)	(972)	(66)	(43)	30,289	
2022	**30,289**	**3,341**	**(1,986)**	**(965)**	**(64)**	**(47)**	**30,568**	**
		89,809	(52,049)	(29,014)	(1,975)	(1,876)		

* This category reflects other adjustments. For example, in 1997, this category reflects the privatization of MTS.

** The actual membership records processed for liability calculations is shown in the above table and will differ from the General Manager's Report due to the inclusion of members who entered or retired between the end of 2021 and the date the valuation file was sent to the actuary.

- Pensioner (excludes survivors) Reconciliation (extracted from General Manager's Report, unless noted)

Year	Jan. 1	Other*	Retired	Disabled	Died	Dec. 31	
1985	4,519	-	468	28	(185)	4,830	
1986	4,830	1	489	29	(158)	5,191	
1987	5,191	-	541	52	(170)	5,614	
1988	5,614	(6)	536	52	(193)	6,003	
1989	6,003	(9)	528	49	(203)	6,368	
1990	6,368	(18)	470	50	(200)	6,670	
1991	6,670	5	768	42	(231)	7,254	
1992	7,254	34	640	31	(220)	7,739	
1993	7,739	12	808	31	(234)	8,356	
1994	8,356	-	575	32	(284)	8,679	
1995	8,679	142	569	30	(255)	9,165	
1996	9,165	-	763	54	(292)	9,690	
1997	9,690	(1,649)	478	41	(252)	8,308	
1998	8,308	16	494	47	(292)	8,573	
1999	8,573	-	585	52	(327)	8,883	
2000	8,883	(20)	505	48	(320)	9,096	
2001	9,096	(1)	598	35	(282)	9,446	
2002	9,446	(8)	683	56	(303)	9,874	
2003	9,874	(24)	710	68	(306)	10,322	
2004	10,322	(24)	751	60	(337)	10,772	
2005	10,772	(29)	755	63	(336)	11,225	
2006	11,225	(28)	777	63	(333)	11,704	
2007	11,704	(23)	948	65	(340)	12,354	
2008	12,354	(25)	906	53	(380)	12,908	
2009	12,908	(38)	841	72	(354)	13,429	
2010	13,429	(16)	907	61	(370)	14,011	
2011	14,011	(16)	965	68	(396)	14,632	
2012	14,632	(17)	933	55	(350)	15,253	
2013	15,253	243	898	58	(424)	16,028	
2014	16,028	8	936	54	(446)	16,580	
2015	16,580	14	977	56	(428)	17,199	
2016	17,199	(47)	955	47	(401)	17,753	
2017	17,753	54	1,068	63	(435)	18,503	
2018	18,503	(31)	1,308	54	(464)	19,370	
2019	19,370	(15)	1,046	68	(506)	19,963	
2020	19,963	(23)	898	58	(510)	20,386	
2021	20,386	(7)	972	66	(534)	20,883	
2022	**20,883**	**(8)**	**965**	**64**	**(592)**	**21,312**	**
		(1,553)	29,014	1,975	(12,643)		

* This category reflects other adjustments. For example, in 1997, this category reflects the privatization of MTS.

** The actual membership records processed for liability calculations is shown in the above table and will differ from the General Manager's Report due to the inclusion of members who entered or retired between the end of 2021 and the date the valuation file was sent to the actuary.

Membership Distribution by Employer

	Name of Employer	Code	Active Participants	Other Participants	Pensions in Payment	2022 Total
	Non-Matching Employers					
1	Province of Manitoba Civil Service	CS	13,070	2,229	14,510	29,809
2	Sport Manitoba	SM	1	-	4	5
3	Venture Manitoba Tours Ltd.	VT	-	-	3	3
4	Paletta & Company Hotels Ltd.	PCH	2	-	1	3
5	Manitoba Hydro-Electric Board	MH	5,061	389	4,222	9,672
6	Manitoba Public Insurance Corporation	AI/AIE	2,042	225	1,032	3,299
7	MPIC - Division of Driver and Vehicle Licencing	AIL	37	5	175	217
8	Red River College	RCC	1,597	194	978	2,769
9	Manitoba Agricultural Services Corporation	AC	-	5	24	29
10	Addictions Foundation of Manitoba	AF	16	64	260	340
11	Assiniboine Community College	ACC	368	55	222	645
12	University College of the North	KCC	289	67	190	546
13	Legal Aid Manitoba	LA	124	21	91	236
14	Manitoba Centennial Centre Corporation	CC	53	4	68	125
15	Teachers' Retirement Allowances Fund Board	TR	44	6	23	73
16	Communities Economic Development Fund	CE	9	3	14	26
17	Manitoba Horse Racing Commission	RC	2	1	5	8
18	Diagnostic Services Manitoba	DSM	146	3	101	250
19	WRHA - Health Sciences Centre	RWA	127	10	228	365
20	Prairie Mountain Health	PMH et al	91	10	385	486
21	Interlake-Eastern Regional Health Authority	IEH et al	11	2	94	107
22	Northern Health Region	NRH et al	37	5	35	77
23	Southern Health-Santé Sud	SRH et al	13	2	108	123
24	Manitoba Development Corporation	MDC	-	-	-	-
25	The Workers Compensation Board of Manitoba	WC	-	-	1	1
26	WECO	WEC	-	-	7	7
			23,140	3,300	22,781	49,221
	Matching Employers					
1	Manitoba Liquor Lotteries Corporation	LC/LF/LL	2,280	247	711	3,238
2	Manitoba Housing Authority	HA	16	54	277	347
3	WCFS CUPE Support Workers	CSW	351	26	48	425
4	Manitoba Agricultural Services Corporation	MAS	139	18	91	248
5	Manitoba Crop Insurance Corporation	CI/CIC	90	10	136	236
6	Manitoba Government and General Employees' Union	EA	74	10	72	156
7	Efficiency Manitoba Inc.	EM	72	-	2	74
8	Manitoba Hydro Utilities Service	MHU	68	19	5	92
9	Child and Family All Nations Coordinated Response Network	ANR	170	47	27	244
10	The Civil Service Superannuation Board	SB	55	9	37	101
11	Liquor, Gaming and Cannabis Authority of Manitoba	GC	78	10	38	126
12	Travel Manitoba	TM	32	12	22	66
13	Teranet Manitoba LP	TN	90	11	38	139
14	Food Development Centre	FD	-	12	14	26
15	Dairy Farmers of Manitoba	MC	18	5	17	40
16	Industrial Technology Centre	IT	-	5	26	31
17	Hams Marketing Services Co-Op Inc.	HM	8	3	15	26
18	Research Manitoba	HRC	12	4	2	18
19	Manitoba Film & Music	MFS	11	1	1	13
20	Manitoba Pork Council	PC	11	2	8	21
21	Manitoba Arts Council	MA	16	1	8	25
22	Manitoba Chicken Producers Board	CB	8	-	2	10
23	Horizon Lab Ltd.	MTR	7	1	2	10
24	Manitoba Cattle Enhancement Council	MCE	-	1	1	2
25	Turkey Producers Marketing Board	TB	3	1	5	9
26	Economic Innovation and Technology Council	MR	-	7	42	49
27	Manitoba Development Corporation	DFP	-	-	4	4
28	Manitoba Hazardous Waste Management Corporation	HW	-	-	3	3
29	The Manitoba Water Services Board	WS	-	-	9	9
30	Human Resources and Employment Centres	R's/HE	-	3	11	14
31	Manitoba Beef Commission	BC	-	-	-	-
32	Local Government Districts	LG	-	-	2	2
33	Manitoba Mineral Resources Limited	MM	-	-	1	1
34	Manitoba Data Services	DS	-	-	1	1
35	Money Purchase Plan Annuity	MPP	-	-	216	216
36	No Billing (Charged to Fund)	NB	-	-	-	-
			3,609	519	1,894	6,022
	31-Dec-2022 Total Membership		**26,749**	**3,819**	**24,675**	**55,243**
	31-Dec-2021 Total Membership		26,636	3,653	24,173	54,462

Data Checks (Source: Staff of the Civil Service Superannuation Board)

- Active Participants: An electronic file which provided information for each active participant as at December 31, 2022. Details of the information provided included: employer code, employee number, sex, date of birth, date of entry into the Fund, full-time annual salary at December 31, 2022, salary rate at December 31, 2022, the proportion of 2022 worked, qualifying service, required employee contributions and total interest on these contributions accumulated to the valuation date. In addition, average monthly pension at the valuation date, including retroactive salary increases, was provided, split between onside, LTD and other offside amounts. Any reductions in pension as a result of marriage break-up cases, which have been processed, were also provided. We had available copies of prior Actuarial Valuation Reports on the financial position of the Fund.

  The file was checked for missing information and illogical information.

- Pensions in Payment: An electronic file which provided information for each pensioner as at December 31, 2022. Details of the information provided included: employer code, name, sex, date of birth, date of commencement of pension, type of pension, and amount of monthly pension. For each pensioner, the portion of the pension charged to the Fund, now and in the future, was also provided. Similar information was provided for each beneficiary or potential beneficiary.

  The pensioner information was provided in 74,396 separate records (trailers) in respect of the 24,675 pensions in payment, which gave details on the pension payable from various sources.

Billing		Basic Pension		Indexing	
Type	Number	Fund	Employer	Employer	Account
A	179	$ 1,927	$ 6,929	$ 7,391	$ 345
B	57,375	25,595,261	19,424,845	2,904,399	3,709,016
C	3,385	(87,683)	(77,898)	-	-
E	51	-	747	-	-
F	2,174	83,968	57,278	2,456	3,480
H	-	-	-	-	-
I	852	131,702	41,774	-	-
J	2,626	61,500	24,040	5,130	11,411
K	54	-	228,534	23,583	-
L	1,387	273	337,909	-	-
M	19	-	2,498	177	-
N	548	-	426,291	48,054	-
O	5,085	(160,921)	(153,922)	-	-
P	586	10,364	3,353	1,489	4,063
Q	2	-	2	1	-
U	1	11	11	-	-
W	30	-	97	199	19
X	32	-	26,065	4,642	-
Y	10	-	11,395	-	-
	74,396	**$ 25,636,400**	**$ 20,359,949**	**$ 2,997,521**	**$ 3,728,335**
Average Monthly Pension		$1,038.96	$825.12	$121.48	$151.10

- The General Manager's and Chief Investment Officer's Reports for 2022. This Report included detailed lists of investments held and financial statements of the Fund, including balance sheets, and income and expenditure statements.
- The Annual Report of the Superannuation Board for 2022.
- A copy of the CSSA, with amendments, to December 31, 2022.
- An electronic file containing the billing percentages to be used to allocate payments and liabilities amongst the participating employers pursuant to subsection 22(11) of the CSSA.

DATA CERTIFICATE

with respect to

The Civil Service Superannuation Fund

forming part of

The Actuarial Valuation Report as at December 31, 2022

I hereby certify that, to the best of my knowledge and belief, the data on which the valuation is based is a complete and accurate representation of all persons at the valuation date who are entitled to benefits or will become entitled to benefits under the terms of the Civil Service Superannuation Act (CSSA). It is appropriate to value the benefits of these persons in accordance with the provisions of the CSSA at the valuation date.

DKHoppwich
Signed

Director- Client Services Admin
Title

June 22, 2023
Date

APPENDIX III

Summary of the Plan

The calculations in this Report are based on the Civil Service Superannuation Act (CSSA) as amended to the valuation date. The Civil Service Superannuation Board (Board) is responsible for administering the CSSA. The Fund is a contributory defined benefit final pay pension plan that covers eligible employees of the Province of Manitoba and its participating Agencies. The following is a brief summary of the benefits as they existed at the valuation date. For a more complete description of the benefits, reference should be made to the CSSA.

1. Effective Date:

The Board and Fund were established under the CSSA in May, 1939.

2. Recent Changes:

Bill 43, The Civil Service Superannuation Amendment Act, received Royal Assent in the Manitoba legislature on October 14, 2020. This Bill changes the provisions of the CSSF pension plan and requires the going concern actuarial valuation assumptions be used in the calculation of the commuted value lump sum calculations.

In 2014, Manitoba Liquor Control Commission, after its amalgamation with Manitoba Lotteries Corporation, became a matching employer and paid to the Fund its unfunded employer benefit obligations.

Contribution rates to the Plan were increased over a four year period (2012 – 2015) until the contribution rates are 2% higher than they were previously. The increased contributions are not intended to provide increased pension benefits, but are necessary to fund existing benefits in the future.

Effective May 31, 2010, the Manitoba Pension Benefits Act was amended to provide immediate vesting (previously 2 years of service required) which has been reflected in this Valuation. Other changes dealing with the payment of commuted values, interest credits, marriage breakups, etc. are not expected to have a material cost to the Plan.

Effective January 1, 2001, the employee contribution rate will be 6.0% of pensionable earnings up to Canada Pension Plan (CPP) maximum pensionable earnings and 7.0% of pensionable earnings above the CPP maximum each year. On pensionable earnings up to the CPP maximum, the matching employer contribution rate remains the same at 5.1%.

Effective September 1, 2000, the CSSA was amended to provide benefit improvements. The most significant benefit improvement was to amend the pension formula to increase the pension benefits payable effective September 1, 2000 from 1.4% to 1.6% of average earnings below the average CPP maximum. There were also changes to buy back provisions respecting pensionable service as well as to other administrative matters. The cost of these benefit improvements will be funded by the Fund and by an increase in employee contribution rates.

Employer Billings: Effective January 1, 1998, pursuant to subsection 22(11) of the CSSA, employer funding for employees of more than one non-matching Agency shall be on a pro-rata basis in accordance with the portion of the amount paid or transferred to the employee in respect of which no employer matching contributions were made effective for events on or after January 1, 1998.

Correctional Officers Rule of 75: Effective November 19, 1996, employees who are members of the Province of Manitoba's Corrections Component are required to contribute an additional 1.00% of pensionable earnings. These additional contributions, which are credited to the Correctional Officers' Trust Account, are intended to fund the additional pension benefits for eligible employees who may retire as early as age 50 with no reduction for early retirement providing age and qualifying service are equal to a total of 75 or greater.

3. Eligibility:

Each full-time employee of the Province of Manitoba or an Agency immediately begins to participate in the Fund.

Each part-time, temporary or term employee must become a participant upon completing 2 consecutive years of employment in which salary exceeds 25% of the Year's Maximum Pensionable Earnings as defined in the Interpretation Section of the Canada Pension Plan. Any such employee has the option to participate in the Fund any time after employment commences.

4. Contributions:

The Fund is financed by contributions required to be made by employees who are participants in the Fund and by participating employers.

Recently, a contribution rate was changed to the Plan to increase the rates by 2.00% of salary (matched by employers).

The rates of required contributions for employees who are participants in the Fund are scheduled as follows:

For pay periods ending:	Contibution rate on salary up to CPP earnings	Contibution rate on salary over CPP earnings
before July 1, 2012	6.00%	7.00%
on or after July 1, 2012 but before 2013	6.50%	7.50%
in 2013	7.00%	8.00%
in 2014	7.50%	8.50%
after 2014	8.00%	9.00%

In accordance with the CSSA, 10.2% of the contributions are allocated to the Indexing Account.

Some of the participating employers are "matching" the contributions made by their employees. The remaining employers are financing their portion of benefits on a pay-as-you-go basis. Correctional Officers are required to contribute an additional 1.00% of salary.

5. Pension Formula:

The lifetime pension formula equals:

- 2.00% of a member's best 5-year average pensionable earnings multiplied by pensionable service, minus
- .4% of the average Canada Pension Plan's earnings for the same period multiplied by pensionable service since January 1, 1966.

The lifetime pension is subject to an overall maximum of 70% of the average earnings. Some pensions for members retiring prior to age 60 are subject to an early retirement reduction.

6. Retirement:

A participant receives an unreduced pension if such a participant retires on the last day of the calendar year in which the member attains age 71; on or after age 65 with one year of qualifying service; on or after age 60 with 10 years of qualifying service; or on or after age 55 if age plus qualifying service is equal to 80.

A participant is eligible to receive a reduced pension if such a participant retires on or after age 55 having completed 10 years of qualifying service. The 10-year service requirement has been eliminated after May 31, 2010.

Eligible members of the Province of Manitoba's Corrections Component may retire as early as age 50 if their age plus qualifying service total 75 or more.

The pension is paid for as long as a retired participant lives. If the participant dies before the total of the pension payments is at least equal to the participant's contributions with interest, the excess amount of these contributions over the pension payments made is paid to the participant's beneficiary or estate, whichever is applicable.

If the participant has a spouse at the date of retirement, a joint annuity is payable during the lives of the participant and the spouse. This annuity is reduced by one-third on the death of the participant. This annuity is reduced so that it is actuarially equivalent in value to the pension that would otherwise be payable. This form of payment is also guaranteed so that the total payments are at least equal to the participant's contributions with interest.

This form of payment can be waived if the spouse signs the appropriate waiver form.

7. Termination:

Pension entitlements are protected (vested) for participants immediately (previously 2 or more years of qualifying service required). These entitlements are portable and may be transferred to another pension plan or to a suitable locked-in vehicle. Calculation of a commuted value of pension in respect of service is performed at the time of termination, death, or retirement. A test is made to ensure that the participant's required contributions plus interest (less 10.2% allocated to the Indexing Account) provide no more than 50% of the benefit in respect of eligible service. This test may cause an additional benefit to be paid for such eligible service.

8. Disability:

A participant who has 10 or more years of qualifying service, has not reached age 60 and suffers from a disability may apply for a disability allowance.

If the disability is total and permanent, the participant qualifies immediately for an allowance calculated as a normal retirement pension.

Average annual salaries are determined at the date of disablement.

9. Death:

If a participant dies prior to retirement and has not 10 completed years of qualifying service, the death benefits are equal to the commuted value of the participant's accrued pension. This amount may be paid as an annuity if there is a surviving spouse.

If a participant dies prior to retirement and has completed 10 years of qualifying service, the participant's spouse receives an annuity equal to 60% of the participant's accrued pension. The value of the spouse's annuity must be at least equal to the commuted value of the participant's accrued pension.

If a participant dies prior to retirement and has completed 10 years of qualifying service but there is no surviving spouse, the value of the death benefit must be at least equal to the commuted value of the participant's accrued pension.

If there is no spouse, the commuted value benefit will be paid to the estate. If the participant dies prior to retirement and does not have a spouse, the death benefit is at least the commuted value of the participant's accrued pension.

10. Indexing:

Post-retirement: Increases to pensions in payment of up to 2/3 of the change in the Consumer Price Index (CPI) are granted if there is a sufficient amount available in the Indexing Account and there is an increase in the cost of living. A separate report has been prepared on the Indexing Account. Such amounts are not charged to the basic part of the Fund.

Pre-retirement: Increases to deferred annuities of up to 2/3 of the change in CPI are prefunded on the Valuation Balance Sheet between the date of termination and date of pension commencement. Such amounts are charged to the basic part of the Fund.

11. Valuation Process:

For each event and resulting benefit in the actuarial valuation, we examine the eligibility criteria, benefit amount and maturity value in order to determine the value of that benefit. A description of these items follows:

- Eligibility - benefits usually depend on some combination of attained age and years of qualifying service recognized in the CSSA.
- Benefit Amount - pensions are based on the number of years of pensionable service and the average of the best 5 years' pensionable earnings.
- Maturity Value - a lump-sum cash settlement and/or a pension. If the benefit is a pension, the normal form of payout is life refunding if single. If married, the normal form of payout is joint-life, reducing to 2/3 on the participant's death (actuarially equivalent to life refunding). Other optional forms of payout are available with different death benefits.

Vested and locked-in pensions can be commuted and transferred to a suitable locked-in vehicle.

APPENDIX IV

Going Concern Assumptions and Valuation Methods

Actuarial Assumptions and Methods	31-Dec-2022	31-Dec-2021
1. Actuarial Cost Method	Projected Unit Credit (excludes pay-as-you-go)	same
2. Asset Valuation Method	Market Value plus an asset smoothing adjustment	same
3. Expenses		
▪ explicit valuation balance sheet reserve	none	same
▪ explicit contribution rate allowance	none	same
▪ implicit assumed rate of return MER	**0.56%**	0.39%
4. Assumed Rate of Return (Discount Rate)	**6.00%**	5.75%
5. Assumed Salary Increase Rate		
▪ inflation rate	2.00%	same
▪ real rate	0.50%	same
▪ service, merit, & promotion (SMP) - average	**vary by age**	vary by age
6. Indexing		
▪ if retired or eligible to retire	none	same
▪ deferral period	**0.85%**	1.33%
▪ indexing reserve	none	same
7. Annual Employee Contributions Interest Credit	**4.00%**	3.75%
8. Annual Rate of Increase in CPP Earnings Maximum	2.50%	same
9. Annual Rate of CRA Maximum Pension Increase	2.50%	same
10. Retirement Rates		
▪ if retired	immediate	same
▪ otherwise	**vary by age & sex**	vary by age & sex
11. Termination Rates	**vary by age & sex**	vary by age & sex
▪ cash settlement election %	**80%**	100%
▪ deferred pension election %	**20%**	0%
12. Disability Rates	vary by age & sex	same
13. Mortality Rates		
▪ pre-retirement ▪ post-retirement	CPM 2014 Public Mortality Projected Using Scale B with	same
▪ size adjustment factors	**M: 1.050 / F: 1.050**	M: 1.043 / F: 1.003
▪ spousal proportion (generally)	90%(male) / 71%(female)	same
▪ spousal ages	-5/+3 or exact, if available	same
▪ unisex weightings[1]		
- if retired or eligible to retire	sex distinct	same
- otherwise	sex distinct	same

Changes in assumptions are identified in bold above (details beginning on the following page).

[1] Liabilities are calculated using actual member gender. The unisex percentage for individual calculations is calculated using a liability weighted methodology. The unisex weighting is 64% male and 36% female.

Conservatism in Actuarial Assumptions

The actuarial assumptions must be, individually and in aggregate, appropriate for the purpose of the valuation. In general, the assumptions are the sum of the actuarial best estimate assumptions plus any additional Margin for Adverse Deviation (MfAD). An MfAD is the difference between the assumption for a calculation and the corresponding best estimate. Best estimates are developed by the actuary; however, it is the responsibility of the Board to determine the extent of any MfADs.

In choosing an appropriate level of conservatism, the Board of Trustees must examine several factors, including:

- The financial strength of the participating employer (less financial ability and willingness then more conservatism);
- The uncertainty of future Plan experience (more uncertainty, more conservatism);
- The appropriate time horizon for consideration (1 year, 3 years, etc., longer outlooks increase the conservatism);
- The maturity of the Plan liabilities (more retirees may require a larger level of conservatism);
- The asset mix of the Plan (more equity may require a larger level of conservatism).

Each actuarial assumption developed in Appendix IV is the actuaries best estimate of future experience at the time the Report is prepared. When setting the level of MfAD, the Board should look at other levels of conservatism that may be present. Each description of the going concern assumptions beginning on the following page discusses the level of implicit MfAD, if any, believed to be present in that assumption at the Valuation Date.

If the Board wishes to add additional conservatism to the going concern results, the most common inclusion is in the development of the assumed discount rate. There is currently 40 basis points (0.40%) of MfAD contained in the discount rate of 6.00% per year. If the Board feels that additional conservatism is needed, the Board may add additional MfAD to the discount rate.

1. Actuarial Cost Method

The actuarial cost method for the Valuation continues to be projected unit credit. Projected unit credit anticipates that the current service cost with interest, when added to the opening liabilities, will be sufficient to finance the liabilities at the end of the next year, after reflecting expected salary increases, retirements, terminations, disablements, and deaths. This method of valuation is used by most defined benefit pension plans in funding their benefit promises. This method is, however, more sensitive to an aging demographic active population and will result in an increasingly higher current service cost as the active population ages. The projected unit credit method is the preferred method used in the accounting profession for reporting financial obligations of pension plans.

The Fund consists of the accumulation of those contributions and other payments that were made during the period of employment of the present members. This accumulation will be used to finance a portion or all of the benefits which these members have been promised under the CSSA. The portion of the benefits so financed includes:

- 100% of the pensions and other benefits to be paid to employees for service if employed by an employer who matched the contributions made by employees,
- 50% of the pensions to be paid to those employees who are employed by an employer who is not matching employee contributions,
- 50% of the commuted value of pensions or benefits generated as a result of all service,
- 100% of the value of the excess contributions paid by employees as a result of service on or after January 1, 1985,
- the value of employee contributions transferred under reciprocal agreements,
- a specified portion of each pension currently being paid, excluding that part of the pension which is charged to the Indexing Account, plus
- notwithstanding the above cost sharing, the Fund is responsible for 100% of the 0.2% benefit formula improvement, which was effective September 1, 2000.
- notwithstanding the above, benefits not registerable under the Income Tax Act are not charged to the Fund. These unregistered benefits are charged back to the employers.

The remainder of the benefits is financed by the Province of Manitoba and its Agencies on a pay-as-you-go-basis (non-matching) or is withdrawn out of amounts set aside in accounts established within the Fund for this purpose. This actuarial valuation relates to the benefits which accrued during employment and the assets and contributions available to finance these benefits. The portion of the benefits to be financed by the Province of Manitoba and its Agencies by payments to the Fund is not considered to be a liability of the Fund.

Pursuant to CSSA subsection 22(1), employer funding for employees of more than one non-matching Agency shall be on a pro rata basis in accordance with the portion of the amount paid or transferred to the employee in respect of which no employer matching contributions were made effective for events on or after January 1, 1998.

2. Asset Valuation Method

This Report uses an adjusted market value of assets. The adjusted market value of assets is calculated using a 5-year asset smoothing adjustment with a 10% corridor. The following table develops the asset smoothing as at December 31, 2022:

Calendar Year	Gross Investment Income	Rate of Return Net	Rate of Return Assumed	Investment Gain/ (Loss)	Asset Smoothing Adjustment Proportion		Asset Smoothing Adjustment Amount
2018	$ (52,878,000)	(1.17%)	6.00%	$ (324,047,231)	0.00%		$ -
2019	569,740,000	13.35%	5.75%	324,346,367	20.00%		64,869,273
2020	389,765,000	8.47%	5.75%	125,166,564	40.00%		50,066,626
2021	496,743,000	10.53%	5.75%	225,492,074	60.00%		135,295,244
2022	(313,090,000)	(6.28%)	5.75%	(599,756,799)	80.00%		(479,805,439)
					Calculated Asset Smoothing Adjustment:	Preliminary	$ (229,574,296)
					Minimum Asset Smoothing Adjustment (-10.00% of assets):	Min	(458,564,800)
					Maximum Asset Smoothing Adjustment (+10.00% of assets):	Max	458,564,800
						As-Adj	(229,574,296)
					Provision for future Adverse Deviation:	PfAD	-
					Final Asset Smoothing Adjustment 31-Dec-2022:	**As-Adj+PfAD**	**$ (229,574,296)**

An asset smoothing adjustment to buffer past and possible future adverse investment experience has been utilized for this Report and is equal to $229,574,000 on the going concern valuation balance sheet. This reserve is a write-up of assets for this Valuation which may or may not mitigate in full, or in part, past and possible future adverse investment experience.

3. Expenses

- Valuation Balance Sheet Reserve

  No explicit expense reserve has been held on the going concern Valuation Balance Sheet.

- Contribution Rate Allowance

  No explicit expense allowance has been made in the development of the normal actuarial cost of basic benefits.

- Assumed Rate of Return MER

  An implicit management expense rate (MER) has been held in the development of the nominal assumed rate of return found as shown below and on the following page.

Expense Analysis	2022 Expenses	A. Directly to Contribution Rate	B. Directly to Balance Sheet	C. Directly to Assumed Rate $	C. Directly to Assumed Rate % of Assets
Operating Expenses*	24,233,000	$ -	$ -	$ 24,233,000	0.50%
Investment Expenses	3,056,000	-	-	3,056,000	0.06%
Total Expenses	$ 27,289,000	$ -	$ -	$ 27,289,000	0.56%
Expense Budget	**$ 25,680,000**	**$ -**	**$ -**	**$ 25,680,000**	**0.56%**

* Includes actuarial, administration, accounting, audit, AIR fees, etc.

* Average Assets at Market Value = $5,078,145,000 x 0.5 + $4,585,648,000 x 0.5 = $4,831,896,500

4. Development of the Going Concern Assumed Rate of Return (Discount Rate)

The discount rate assumption is 6.00% per year.

The overall expected return ("best estimate") is 6.71%, which is based on an inflation rate of 2.00%, a real rate of return on the pension fund assets of 4.26% per year, plus an allowance of 0.45% for rebalancing and diversification. This best estimate rate of return was developed using best estimate returns for each major asset class in which the pension fund is invested and then using a building block approach, based on the Plan's investment policy, to develop an overall best estimate rate of return for the entire pension fund. The overall expected return is then reduced for the expected expenses of the Plan (which are offset by the estimated additional returns due to active management) and an MfAD as adopted by the Board.

Inflation	2.00%
Real Rate of Return (portfolio policy mix)	4.26%
Rebalancing and Diversification	0.45%
Overall expected return	6.71%
Expenses	
Investing	(0.50%)
Operating	(0.06%)
Additional returns due to active management	0.25%
Margin for adverse deviations *	(0.40%)
Discount Rate	**6.00%**

* Please note that the margin for adverse deviations is currently offset in its entirety by the expected interest on deficit (1.08% = ((6.00% x 1,175,640,000) – 20,839,000) / 4,585,648,000).

For this valuation, the 6.00% assumed rate of return should be viewed as the best estimate with no margin for adverse deviations.

The prior valuation utilized a discount rate assumption of 5.75% per year.

5. Assumed Salary Increase Rate

The salary increase rate is developed based on a building block approach using the following components: inflation, productivity, and merit.

The inflation and productivity assumptions is 2.50% per annum. This assumption remains consistent with the one used in the prior valuation.

The inflation and productivity component of the assumed salary increase rate starts at age 15, are unisex, and continue to the assumed retirement age.

Year	Inflation + Productivity
≥ 2022	2.50%

The merit scale has been updated for this Valuation and reflects recent experience reviewed based on a trailing 5-year period ending in 2022 (2018 to 2022). The merit scale used for the purposes of this report reflects salary increase rates that are lower than the prior merit scale table used in the prior valuation.

The merit component of the assumed salary increase rate starts at age 15, is unisex, and reaches 0.00% at age 55.

Age	Merit
15-19	3.94%
20-24	3.86%
25-29	3.27%
30-34	2.06%
35-39	1.37%
40-44	0.89%
45-49	0.54%
50-54	0.18%
≥ 55	0.00%

6. Indexing

- If retired or eligible to retire

  No allowance for post-retirement indexing of the basic benefits in this Valuation. Separately, a report is prepared on the Indexing Account and separate reports for each of the pay-as-you-go employers which allows for some post-retirement indexing.

- Deferral period

  For this Report, indexing is included in the deferral period for existing and future deferred members. The indexation of their otherwise static pension is equal to 0.85% for this Valuation.

7. Annual Employee Contributions Interest Credit

The annual employee contribution interest credit is equal to 4.00% for this Report. This rate is generally assumed to be approximately 2.00% lower than the nominal assumed rate of return, currently equal to 6.00%.

The prior valuation assumed annual contribution interest credit equal to 3.75%.

8. Annual Rate of Increase in CPP Earnings Maximum

The annual rate of increase in the CPP Earnings Maximum is equal to 2.50% for this Report. The rate continues to be based on the general salary increase rate component (inflation + productivity) found in this Report.

This assumption remains consistent with the one used in the prior valuation.

9. Rate of CRA Maximum Pension Increase

The rate of increase in the CRA Maximum Pension is equal to 2.50% for this Report. The rate continues to be based on the general salary increase rate component (inflation + productivity) found in this Report.

This assumption remains consistent with the one used in the prior valuation.

10. Retirement Rates

We note that there are many acceptable going concern retirement age assumptions, and it may be appropriate to use the first subsidized age.

The retirement age assumption should consider:

- the plan design features;
- historical experience; and
- the future outlook for retirement experience.

For a plan that includes material early retirement subsidies, in some cases it may be viewed as inappropriate to use a retirement age assumption that ignores the possibility of members taking advantage of the plan's early retirement options.

For this Report, retirement rates are based on age and gender and are in accordance with the following table (rates start at age 55, vary by sex, and reach 100.00% at age 65):

Age	Male	Female
≤ 54	0.00%	0.00%
55	19.00%	20.00%
56	7.00%	9.00%
57	8.00%	9.00%
58	7.00%	8.00%
59	9.00%	10.00%
60	17.00%	17.00%
61	11.00%	13.00%
62	12.00%	14.00%
63	13.00%	15.00%
64	17.00%	16.00%
≥ 65	100.00%	100.00%

The retirement rates have been updated for this Valuation and reflect recent experience reviewed based on a trailing 5-year period ending in 2022 (2018 to 2022). The retirement rates have been increased to reflect an increase in retirement experience (i.e. members are retiring at younger ages) relative to the prior expectation in the previous valuation.

Given the large number of "baby boomer" retirees expected in the near future, these rates may or may not prove to be adequate. Continued monitoring of retirement experience should occur.

11. Termination Rates

The termination rates have been updated for this Valuation and reflect recent experience reviewed based on a trailing 5-year period ending in 2022 (2018 to 2022).

The age-related rates for males and females are summarized in the table below:

Age	Male	Female
15-19	28.00%	24.00%
20-24	18.00%	23.00%
25-29	11.00%	13.00%
30-34	9.00%	10.00%
35-39	7.00%	8.00%
40-44	7.00%	7.00%
45-49	6.00%	6.00%
50-54	5.00%	6.00%
≥ 55	0.00%	0.00%

Upon termination, 20% of members are assumed to elect a deferred pension and 80% of members are assumed to elect a lump sum settlement.

Basis for Benefit Settled through Deferred Pension:

For the purposes of this Report, 20% of all members assumed to terminate are assumed to elect a deferred pension. The basis for determining the benefits settled through a deferred pension is as follows:

- Assumed rate of return (discount rate): 6.00%
- Retirement age: 60
- Mortality Table: CPM2014 Public Table proj. with Scale B
- Pension size adjustment factor: 1.050
- Indexing (deferral period only) 0.85%

Basis for Benefit Settled through Cash Settlement:

For the purposes of this Report, 80% of all members assumed to terminate are assumed to elect a lump sum cash settlement. The basis for determining the benefits settled through a lump sum is as follows:

- Assumed rate of return (discount rate): 6.00%
- Retirement age: 65
- Mortality Table: CPM2014 Public Table proj. with Scale B
- Pension size adjustment factor: 1.050
- Indexing (deferral period only) 0.85%

12. Disability Rates

The disability rates are continued for this Report. The expected disablements approximately reflect the recent actual disablements. Rates start at age 35, vary by sex, and reach 0.00% at age 60.

Age	Male	Female
≤ 34	0.00%	0.00%
35-39	0.02%	0.03%
40-44	0.05%	0.08%
45-49	0.13%	0.18%
50-54	0.35%	0.44%
55-59	0.66%	0.75%
≥ 60	0.00%	0.00%

13. Mortality Rates

The Canadian Institute of Actuaries published a report in February 2014 named "Canadian Pensioners' Mortality Report." The report discusses Canadian specific mortality for registered pension plans and develops/reviews separate tables based on employment sector. The final report presents base table experience for public sector, private sector, and combined experience for public sector and private sector.

The pre-retirement and post-retirement death rates for the purposes of this Report are based on the 2014 Canadian Pensioner Public Mortality Table projected with the two-dimensional CPM improvement Scale B. The mortality projection scale allows for improvements in mortality after 2014. This assumption remains consistent with the one used in the prior valuation.

A pension size adjustment factor of 1.050 for both males and females were used based on recent pensioner mortality experience reviewed based on a trailing 5-year period ending in 2022 (2018 to 2022). The prior valuation recognized a pension size adjustment of 1.043 for males and 1.003 for females based on the pension size adjustment factor table and methodology outlined in the Canadian Pensioners' Mortality Report.

The exact spouse age was used when available. If exact spouse age is unknown, the spouse age difference was assumed generally to be minus 5 years if a male participant and plus 3 years if a female participant. This assumption remains consistent with the one used in the prior valuation.

All liabilities were valued on a sex distinct basis.

APPENDIX V

Solvency Assumptions and Valuation Methods

Actuarial Assumptions and Methods	31-Dec-2022	31-Dec-2021
1. Actuarial Cost Method	ABCM with no salary projection (excludes pay-as-you-go)	same
2. Asset Valuation Method	Market Value	
3. Expenses		
▪ explicit valuation balance sheet reserve	**.50% of assets ($22,928,000)**	.50% of assets ($25,391,000)
▪ explicit contribution rate allowance	none	same
▪ implicit assumed rate of return MER	none	same
4. Assumed Rate of Return	Annuity Purchases / Cash Settlements <10 Yrs / Cash Settlements >10 Yrs	Annuity Purchases / Cash Settlements <10 Yrs / Cash Settlements >10 Yrs
▪ total nominal rate	**4.91%** / **6.00%** / **6.00%**	2.84% / 5.75% / 5.75%
5. Assumed Salary Increase Rate		
▪ inflation rate	none	same
▪ real rate	none	same
▪ service, merit & promotion (SMP) -average	none	same
6. Indexing		
▪ if retired or eligible to retire	none	same
▪ deferral period	none	same
▪ indexing reserve	none	same
7. Annual Employee Contributions Interest Credit	none	same
8. Annual Rate of Increase in CPP Earnings Maximum	none	same
9. Rate of CRA Maximum Pension Increase	2022: $3,420.00	2021: $3,245.56
	Indexed at 0.00% thereafter	same
10. Retirement Age		
▪ if retired or eligible to retire	immediate	same
▪ otherwise	first age possible	same
11. Termination Rates	none	same
12. Disability Rates	none	same
13. Mortality Rates		
▪ entitled to annuity purchases	CPM 2014 Combined Mortality	same
	Projected Using Scale B	same
▪ size adjustment factor (annuity purchase)	M: 1.000 / F: 1.000	same
▪ entitled to cash settlement	CPM 2014 Public Mortality	same
	Projected Using Scale B with	same
▪ size adjustment factor (cash settlement)	**M: 1.050 / F: 1.050**	M: 1.043 / F: 1.003
▪ spousal proportion (generally)	90%(male) / 71%(female)	same
▪ spousal ages	-5/+3 or exact, if available	same
▪ unisex weightings[1]		
- if retired or eligible to retire	sex distinct	same
- otherwise	sex distinct	same

Changes in assumptions are identified in bold above (details beginning on the following page).

[1] Liabilities are calculated using actual member gender. The unisex percentage for individual calculations is calculated using a liability weighted methodology. The unisex weighting is 64% male and 36% female.

Solvency/Hypothetical Wind-Up Actuarial Cost Method

A solvency and hypothetical wind-up valuation determines the funded status of the Plan on the assumption that the Plan is terminated and wound up at the valuation date. Under this scenario current earnings and YMPE values are used to determine employee benefits. Contingent benefits are included in the calculation when appropriate.

This Report uses an accrued benefit cost method when calculating the solvency/hypothetical wind-up funded status. This cost method determines employee benefits based on service accrued up to the valuation date and assumes no increases in future earnings.

Solvency/Hypothetical Wind-Up Asset Valuation Method

This Report uses market value of assets. The market value of assets assumed in this Report is the market value of assets plus accounts receivable/(payable) as at December 31, 2022.

Hypothetical Wind-Up Expenses

Solvency and hypothetical wind-up valuations require that the actuary explicitly reflect any costs associated with the wind-up on the solvency/hypothetical wind-up balance sheet. This Report reflects a wind-up expense allowance of $22,928,000.

Annuity Purchases

1. Basis: Educational Note - Assumption for Hypothetical Wind-Up and Solvency Valuations with Effective Dates on or after December 31, 2022, and No Later Than June 29, 2024.
2. Members valued: Members who are retired or who are eligible to retire.
3. Retirement Age: Immediate (current age).
4. Mortality: CPM2014 Mortality Table projected using Scale B.
5. Interest Rate: In accordance with the Guidance provided by the Canadian Institute of Actuaries. The annuity purchase rate was determined to be 4.91% for non-indexed pensions.

Commuted Value (CV) Basis – Non-Indexed rates are required for the Plan

1. Basis: Commuted values (CVs) were calculated in accordance with the Canadian Institute of Actuaries (CIA) Standard of Practice – Practice-Specific Standards for Pension Plans, Section 3500.
2. Members Valued: Members who are not retired or eligible to retire.
3. Retirement Age: 65
4. Mortality: CPM2014 Public Mortality Table projected using Scale B.
5. Interest Rates: 6.00%

Development of the Annuity Purchase Rate – Non-Indexed

On March 2023, the Canadian Institute of Actuaries (CIA) released an Educational Note "Assumptions for Hypothetical Wind-Up and Solvency Valuations with Effective Dates on or after December 31, 2022, and No Later Than June 29, 2024" outlining how to determine the annuity purchase rate to be used for solvency valuations as at December 31, 2022. The cost of purchasing non-indexed annuities would be estimated based on the following process:

Determine the duration of the portion of the liabilities assumed to be settled through the purchase of annuities based on a discount rate of 4.91% (CANSIM V39062 plus 160 bps at December 31, 2022).

Liabilities were calculated for the members who were retired or eligible to retire as at December 31, 2022 (age 55 or older) using a discount of 4.91% and 4.92% to determine the duration.

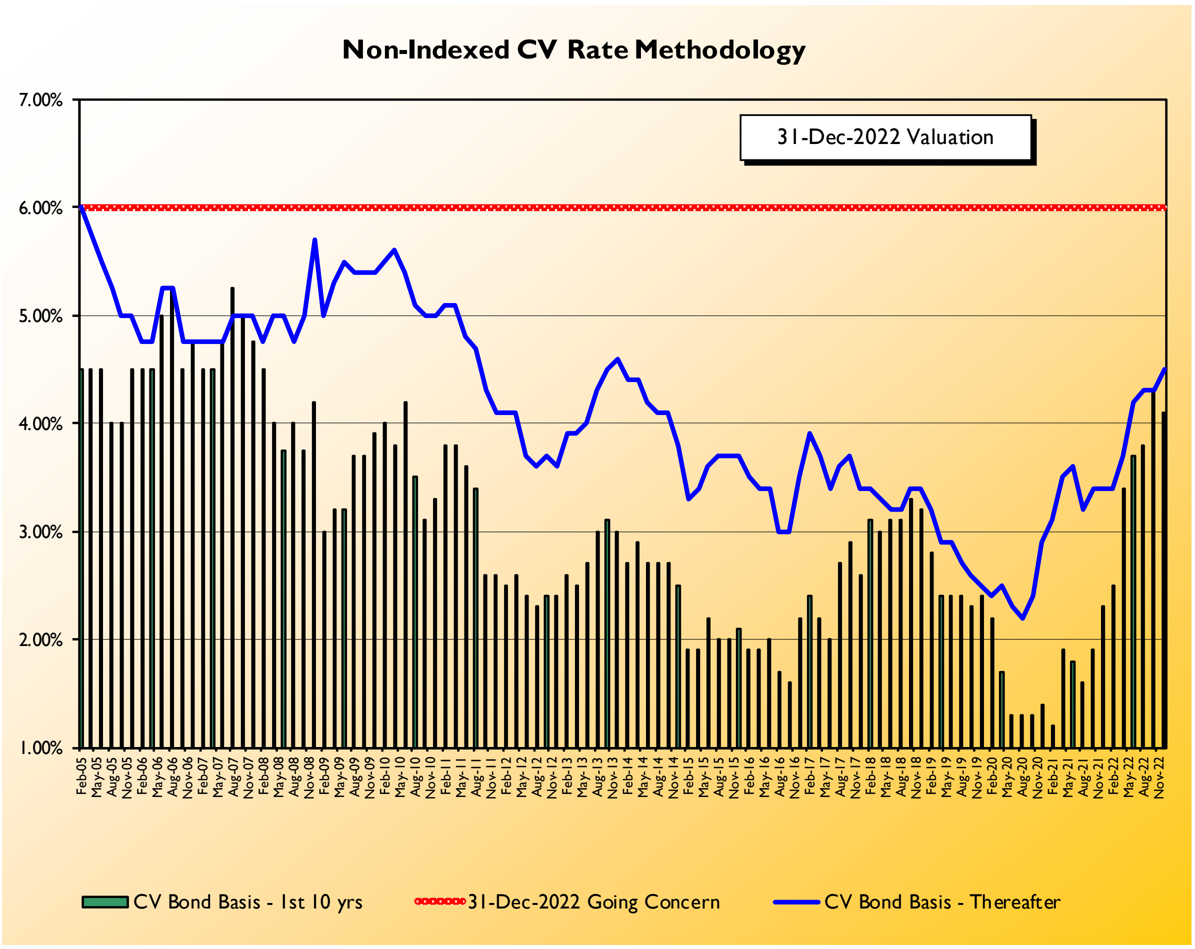
Using these liabilities, duration was determined to be 9.44 for this group of members retired or eligible to retire. To determine the spread above the unadjusted CANSIM V39062, we interpolated using the following table:

Illustrative Block	Duration based on 4.91% discount rate	Spread above unadjusted CANSIM V39062
Low Duration	7.7	+ 160 bps
Medium Duration	9.7	+ 160 bps
High Duration	11.7	+ 160 bps

The spread calculated was 1.60%. Therefore, the CANSIM V39062 as at December 31, 2022 (3.31%) plus the spread (1.60%) is equal to the Annuity Purchase rate of 4.91%.

Development of the Cash Settlement Rate – Non-Indexed

The discount rates for cash settlements in the solvency valuation are based on the same rates that are used for the commuted value calculations. Bill 43, The Civil Service Superannuation Amendment Act, received Royal Assent in the Manitoba legislature on October 14, 2020. This Bill changes the provisions of the CSSF pension plan and requires the going concern actuarial valuation assumptions be used in the calculation of the commuted value lump sum calculations.



APPENDIX VI

Fund Basic Benefit Liabilities Employer Profile

	Name of Employer	Code	Active Participants	Other Participants	Pensions in Payment	2022 Total	%
	Non-Matching Employers						
1	Province of Manitoba Civil Service	CS	$ 892,120,000	$ 74,250,000	$ 1,746,249,000	$ 2,712,619,000	46.8%
2	Sport Manitoba	SM	378,000	-	359,000	737,000	0.0%
3	Venture Manitoba Tours Ltd.	VT	62,000	-	138,000	200,000	0.0%
4	Paletta & Company Hotels Ltd.	PCH	100,000	-	2,000	102,000	0.0%
5	Manitoba Hydro-Electric Board	MH	536,721,000	17,190,000	832,422,000	1,386,333,000	24.1%
6	Manitoba Public Insurance Corporation	AI/AIE	126,089,000	8,248,000	168,907,000	303,244,000	5.3%
7	MPIC - Division of Driver and Vehicle Licencing	AIL	4,052,000	73,000	9,295,000	13,420,000	0.2%
8	Red River College	RCC	93,540,000	6,969,000	93,218,000	193,727,000	3.4%
9	Manitoba Agricultural Services Corporation	AC	683,000	260,000	4,221,000	5,164,000	0.1%
10	Addictions Foundation of Manitoba	AF	12,898,000	1,448,000	22,437,000	36,783,000	0.6%
11	Assiniboine Community College	ACC	21,262,000	1,859,000	18,030,000	41,151,000	0.7%
12	University College of the North	KCC	18,256,000	1,897,000	17,314,000	37,467,000	0.7%
13	Legal Aid Manitoba	LA	13,543,000	590,000	18,592,000	32,725,000	0.6%
14	Manitoba Centennial Centre Corporation	CC	2,029,000	78,000	5,033,000	7,140,000	0.1%
15	Teachers' Retirement Allowances Fund Board	TR	3,253,000	162,000	4,436,000	7,851,000	0.1%
16	Communities Economic Development Fund	CE	299,000	93,000	2,810,000	3,202,000	0.1%
17	Manitoba Horse Racing Commission	RC	31,000	37,000	337,000	405,000	0.0%
18	Diagnostic Services Manitoba	DSM	1,239,000	108,000	4,676,000	6,023,000	0.1%
19	WRHA - Health Sciences Centre	RWA	8,691,000	238,000	20,041,000	28,970,000	0.5%
20	Prairie Mountain Health	PMH et al	4,674,000	245,000	32,536,000	37,455,000	0.7%
21	Interlake-Eastern Regional Health Authority	IEH et al	1,607,000	171,000	7,371,000	9,149,000	0.2%
22	Northern Health Region	NRH et al	1,956,000	111,000	2,392,000	4,459,000	0.1%
23	Southern Health-Santé Sud	SRH et al	1,804,000	119,000	10,429,000	12,352,000	0.2%
24	Manitoba Development Corporation	MDC	89,000	44,000	61,000	194,000	0.0%
25	The Workers Compensation Board of Manitoba	WC	-	-	9,000	9,000	0.0%
26	WECO	WEC	-	-	51,000	51,000	0.0%
			$ 1,745,376,000	$ 114,190,000	$ 3,021,366,000	$ 4,880,932,000	84.6%
	Matching Employers						
1	Manitoba Liquor Lotteries Corporation	LC/LF/LL	$ 195,589,000	$ 13,536,000	$ 147,058,000	$ 356,183,000	6.2%
2	Manitoba Housing Authority	HA	32,659,000	3,041,000	36,394,000	72,094,000	1.3%
3	WCFS CUPE Support Workers	CSW	17,872,000	1,119,000	3,140,000	22,131,000	0.4%
4	Manitoba Agricultural Services Corporation	MAS	13,440,000	1,061,000	14,303,000	28,804,000	0.5%
5	Manitoba Crop Insurance Corporation	CI/CIC	6,370,000	219,000	20,723,000	27,312,000	0.5%
6	Manitoba Government and General Employees' Union	EA	14,466,000	825,000	22,959,000	38,250,000	0.7%
7	Efficiency Manitoba Inc.	EM	1,795,000	26,000	68,000	1,889,000	0.0%
8	Manitoba Hydro Utilities Service	MHU	4,207,000	485,000	473,000	5,165,000	0.1%
9	Child and Family All Nations Coordinated Response Network	ANR	10,621,000	1,875,000	3,286,000	15,782,000	0.3%
10	The Civil Service Superannuation Board	SB	11,053,000	1,135,000	14,955,000	27,143,000	0.5%
11	Liquor, Gaming and Cannabis Authority of Manitoba	GC	6,188,000	671,000	5,656,000	12,515,000	0.2%
12	Travel Manitoba	TM	3,029,000	706,000	2,043,000	5,778,000	0.1%
13	Teranet Manitoba LP	TN	6,056,000	508,000	2,873,000	9,437,000	0.2%
14	Food Development Centre	FD	2,231,000	662,000	2,873,000	5,766,000	0.1%
15	Dairy Farmers of Manitoba	MC	3,244,000	151,000	3,090,000	6,485,000	0.1%
16	Industrial Technology Centre	IT	9,000	652,000	5,832,000	6,493,000	0.1%
17	Hams Marketing Services Co-Op Inc.	HM	1,773,000	248,000	3,861,000	5,882,000	0.1%
18	Research Manitoba	HRC	339,000	378,000	118,000	835,000	0.0%
19	Manitoba Film & Music	MFS	1,136,000	103,000	489,000	1,728,000	0.0%
20	Manitoba Pork Council	PC	1,224,000	639,000	1,097,000	2,960,000	0.1%
21	Manitoba Arts Council	MA	1,348,000	34,000	925,000	2,307,000	0.0%
22	Manitoba Chicken Producers Board	CB	1,301,000	-	555,000	1,856,000	0.0%
23	Horizon Lab Ltd.	MTR	337,000	38,000	73,000	448,000	0.0%
24	Manitoba Cattle Enhancement Council	MCE	-	27,000	246,000	273,000	0.0%
25	Turkey Producers Marketing Board	TB	359,000	11,000	501,000	871,000	0.0%
26	Economic Innovation and Technology Council	MR	2,000	290,000	4,551,000	4,843,000	0.1%
27	Manitoba Development Corporation	DFP	-	-	304,000	304,000	0.0%
28	Manitoba Hazardous Waste Management Corporation	HW	-	-	385,000	385,000	0.0%
29	The Manitoba Water Services Board	WS	-	-	370,000	370,000	0.0%
30	Human Resources and Employment Centres	R's/HE	464,000	69,000	2,805,000	3,338,000	0.1%
31	Manitoba Beef Commission	BC	-	-	356,000	356,000	0.0%
32	Local Government Districts	LG	-	-	66,000	66,000	0.0%
33	Manitoba Mineral Resources Limited	MM	-	-	34,000	34,000	0.0%
34	Manitoba Data Services	DS	-	-	204,000	204,000	0.0%
35	Money Purchase Plan Annuity	MPP	-	-	10,077,000	10,077,000	0.2%
36	No Billing (Charged to Fund)	NB	73,214,000	6,217,000	122,561,000	201,992,000	3.5%
			$ 410,326,000	$ 34,726,000	$ 435,304,000	$ 880,356,000	15.4%
	31-Dec-2022 Total Fund Liabilities for Basic Benefits		**$ 2,155,702,000**	**$ 148,916,000**	**$ 3,456,670,000**	**$ 5,761,288,000**	**100.0%**
	31-Dec-2021 Total Fund Liabilities for Basic Benefits		$ 2,150,122,000	$ 136,928,000	$ 3,423,006,000	$ 5,710,056,000	100.0%

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