Municipal Employees' Pension Plan

Actuarial Valuation as at December 31, 2022 for Funding Purposes – Filing Valuation

Report prepared on September 20, 2023

Registration number:
Saskatchewan and Canada Revenue Agency #0355321

Table of Contents

Executive Summary

Table ES.1 – Summary of Valuation Results

	December 31, 2022	December 31, 2021
Going-Concern Funded Status		
Actuarial value of assets	3,374,847,000	3,202,260,000
Best estimate actuarial liabilities	2,224,975,000	2,407,777,000
Explicit margin reserve	444,995,000	481,555,000
Actuarial surplus (unfunded liability)	704,877,000	312,928,000
Going-concern funded ratio	126.4%	110.8%
Solvency Funded Status		
Solvency assets	3,242,665,000	3,545,257,000
Solvency liabilities	2,641,677,000	3,253,940,000
Solvency surplus (unfunded liability)	600,988,000	291,317,000
Solvency ratio	122.8%	109.0%
Contribution Requirements		
Best-estimate normal cost	14.09%	16.27%
Normal cost margin	2.82%	2.07%
Special payments	0.00%	0.00%
Total contribution requirements	16.91%	18.34%
Expected member contributions	9.17%	9.17%
Expected employer contributions	9.17%	9.17%
Excess contributions (funding deficiency)	1.43%	—

Introduction

This report presents the results of the actuarial valuation as at December 31, 2022 of the Municipal Employees' Pension Plan ("Plan"). The Public Employees Benefits Agency and the Municipal Employee's Pension Commission (collectively called the "Commission") retained the services of TELUS Health to perform this actuarial valuation. The last complete valuation that was filed with the Financial and Consumer Affairs Authority of Saskatchewan and the Canada Revenue Agency was performed as at December 31, 2021.

This report was prepared for the Public Employees Benefits Agency, the Municipal Employees' Pension Commission, the Financial and Consumer Affairs Authority of Saskatchewan and the Canada Revenue Agency for the following purposes:

- to determine the funded status of the Plan on a going-concern basis;
- to determine the funded status of the Plan on both solvency and hypothetical wind-up bases;
- to estimate the member and employer contributions required under the Plan during the period from this valuation date up to the next valuation in accordance with *The Pension Benefits Act, 1992*; and
- to provide the information and the actuarial opinion required by *The Pension Benefits Act, 1992* and the *Income Tax Act* (Canada).

Changes since the last valuation

The Canadian Institute of Actuaries Actuarial Standards Board ("ASB") released revisions to the Standards for Pension Plans on June 27, 2022 with an effective date of December 1, 2022. The new standards have been reflected in the results of this valuation report.

The *Municipal Employees' Pension (Contribution Rates) Amendment Regulations, 2023* was adopted on May 3, 2023 to maintain the contribution rate for Designated Members at 12.5% of payroll until December 31, 2025.

In September 2023, the Commission approved a one-time ad-hoc pension increase of 5.61% to retired members and survivors of the Plan as at January 1, 2024. This increase was based on the one year increase in the 12-month average consumer price index for Saskatchewan to July 2023. Section 6 of this report discloses the financial impact of this increase of pension for retired and survivor members on both the going-concern and solvency bases.

The solvency and hypothetical wind-up bases have been updated to reflect market conditions as at the valuation date. In addition, changes were made to the actuarial assumptions on the going-concern basis.

Note on COVID-19

The short-term and long-term impact of the COVID-19 pandemic on the mortality incidence for the Plan and on economic conditions is still uncertain at this time. As a result, no adjustments to the mortality assumptions nor to any other assumptions have been made in this report with regards to any long-term impact the COVID-19 crisis might have on the population and on the economy. The effect of COVID-19 on the pension plans, if any, will be recognized in the gains or losses of future reports as the experience emerges.

Terms of engagement

This report takes into account discussions with the Commission on the terms of engagement. These terms are summarized in Appendix G attached hereto.

Restriction on use of this report

This report was prepared for the Public Employees Benefits Agency and the Municipal Employee’s Pension Commission. It will also be filed with the Financial and Consumer Affairs Authority of Saskatchewan and the Canada Revenue Agency. Neither this report nor any of its contents may be distributed, published, made available or relied upon by any other person, without the express written permission of TELUS Health, unless and only to the extent otherwise provided by applicable law.

Section 1 – Actuarial Opinion

This opinion is given with respect to the Municipal Employees' Pension Plan, registration number 0355321 (Saskatchewan). We performed a valuation of the Plan as at December 31, 2022, based on the Plan provisions and data as at that date. The Commission has confirmed that, between December 31, 2022 and the date of this report, no subsequent events, modifications or extraordinary changes to the membership or the Plan that would materially affect the results of this actuarial valuation have occurred, except as indicated in this report.

We hereby certify that, in our opinion, as at December 31, 2022:

- The Plan is fully funded on the going-concern basis. The actuarial value of the assets exceeds the actuarial liabilities (including the explicit margin reserve) by $704,877,000. The funded ratio after the explicit margin reserve is 126.4%.
- The Plan is fully funded on the solvency basis. The value of assets exceeds the actuarial liabilities by $600,988,000.
- The Plan assets would have been higher than the actuarial liabilities by $600,988,000 if the Plan had been wound up on the valuation date.
- The solvency ratio of the Plan, as defined under *The Pension Benefits Act, 1992*, is equal to 122.8%.
- The total normal cost (including the normal cost margin) is 16.91% of covered payroll (16.63% for General Members and 22.10% for Designated Members). Both members and employers contribute equal amounts (9.00% for General Members and 12.50% for Designated Members) with a total of 18.34% of covered payroll. The current contribution rates are estimated to exceed the total normal cost by 1.43% of covered payroll.
- The minimum amortization payments are nil since there is no going-concern deficit and the Plan is not subject to solvency funding rules under *The Pension Benefits Act, 1992*.
- The Plan has sufficient reserves to support a one-time ad-hoc pension increase of 5.61% to retired members and survivors of the Plan.
- The current contribution rates are eligible contributions under the *Income Tax Act* (Canada) and the Plan does not have an excess surplus based on the contribution eligibility basis valuation.
- These contributions conform to the eligibility requirement of the *Income Tax Act* (Canada) if contributed within the fiscal year or remitted within 120 days after the end of the fiscal year. They also conform to *The Pension Benefits Act, 1992*. *The Pension Benefits Act, 1992* requires that the normal cost, the amortization payments and the employee contributions be remitted to the fund monthly, within 30 days of the month to which they pertain.

In our opinion, for the purposes of this report:

- The membership data on which the valuation is based are sufficient and reliable for the purposes of the valuation.
- The assumptions are appropriate for the purposes of the valuation.

- The methods employed in the valuation are appropriate for the purposes of the valuation.

This report has been prepared, and our opinion given, in accordance with accepted actuarial practice in Canada.

The assumptions that form the going-concern basis used in this report were reasonable at the time this actuarial valuation report was prepared and contributions were determined.

This actuarial valuation was performed in accordance with the going-concern and solvency standards prescribed under *The Pension Benefits Act, 1992*.

The calculations in the actuarial valuation report have been prepared in accordance with subsection 147.2(2) of the *Income Tax Act* (Canada).

These recommendations and opinions are given exclusively from a financial viewpoint. This valuation report does not constitute a legal opinion on the rights and duties of the Plan administrator, the Commission or the members over the pension fund.

Actuarial valuation results are only estimates. Actuarial valuations are performed based on assumptions and methods that are in accordance with sound actuarial principles. Emerging experience differing from these assumptions may result in gains or losses, which may affect future contribution levels. These gains or losses will be revealed in future actuarial valuations.

The next actuarial valuation will have to be performed not later than as at December 31, 2025.

The undersigned are available to provide supplementary information and explanation, as appropriate, concerning this report.

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September 20, 2023

Section 2 – Going-Concern Funded Status

Going-Concern Funded Status

The funded status of the Plan on the going-concern basis is determined by comparing the actuarial value of the assets to the actuarial liabilities. The actuarial liabilities are based on the benefits earned up to the valuation date assuming the Plan continues indefinitely.

Table 2.1 – Going-Concern Funded Status

	December 31, 2022	December 31, 2021
	$	$
Actuarial value of assets		
Market value	3,252,011,000	3,553,989,000
Asset smoothing adjustment	122,836,000	(351,729,000)
Total	3,374,847,000	3,202,260,000
Actuarial liabilities		
Active general members	940,814,000	1,060,624,000
Active designated members	81,786,000	96,097,000
Disabled members	31,140,000	31,544,000
Retired members	973,911,000	989,485,000
Survivors	60,218,000	58,067,000
Annuitants from former plan and excess contributions	8,314,000	9,760,000
Deferred members	81,930,000	83,916,000
Pending terminations	30,376,000	35,384,000
Transfer deficiency holdbacks	48,000	26,181,000
Liability reserve[1] (future disabled accruals)	16,438,000	16,719,000
Total	2,224,975,000	2,407,777,000
Actuarial surplus (unfunded liability) before explicit margin reserve	1,149,872,000	794,483,000
Funded ratio before explicit margin reserve	151.7%	133.0%
Explicit margin reserve[2]	444,995,000	481,555,000
Actuarial surplus (unfunded liability) after explicit margin reserve	704,877,000	312,928,000
Funded ratio after explicit margin reserve	126.4%	110.8%

[1] A liability reserve for expected accruals after the valuation date is included for disabled members.
[2] The explicit margin reserve is the minimum of 20% of the best estimate going-concern liabilities and the going-concern surplus.

Reconciliation of Going-Concern Funded Status

The table below describes the change in the Plan's going-concern funded status since the last valuation:

Table 2.2 – Reconciliation of Going-Concern Funded Status

	$	$
Actuarial surplus (unfunded liability) as at December 31, 2021 (before explicit margin reserve)		794,483,000
Expected changes in funded status		
Interest on surplus (unfunded liability)	45,285,000	
Excess contributions/(Contribution holiday) (with interest)	14,308,000	
Total		59,593,000
Expected surplus (unfunded liability) as at December 31, 2022		854,076,000
Actuarial gains (losses) due to the following factors		
Investment return on market value of assets	(464,691,000)	
Asset smoothing	494,614,000	
Retirements	9,867,000	
Salary, YMPE, pension limit increases	5,833,000	
Terminations	4,712,000	
Disability	(3,305,000)	
Mortality	(915,000)	
Data adjustment and other factors	2,217,000	
Total		48,332,000
Other gains (losses)		
Changes in actuarial valuation programming	2,498,000	
Changes in actuarial assumptions		
– Changes in demographic assumptions	(484,000)	
– Change in lump sum discount rate	35,928,000	
– Change in valuation discount rate	209,522,000	
Total		247,464,000
Actuarial surplus (unfunded liability) as at December 31, 2022 (before explicit margin reserve)		1,149,872,000
Explicit margin reserve		(444,995,000)
Actuarial surplus (unfunded liability) as at December 31, 2022 (after explicit margin reserve)		704,877,000

Section 3 – Solvency and Hypothetical Wind-up Funded Status

Solvency Funded Status

A solvency valuation is a hypothetical valuation prescribed by *The Pension Benefits Act, 1992*. It imposes a floor on required contributions and a ceiling on what may be transferred out of the pension fund upon termination of membership. A solvency valuation may differ from the valuation required on plan wind-up.

Table 3.1 – Solvency Funded Status

	December 31, 2022	December 31, 2021
	$	$
Solvency assets		
Market value of assets	3,252,011,000	3,553,989,000
Provision for expenses	(9,346,000)	(8,732,000)
Total	3,242,665,000	3,545,257,000
Solvency liabilities		
Active general members	1,145,058,000	1,452,933,000
Active designated members	99,017,000	132,034,000
Disabled members	34,783,000	41,541,000
Retired members	1,130,259,000	1,317,486,000
Survivors	67,343,000	71,799,000
Annuitants from former plan and excess contributions	9,125,000	11,551,000
Deferred members	114,819,000	141,378,000
Pending terminations	41,225,000	59,037,000
Transfer deficiency holdbacks	48,000	26,181,000
Total	2,641,677,000	3,253,940,000
Assets less liabilities on the solvency basis	600,988,000	291,317,000
Solvency ratio	122.8%	109.0%

Hypothetical Wind-up Funded Status

Since all benefits have been valued, if the Plan had been liquidated as at December 31, 2022 and assuming that the asset liquidation value had been equal to the market value, the hypothetical wind-up funded status would have been similar to the solvency funded status shown in table 3.1.

Solvency Ratio

The solvency ratio is equal to the ratio of the assets to the liabilities on the solvency basis as indicated in table 3.1.

Section 4 – Normal Cost and Amortization Payments

Normal Cost

The table below summarizes the estimated going-concern cost of pension benefits being earned in the twelve-month period after the valuation date (the normal cost) and the expected contributions.

Table 4.1 – Normal Cost

	As at December 31, 2022		As at December 31, 2021	
	$	**% of payroll**	**$**	**% of payroll**
General members				
Best-estimate normal cost	84,730,000	13.86	101,545,000	16.02
Normal cost margin[3]	16,946,000	2.77	12,581,000	1.98
Expected member contributions	55,016,000	9.00	57,063,000	9.00
Expected employer contributions	55,016,000	9.00	57,063,000	9.00
Excess contributions (funding deficiency)	8,356,000	1.37	—	—
Total payroll (pensionable earnings)	611,284,000		634,029,000	
Designated members				
Best-estimate normal cost	5,869,000	18.42	6,840,000	21.30
Normal cost margin[3]	1,174,000	3.68	1,188,000	3.70
Expected member contributions	3,983,000	12.50	4,014,000	12.50
Expected employer contributions	3,983,000	12.50	4,014,000	12.50
Excess contributions (funding deficiency)	923,000	2.90	—	—
Total payroll (pensionable earnings)	31,868,000		32,109,000	
Total				
Best-estimate normal cost	90,599,000	14.09	108,385,000	16.27
Normal cost margin[3]	18,120,000	2.82	13,769,000	2.07
Expected member contributions	58,999,000	9.17	61,077,000	9.17
Expected employer contributions	58,999,000	9.17	61,077,000	9.17
Excess contributions (funding deficiency)	9,279,000	1.43	—	—
Total payroll (pensionable earnings)	643,152,000		666,138,000	

[3] The explicit margin reserve is the minimum of 20% of the best estimate going-concern normal cost and the contribution excess.

Reconciliation of Normal Cost

The factors contributing to the change in the normal cost are shown below:

Table 4.2 – Reconciliation of Normal Cost

	% of payroll
Normal cost as at December 31, 2021	16.27
Demographic changes	0.03
Changes in actuarial valuation programming	(0.02)
Changes in demographic assumptions	0.06
Change in lump sum discount rate	(0.63)
Change in valuation discount rate	(1.62)
Normal cost as at December 31, 2022	14.09

Amortization Payments

The minimum amortization payments are nil since there is no going-concern deficit and the Plan is not subject to solvency funding rules under *The Pension Benefits Act, 1992*.

Generally, when a solvency deficiency exists, *The Pension Benefits Act, 1992* prescribes that special contributions be made to amortize the solvency deficiency over, at most, five years. However, as the Plan is classified as a "Specified Plan" under this Act, these solvency funding requirements do not apply to the Plan, and consequently no such additional solvency funding is required. This Act does require disclosure of the minimum special contributions that would be required if the Plan was not a Specified Plan.

If the Plan was not a Specified Plan, the minimum special contributions required to amortize the Plan's solvency deficiency in accordance with *The Pension Benefits Act, 1992* would be nil since there is no solvency deficiency at the valuation date.

Eligibility of Contributions

Under the provisions of the *Income Tax Act* (Canada), employer contributions must not exceed the maximum "eligible contribution". Eligible contributions may be determined based on an actuarial valuation that includes anticipated cost-of-living adjustments where the terms of a pension plan do not require that those adjustments be made, but it is reasonable to expect that they will be made.

As the Commission has periodically granted ad-hoc pension increases to retired members and survivors and intends to continue to do so when the Plan is sufficiently well funded, it is reasonable to expect that such cost-of-living adjustments will be made in the future. Accordingly, for determining the maximum eligible contribution, we have conducted a valuation on a "contribution eligibility basis". The liabilities and normal cost under this basis were determined using same assumptions and methods as the going-concern actuarial basis, with the exception that ad-hoc indexing equal to 50% of inflation is assumed to be granted in every future year.

The following table shows a comparison of the funded status on the going-concern basis and the contribution eligibility basis.

Table 4.3 – Comparison of going-concern liabilities and contribution eligibility liabilities

	Going-concern basis	Contribution eligibility basis
	$	$
Actuarial value of assets	3,374,847,000	3,374,847,000
Actuarial liabilities	2,224,975,000	2,434,878,000
Explicit margin reserve	444,995,000	486,976,000
Actuarial surplus (unfunded liability) after explicit margin reserve	704,877,000	452,993,000
Funded ratio after explicit margin reserve	126.4%	115.5%

The following table shows a comparison of the normal cost and the expected contributions on the going-concern basis and the contribution eligibility basis.

Table 4.4 – Comparison of going-concern normal cost and contribution eligibility normal cost

	Going-concern basis		Contribution eligibility basis	
	$	% of payroll	$	% of payroll
Best estimate normal cost	90,599,000	14.09	98,528,000	15.32
Normal cost margin	18,120,000	2.82	19,470,000	3.02
Expected contributions	117,998,000	18.34	117,998,000	18.34
Excess contributions (funding deficiency)	9,279,000	1.43	—	—

As of the valuation date, the funded ratio is less than 125% under the contribution eligibility basis and the Plan does not have an excess surplus. Further, the expected contributions do not exceed the normal cost (including the normal cost margin) on the contribution eligibility basis. Accordingly, the contributions recommended in the report are eligible contributions under the *Income Tax Act* (Canada).

Section 5 – Additional Disclosures

Plausible Adverse Scenarios on the Going-Concern Basis

The following table illustrates the impact of certain plausible adverse scenarios on the going-concern liabilities and corresponding funded status. The scenarios have been applied and reported on separately. All liability and normal cost amounts shown in this section are on a best estimate basis, excluding any explicit margins.

Table 5.1 – Plausible Adverse Scenarios Impact on the Going-Concern Basis

	Dec. 31, 2022	Interest Rate Risk	Deterioration of asset values	Longevity risk	Reduction in contributions
	$	$	$	$	
Market value of assets	3,252,011,000	3,349,571,000	2,996,403,000	3,252,011,000	3,252,011,000
Actuarial value of assets	3,374,847,000	3,394,359,000	3,296,043,000	3,374,847,000	3,374,847,000
Actuarial liabilities	2,224,975,000	2,275,810,000	2,224,975,000	2,318,029,000	2,224,975,000
Assets less liabilities on the going-concern basis (funded status)	1,149,872,000	1,118,549,000	1,071,068,000	1,056,818,000	1,149,872,000
Impact on funded status	—	(31,323,000)	(78,804,000)	(93,054,000)	—
Best-estimate normal cost	90,599,000	93,138,000	90,599,000	93,028,000	79,512,000
Expected member and employer contributions	117,998,000	117,998,000	117,998,000	117,998,000	100,300,000
Excess contributions/(funding deficiency)	27,399,000	24,860,000	27,399,000	24,970,000	20,788,000
Impact on contribution adequacy	—	(2,539,000)	—	(2,429,000)	(6,611,000)

Description of the Plausible Adverse Scenarios

Interest rate risk

Based on the outcome with a 1 in 10 likelihood of occurrence under our economic model, yields on fixed income assets are assumed to decrease by 115 basis points immediately, leading to a 19 basis-point decrease in the discount rate.

In valuing the effect of this change on the Plan assets, the impact of the interest rate risk was restricted to the asset classes deemed to be fixed income investments, and results in a 10.0% increase on the market value of the affected portfolio, which translates into a 3.0% increase on the market value of the portfolio as a whole.

All other assumptions and methods used for this valuation were maintained, and no compensating adjustments were made.

Deterioration of asset values

Based on the outcome with a 1 in 10 likelihood of occurrence under our economic model, return-seeking asset values were assumed to decrease by 11.2% immediately, resulting in a 7.9% decrease on the market value of the total portfolio. No changes to going-concern actuarial liabilities and the normal cost were considered under this scenario. All other assumptions and methods used for this valuation were maintained.

Longevity risk

To test the impact of a life expectancy increase of 5-10% for all ages over the current assumption on the going-concern actuarial liabilities and the normal cost, a 3-year setback was applied to all mortality rates. All other assumptions and methods used for this valuation were maintained.

Reduction in contributions

The pensionable earnings were assumed to decrease by 15%. In addition, all active members were assumed to be 0.5 years older resulting in an increase in the best-estimate normal cost as a percentage of pensionable earnings. No changes to going-concern actuarial liabilities was considered under this scenario. All other assumptions and methods used for this valuation were maintained.

Sensitivity Analysis on the Going-Concern Basis

The table below illustrates the effect of a 1% decrease in the discount rate on the going-concern actuarial liabilities. With the exception of the discount rate, all other assumptions and methods used for this valuation (including the discount rate assumed to apply to lump sum payments) were maintained.

Table 5.2 – Sensitivity of Actuarial Liabilities on the Going-Concern Basis

	December 31, 2022	Discount rate 1% lower
	$	$
Actuarial liabilities	2,224,975,000	2,492,534,000
Increase in actuarial liabilities		267,559,000

Sensitivity Analysis of the Normal Cost on the Going-Concern Basis

The table below illustrates the effect on the normal cost of using a discount rate 1% lower than the one used for the going-concern valuation. All other assumptions and methods (including the discount rate assumed to apply to lump sum payments), as used in this valuation, were maintained.

Table 5.3 – Sensitivity of Normal Cost on the Going-Concern Basis

	As at December 31, 2022		Discount rate 1% lower	
	$	% of payroll	$	% of payroll
Normal cost	90,599,000	14.09	103,965,000	16.16
Increase in normal cost			13,366,000	2.07

Sensitivity Analysis on the Solvency Basis

The table below illustrates the effect on the actuarial liabilities of using discount rates 1% lower than those used for the solvency valuation. All other assumptions and methods, as used in this valuation, were maintained.

Table 5.4 – Sensitivity of Actuarial Liabilities on the Solvency Basis

	December 31, 2022	Discount rate 1% lower
	$	$
Actuarial liabilities	2,641,677,000	3,001,857,000
Increase in actuarial liabilities		360,180,000

Incremental Cost on the Solvency Basis

The incremental cost on the solvency basis represents the present value of the expected aggregate change in the solvency liabilities from December 31, 2022 to December 31, 2025, adjusted for expected benefit payments in the inter-valuation period. This incremental cost is $311,604,000 as at December 31, 2022 and it may be distributed as follows.

Table 5.5 – Incremental cost

Plan year	Incremental cost
	$
2023	108,485,000
2024	99,833,000
2025	103,286,000

Section 6 – Impact of Pension Increase

Pension Increase for Retired Members

The Commission has approved a one-time ad-hoc pension increase to retired members and survivors of the Plan as at January 1, 2024. This increase was based on the one year increase in the 12-month average consumer price index for Saskatchewan to July 2023. This section discloses the financial impact of a 5.61% increase of pension for retired members and survivors on the going-concern and solvency bases as at December 31, 2022. The actual financial impact will be reflected in the next actuarial report.

Impact on the Going-Concern Basis

The table below represents the impact of providing a 5.61% increase to the pension-in-payment for retired members and survivors as at December 31, 2022 on the going-concern basis. For comparison, the results as at December 31, 2022 without the increase are also provided.

Table 6.1 – Going-Concern Funded Status

	December 31, 2022 After Pension Increase	December 31, 2022 Before Pension Increase
	$	$
Actuarial value of assets		
Market value	3,252,011,000	3,252,011,000
Asset smoothing adjustment	122,836,000	122,836,000
Total	3,374,847,000	3,374,847,000
Actuarial liabilities		
Active general members	940,814,000	940,814,000
Active designated members	81,786,000	81,786,000
Disabled members	31,140,000	31,140,000
Retired members	1,028,547,000	973,911,000
Survivors	63,596,000	60,218,000
Annuitants from former plan and excess contributions	8,314,000	8,314,000
Deferred members	81,930,000	81,930,000
Pending terminations	30,376,000	30,376,000
Transfer deficiency holdbacks	48,000	48,000
Liability reserve[1] (future disabled accruals)	16,438,000	16,438,000
Total	2,282,989,000	2,224,975,000
Actuarial surplus (unfunded liability) before explicit margin reserve	1,091,858,000	1,149,872,000
Funded ratio before explicit margin reserve	147.8%	151.7%
Explicit margin reserve	456,598,000	444,995,000
Actuarial surplus (unfunded liability) after explicit margin reserve	635,260,000	704,877,000
Funded ratio after explicit margin reserve	123.2%	126.4%

Impact on the Solvency Basis

The table below represents the impact of providing a 5.61% increase to the pension-in-payment for retired members and survivors as at December 31, 2022 on the solvency basis. For comparison, the results as at December 31, 2022 without the increase are also provided.

Table 6.2 – Solvency Funded Status

	December 31, 2022 After Pension Increase	December 31, 2022 Before Pension Increase
	$	$
Solvency assets		
Market value of assets	3,252,011,000	3,252,011,000
Provision for expenses	(9,346,000)	(9,346,000)
Total	3,242,665,000	3,242,665,000
Solvency liabilities		
Active general members	1,145,058,000	1,145,058,000
Active designated members	99,017,000	99,017,000
Disabled members	34,783,000	34,783,000
Retired members	1,193,667,000	1,130,259,000
Survivors	71,121,000	67,343,000
Annuitants from former plan and excess contributions	9,125,000	9,125,000
Deferred members	114,819,000	114,819,000
Pending terminations	41,225,000	41,225,000
Transfer deficiency holdbacks	48,000	48,000
Total	2,708,863,000	2,641,677,000
Assets less liabilities on the solvency basis	533,802,000	600,988,000
Solvency ratio	119.7%	122.8%

Appendix A – Going-Concern Actuarial Basis

Asset Valuation Method

The actuarial value of the assets used to determine the going-concern funded status is based on a valuation method that smooths out short-term market fluctuations over a 5-year period. This method consists of subtracting from the market value of assets, adjusted for amounts payable and receivable, as at the valuation date, an amount equal to:

a. 80% of the difference between the actual market value and the expected market value as at December 31, 2022, plus

b. 60% of the difference between the actual market value and the expected market value as at December 31, 2021, plus

c. 40% of the difference between the actual market value and the expected market value as at December 31, 2020, plus

d. 20% of the difference between the actual market value and the expected market value as at December 31, 2019.

Expected investment earnings are calculated by assuming that the fund's assets at the beginning of the Plan year and cash flows during the Plan year will generate a return that is equivalent to the going-concern valuation discount rate. The resulting actuarial value of the assets is subject to lower and upper limits of 90% and 110% of the market value of assets. This method is the same as the one used in the last valuation.

Actuarial Cost Method

The actuarial liabilities and the normal cost on the going-concern basis were calculated using the projected accrued benefit (or projected unit credit) actuarial cost method.

The actuarial liabilities are equal to the actuarial present value of benefits earned by members for service prior to the valuation date, taking into account the assumptions as indicated hereafter.

For disabled members, the actuarial liabilities include a reserve equal to the present value of benefits expected to be earned by disabled members for service after the valuation date.

An explicit margin reserve is included in the actuarial liabilities equal to the minimum of 20% of the best estimate going-concern liabilities and the going-concern surplus, in accordance with the Plan's Funding Policy.

The normal cost is equal to the actuarial present value of benefits expected to be earned by members in the year following the valuation date. Normal cost has been shown as a mid-year figure.

An explicit margin is included in the going-concern normal cost equal to the minimum of 20% of the best estimate going-concern normal cost and the contribution excess, in accordance with the Plan's Funding Policy.

The valuation method for determining the actuarial liabilities and the normal cost is the same as the one used in the last valuation.

Additional liabilities were held in respect of the “50% cost sharing rule” by projecting required contribution balances to future dates and comparing such balances with projected benefits. This method is the same as the one used in the last valuation.

We assumed that all members who have reached the retirement age assumption would retire immediately. For normal cost calculation purposes, we did not include the actuarial present value of benefits that would have accrued if these members would have continued their membership in the Plan in the year following the valuation date. This method is the same as the one used in the last valuation.

The ratio of the total normal cost to the covered payroll for the period will tend to stabilize over time if the demographic characteristics of the active members remain stable. All other things being equal, an increase in the average age of the active members will result in an increase in this ratio.

For valuation purposes, the age used is the age on the date of the nearest birthday. However, to determine eligibility for benefits, the exact age was used. These methods are the same as those used in the last valuation.

Actuarial Assumptions

The main actuarial assumptions used in the going-concern valuation are summarized in the following table. Some assumptions used in this valuation are different from those used in the previous valuation. For comparison purposes, the assumptions used in the last valuation are also included in the table. All rates and percentages are annualized unless otherwise noted.

Table A.1 – Going-Concern Actuarial Assumptions

	December 31, 2022	December 31, 2021
Discount rate		
Regular	6.50%	5.70%
Lump sum transfers	4.50%	3.40%
Inflation	2.00%	2.00%
YMPE/ITA limit increases	2.70%	2.70%
Increases in pensionable earnings		
Base	2.70%	2.70%
Merit and promotion	Variable by service (see Table A.3)	Variable by service (see Table A.3)
Interest credited on employee contributions	2.50%	2.50%

Table A.1 – Going-Concern Actuarial Assumptions (continued)

	December 31, 2022	December 31, 2021
Mortality		
Regular	CPM2014Priv Table with generational projection using improvement scale CPM-B and pension size adjustment factors (1.05/0.90 for male/female)	CPM2014Priv Table with generational projection using improvement scale CPM-B and pension size adjustment factors (1.05/0.90 for male/female)
Lump sum transfers	CPM2014 Table with generational projection using improvement scale CPM-B	CPM2014 Table with generational projection using improvement scale CPM-B
Termination (membership)	Revised – Variable by age (see Table A.4) 60% elect lump sum transfer	Variable by age (see Table A.4) 50% elect lump sum transfer
Disability	None	None
Retirement		
General members	Revised – Variable by age (see table A.5)	Variable by age (see table A.5)
Designated members	40% each year between earliest unreduced date and age 65; 100% at age 65	50% each year between earliest unreduced date and age 65, 100% at age 65
% with eligible survivors	80%	80%
Difference in age between spouses	Males 3 years older than females	Males 3 years older than females
Provision for expenses		
Investment expenses	Included in discount rate	Included in discount rate
Non-investment expenses	Included in discount rate	Included in discount rate

Difference in age between spouses and % with eligible survivors

The assumptions of the age difference between spouses and eligible survivor percentages are used only for members who are not retirees. For retirees, information about the marital status of each individual and the actual age of the spouse, if any, were used.

Choice of Assumptions

The assumptions have been reviewed in light of current economic conditions.

Inflation rates

As stated in its monetary policy, the Bank of Canada aims to keep inflation at the 2% target, i.e. the midpoint of the 1% to 3% inflation-control target range. Given historical increases in consumer prices in Canada, the rates expected by the market, portfolio managers' expectations and the Bank of Canada policy, an expected rate of inflation of 2% has been retained. While inflation is currently high relative to recent experience, we continue with the view that inflation will return to and remain within historical increases in consumer prices in Canada.

Discount rate – regular

The elements considered in the development of the discount rate assumption for going-concern purposes are summarized in the table below:

Table A.2 – Discount Rate

	%
Expected inflation	2.0
Expected real return	4.4
Value added for rebalancing and diversification effect	0.5
Value added for active management	0.4
Expected expenses	
Passive management fees	(0.1)
Additional fees for active management	(0.4)
Administration fees	(0.3)
Best-estimate discount rate	6.5
Margin for adverse deviations	—
Going-concern discount rate	6.5

The expected real return was estimated using our expected real returns for applicable asset classes taking into account the target asset mix as outlined under the Plan's investment policy.

The return assumptions for bonds have been determined mainly (but not totally) on current market conditions while the return assumptions for equities are based more on long-term expectations.

Portfolio rebalancing will affect the portfolio's expected long-term return. In other words, realigning portfolio's weightings to the target determined in the investment policy from time to time will have an impact on the long-term return. The impact of portfolio rebalancing depends on its frequency, the weightings between asset classes, the level of diversification in the portfolio and the investment horizon. The expected return is also influenced by the level of diversification of the portfolio (this is independent of rebalancing). The expected impact of rebalancing and diversification on the portfolio's return (weighted average of returns of asset classes) was estimated on the basis of a log-normal distribution.

A provision has been considered in the discount rate to take into account the added value associated with active management. Note that this provision has been limited to the estimated fees corresponding to active management.

The discount rate has been adjusted to take into account fees related to asset management and plan administration. Passive investment management expenses are based on average fees charged by index fund managers for each applicable asset class obtained by survey, to which custodial fees have been added. If applicable, for alternative asset classes for which passive investment management fees are not available, and considering the low materiality of this assumption, it is assumed that the average passive investment fees of the other asset classes of the pension fund applies. To determine the active management fees, those average fees are then deducted from the total asset management fees which are based on actual plan experience. The total asset management fees include investment administration, rebalancing, transaction, and custodial fees relating to the management of assets.

Discount rate - lump sum transfers

Members that terminate employment prior to retirement are provided with an option to receive a Commuted Value transfer that is determined using prescribed rates. A discount rate of 4.50% has been chosen to value these liabilities. The rate was determined using the ultimate prescribed discount rate for lump sum Commuted Values as at December 31, 2022.

YMPE/ITA limit increases

The assumption reflects the best-estimate of future price inflation of 2.00% plus an allowance of 0.70% per annum for the effects of real economic growth and productivity gains.

Increases in pensionable earnings

The pensionable earnings increase assumption reflects the best-estimate of future price inflation of 2.00% plus an allowance of 0.70% per annum for the effects of real economic growth and productivity gains, plus a merit and promotion scale that varies by service, as shown in the table below.

Table A.3 – Annual Merit and Promotion Rates

Year of service	General Members	Designated Members
≤5	2.0%	3.0%
6-10	1.5%	2.0%
11-15	1.0%	1.0%
16-20	0.5%	0.5%
>20	0.0%	0.0%

A review of the data for the last valuation indicates that the above merit and promotion scale continues to reasonably reflect relative salary levels for the membership in aggregate.

Interest credited on employee contributions

Interest is credited on member contributions with the rate credited by chartered banks on five-year personal fixed term deposits. We have assumed this interest rate is consistent with inflation plus 0.50% per annum.

Mortality

On March 27, 2014, the Practice Council and Committee on Pension Plan Financial Reporting of the Canadian Institute of Actuaries released a revised educational note on the selection of mortality assumptions for pension plan actuarial valuations. The document provided a detailed guidance on the Plan characteristics that the Actuary may review to ensure that the assumptions used are appropriate.

A mortality study was performed in 2020 for the Plan. The new mortality study demonstrated that the best-estimate of the current mortality of the Plan members is the 2014 CPM Private Sector Mortality Table, with base mortality rates adjusted by 105% for males and by 90% for females. Future mortality improvements are estimated through the use of the unadjusted CPM-B projection scale, applied on a generational basis. The previous valuation used the same assumption.

In addition, we have incorporated the CPM Combined Mortality Table in cases where a member is expected to receive a Commuted Value transfer upon termination instead of a monthly pension. This table is consistent with the table used for the calculation of Commuted Values effective on the valuation date. The previous valuation used the same assumption.

Termination (membership)

A member’s benefit entitlement under the plan is affected by whether the member terminates employment prior to retirement for reasons other than death. In order to account for this in the calculation of the actuarial liability, an assumption regarding the probability that a member will terminate employment for reasons other than death has been made.

A termination experience study was performed in 2023 for the Plan. Based on the termination study, the assumed termination rates for General members have been updated. The assumed termination rates for Designated members remain unchanged.

The sample termination rates are summarized in the table below. The sample termination rates from the previous valuation are shown for comparison purposes. Disabled members are assumed not to terminate membership prior to retirement.

Table A.4 – Sample Termination Rates

	December 31, 2022		December 31, 2021	
Age	General Members	Designated Members	General Members	Designated Members
20	20.9%	15.4%	20.5%	15.4%
25	16.4%	11.6%	15.5%	11.6%
30	12.4%	7.9%	10.5%	7.9%
35	10.4%	4.9%	6.5%	4.9%
40	8.9%	3.6%	4.8%	3.6%
45	7.6%	3.2%	4.3%	3.2%
50	7.5%	2.4%	3.2%	2.4%
55	7.5%	0.9%	1.2%	0.9%
60	7.5%	0.0%	0.0%	0.0%
>64	0.0%	0.0%	0.0%	0.0%

Based on the termination study, we have assumed that 60% of active members who are assumed to terminate before the earliest retirement age will elect a commuted value transfer and the remaining 40% will elect a deferred pension. Those assumed to elect a commuted value transfer are valued using the assumptions described above. For the previous valuation, we assumed that 50% of active members who are assumed to terminate before the earliest retirement age will elect a commuted value transfer and the remaining 50% will elect a deferred pension.

Disability

If an active plan member becomes disabled, contributory service continues to accrue until unreduced pension commencement age, but employee contributions are waived. Since this benefit is substantially the same as the benefit that accrues to an active member, no assumption has been made for future disabilities.

For those members that are currently disabled, we have assumed that members will continue to earn full credited service each year in the future until retirement at the earliest unreduced age. The liability associated with the future service accrual for disabled members has been held as a liability reserve.

The same assumption was used in the previous valuation.

Retirement

A retirement experience study was performed in 2023 for the Plan. Based on the retirement study, the assumed retirement rates have been updated.

The retirement rates for General active members are summarized in the table below. The retirement rates from the previous valuation are shown for comparison purposes.

Table A.5 – Retirement Rates for General active members

	December 31, 2022		December 31, 2021	
Age	**Eligible for Reduced Retirement**	**Eligible for Unreduced Retirement**	**Eligible for Reduced Retirement**	**Eligible for Unreduced Retirement**
<59	10%	15%	10%	20%
60	10%	20%	10%	20%
61-64	15%	20%	10%	20%
65-70	N/A	50%	N/A	100%
71	N/A	100%	N/A	100%

For the current valuation, Designated active members are assumed to retire at the rate of 40% each year between their earliest unreduced retirement date and age 65, any remaining members retiring at age 65. For the previous valuation, Designated active members were assumed to retire at the rate of 50% each year between their earliest unreduced retirement date and age 65, any remaining members retiring at age 65.

Disabled members are assumed to retire at the rate of 100% at their earliest unreduced retirement date. This assumption has not changed since the previous valuation.

Deferred and pending members are assumed to retire at their earliest reduced or unreduced date, with any applicable reductions. These dates and pension amounts were included in the membership data provided by the Public Employees Benefits Agency.

Proportion with eligible survivors

These assumptions are relevant to the valuation of benefits since there is a subsidized joint and survivor benefit available for members with a spouse. For non-retirees, it has been assumed that 80% of members will have a spouse at retirement. This assumption remains unchanged from the previous valuation. For retirees, information about the marital status of each individual, if any, were used.

Difference in age between spouses

These assumptions are relevant to the valuation of benefits since there is a subsidized joint and survivor benefit available for members with a spouse. For non-retirees, it has been assumed that males are assumed to be 3 years older than females. This assumption remains unchanged from the previous valuation. For retirees, information about the actual age of the spouse, if any, were used.

Future Credited Service

Members are assumed to accrue future credited service at the same rate as accrued in 2022. This assumption is unchanged from the previous valuation.

Margins and provisions for adverse deviations

As defined in the terms of engagement and the Plan’s Funding Policy, all assumptions are best-estimates and no margins or provisions for adverse deviations has been included in any of the assumptions. However, an explicit margin is included in the actuarial liabilities and normal cost in accordance with the Plan’s Funding Policy.

Appendix B – Solvency and Hypothetical Wind-Up Actuarial Basis

Asset Valuation Method

The actuarial value of the assets used to determine the solvency and hypothetical wind-up funded status is equal to the market value of assets, adjusted for amounts payable and receivable, minus a provision for expenses. This valuation method is the same as the one used in the last valuation.

Actuarial Cost Method

The solvency liabilities are determined using the accrued benefit (or unit credit) actuarial cost method. The solvency liabilities are equal to the actuarial present value of all benefits earned by members for service prior to the valuation date assuming the Plan is wound up on the valuation date. This method is the same as the one used in the last valuation.

Additional liabilities were held in respect of the “50% cost sharing rule” by comparing required contribution balances with accrued benefits. This method is the same as the one used in the last valuation.

For valuation purposes, the age used is the age on the date of the nearest birthday. However, to determine eligibility for benefits, the exact age was used. These methods are the same as those used in the last valuation.

Actuarial Assumptions

The main actuarial assumptions used in the solvency and hypothetical wind-up valuations correspond to those prescribed by the applicable legislation.

These assumptions are summarized in the following table. For comparison purposes, the assumptions used in the last valuation are also included. All rates and percentages are annualized unless otherwise noted.

Table B.1 – Solvency and Hypothetical Wind-Up Actuarial Assumptions

	December 31, 2022	**December 31, 2021**
Discount rates (settlement by transfer of value)	4.1% for 10 years and 4.5% thereafter	2.3% for 10 years and 3.4% thereafter
Discount rates (settlement by purchase of non-indexed annuities)	4.9%	2.9%
Discount rates (settlement by purchase of indexed annuities)	1.0%	(0.5%)
Mortality	CPM2014 Table with generational projection using improvement scale CPM-B	CPM2014 Table with generational projection using improvement scale CPM-B
Termination (membership)	Terminate with full vesting	Terminate with full vesting
Retirement (settlement by transfer of value)		
Active and disabled members	50% at age that produces the highest lump sum value and 50% at earliest unreduced retirement age	50% at age that produces the highest lump sum value and 50% at earliest unreduced retirement age
Deferred vested members	Age that produces the highest lump sum value	Age that produces the highest lump sum value
Retired members and beneficiaries	Not applicable	Not applicable
% with eligible survivors		
Non-retired members	80%	80%
Retired members	Actual marital status	Actual marital status
Difference in age between spouses		
Non-retired members	Males 3 years older	Males 3 years older
Retired members	Actual age	Actual age
Provision for expenses	$9,346,000 ($331 per member)	$8,732,000 ($315 per member)
Settlement method		
Active and deferred members less than age 54	100% transfer value	100% transfer value
All other members	100% annuity purchase	100% annuity purchase

Average salaries

The average salaries were provided in the data.

Termination scenario

The termination scenario used in the solvency and hypothetical wind-up valuations includes the following assumptions:

- Plan wind-up would not result from insolvency of all employers.
- All assets could be realized at their reported market value.

This approach is the same as the one used in the last valuation.

Margin for adverse deviations

As specified by the Standards of Practice of the Canadian Institute of Actuaries, the solvency assumptions do not include a margin for adverse deviations.

Choice of Assumptions

Settlement of benefits

The assumptions used to value the members' benefits settled by a lump sum transfer are in accordance with the Plan provisions, the applicable legislation as well as the Canadian Institute of Actuaries' standards of practice for pension commuted values.

The assumptions used to value the benefits of members and beneficiaries settled by the purchase of annuities with an insurance company are in conformity with the educational note dated March 2023 prepared by the Canadian Institute of Actuaries. These assumptions are based on an estimate of the premium that would be required by an insurer to guarantee payment of the pensions. The duration of the liabilities expected to be settled through the purchase of non-indexed annuities is equal to 10.1 years.

We have assumed that the benefits would be settled through a single annuity purchase regardless of any capacity constraints within the Canadian group annuity purchase market. However, given the size of the assumed purchase, it is believed that it would not be practical to actually settle the liabilities in this manner. In case of actual wind-up, other alternatives may have to be contemplated, some of which may require regulatory approval or even a legislative change.

Provision for fees

Allowance has been made for administrative, actuarial and legal costs which would be incurred if the Plan were to be wound up, based on sufficient and reliable data. It is assumed that the wind-up date, the calculation date and the settlement date are coincident. Expenses related to the resolution of surplus and deficit issues are not taken into account. The amount of expenses is only an approximation and may differ significantly from real expenses incurred on plan wind-up, for example, in case of litigation, bankruptcy and eventual replacement by a third-party administrator.

Incremental Cost

The incremental cost on the solvency basis is based on the actuarial method and assumptions described below.

The method used to calculate the incremental cost may be described as follows:

1. Present value of expected benefit payments between December 31, 2022 and December 31, 2025, discounted to December 31, 2022; plus
2. Projected solvency liabilities as at December 31, 2025, discounted to December 31, 2022; less
3. Solvency liabilities as at December 31, 2022

The projected liabilities as at December 31, 2025 take into account:

- accrual of service to December 31, 2025;
- expected changes in benefits to December 31, 2025; and
- projection of pensionable earnings to December 31, 2025.

The actuarial assumptions used to calculate the incremental cost may be described as follows:

- The assumptions used to calculate the expected benefit payments in item 1. above and service accruals, projected changes in benefits and projected changes in the pensionable earnings in item 2. above correspond to those used in the going-concern valuation as at December 31, 2022.
- The assumptions used to calculate the projected solvency liabilities as at December 31, 2025 in item 2. above correspond to those used for the solvency valuation as at December 31, 2022, taking into account the method of settlement applicable to each member as at December 31, 2025.

  However, we assume that the discount rates remain at the levels applicable as at December 31, 2022 and that the select period is reset as at December 31, 2025 for discount rate assumptions that are select and ultimate.

  We also assume that the standards of practice for the calculation of commuted values and the guidance for estimated annuity purchase costs in effect as at December 31, 2022 remain in effect as at December 31, 2025.
- The projected solvency liabilities as at December 31, 2025 in item 2. above is calculated using the same postulated scenario as is used for the solvency valuation as at December 31, 2022.
- The rates used to discount items 1. and 2. above from December 31, 2025 to December 31, 2022 correspond to those used for the solvency valuation as at December 31, 2022. However, these rates are adjusted to take into account the applicable method of settlement applicable to each member as at December 31, 2025.
- It has been assumed that new entrants will replace decremented members so that the number of active members as at December 31, 2025 is the same as at the valuation date.

Table B.2 – New Entrants Profile as at December 31, 2022

	General Members	Designated Members
Age	39.5 years	36.7 years
Percentage male/female	35%/65%	80%/20%
Part-time ratio	55%	86%
Annualized pension earnings	$41,000	$72,000

- Future new entrants' salary is assumed to increase by the YMPE increase assumption under the going-concern basis.

Appendix C – Assets

Source of Information

All information pertaining to the assets has been extracted from the financial statements audited by KPMG. There was no indication of any problem with the assets in the financial statements.

Tests have been performed to ensure that contributions, benefits payments and investment earnings were reasonable.

Statement of Net Assets (Market Value)

The following table shows the asset allocation as at December 31, 2022. For comparison purposes, the asset allocation as at December 31, 2021 is also shown.

Table C.1 – Net Assets (Market Value)

	December 31, 2022	December 31, 2021
	$	$
Assets		
Investments		
Cash and short term	82,744,000	127,597,000
Bonds	324,664,000	325,573,000
Equities	1,349,410,000	1,604,140,000
Private equity	338,553,000	286,399,000
Infrastructure	308,481,000	239,488,000
Pooled Funds	848,344,000	962,714,000
Net accounts payable and receivables	(185,000)	8,078,000
Net assets in the financial statements	3,252,011,000	3,553,989,000

The following table shows the target asset mix as at December 31, 2022.

Table C.2 – Asset Mix by Asset Class

Asset classes	Lower bound	Target Dec. 31, 2022	High bound
	%	%	%
Canadian equity	4.0	8.0	12.0
Global Equities	5.0	11.0	17.0
Global Equities (Low Volatility)	5.0	11.0	17.0
Global Equities (Small Capitalization)	2.0	4.0	6.0
Emerging Market Equities	4.0	6.0	8.0
Canadian Bonds - Corporate	6.5	10.0	13.5
Canadian Bonds - Core Plus	5.5	9.0	12.5
Canadian Bonds - Long-term Core Plus	5.5	9.0	12.5
Canadian Bonds - Short-term	—	2.0	5.3
Infrastructure	5.0	20.0	23.0
Private Equity	1.0	5.0	10.0
Real Estate	3.0	5.0	8.0
Total		100.0	

Changes in Net Assets

The following table shows changes affecting the assets during the inter-valuation period, based on market values.

Table C.3 – Reconciliation

	2022
	$
Net assets – beginning of period	3,553,989,000
Increase in assets	
Contributions	
Employee (current service)	61,248,000
Employer (current service)	61,179,000
Transfers-in	775,000
Arrears contributions and interest	22,000
Total	123,224,000
Investment income	76,526,000
Total	199,750,000
Decrease in assets	
Benefits paid	
Pensions in payment	98,981,000
Transfer and refunds	63,001,000
Total	161,982,000
Expenses	37,652,000
Net change in fair value of investments	302,094,000
Total	501,728,000
Net assets – end of period	3,252,011,000

Actuarial Value of Assets – Going-Concern Basis

The calculation of the assets on the going-concern basis (smoothing of fluctuations over a 5-year period) is as follows:

Table C.4 – Actuarial Value of Assets – Going-concern basis

Year	Investment G/(L)
	$
2018	(109,256,000)
2019	188,511,000
2020	248,304,000
2021	186,491,000
2022	(464,693,000)

Asset Smoothing Adjustment

The actuarial value of assets includes an adjustment by applying an averaging method that stabilizes short-term fluctuations in the market value of the plan assets, calculated over a period of 5 years.

Table C.5 – Asset Smoothing Adjustment

	December 31, 2022
	$
Less 1/5 of investment gain in 2019	37,702,000
Less 2/5 of investment gain in 2020	99,322,000
Less 3/5 of investment gain in 2021	111,895,000
Less 4/5 of investment gain in 2022	(371,755,000)
Total Asset smoothing adjustment	(122,836,000)
Actuarial value of assets	3,374,847,000
% of market value	103.78%

Return on Assets

The annual rates of return achieved on assets, after investment management fees and other fees charged to the fund, are as follows:

Table C.6 – Return on Assets after expenses

Year	*Market Value Basis*	*Actuarial Value Basis*
	%	**%**
2018	1.29	8.22
2019	13.62	7.74
2020	14.65	9.45
2021	11.33	10.09
2022	(7.45)	6.64

Appendix D – Membership Data

Description of Membership Data

Our valuation is based on data provided to us by the Public Employees Benefits Agency and was compiled as at December 31, 2022. We have taken the following steps to review the data to ensure sufficiency and reliability:

- the records of each member were reconciled with the data of the previous valuation, and the results of this reconciliation were submitted to the Public Employees Benefits Agency;
- the contributions and pensions paid since the last valuation shown in the financial statements were compared with the equivalent values drawn from the data;
- a reconciliation was performed in order to follow the changes in the number of active members, retirees and vested members;
- basic data checks were performed to ensure that age, salary and service data were reasonable for the purposes of the valuation.

Summary of Membership Data

The following tables were prepared using data provided by the Public Employees Benefits Agency regarding the Plan's active members, retirees and former members.

The average pension amounts are based on the number of members who have those pensions. If the number of members with the relevant pension is fewer than the total number of members, the number of members with the relevant pension is shown in the brackets next to the average pension.

Table D.1 – Summary of Membership Data

	December 31, 2022	December 31, 2021
Active members – General		
Number	15,572	15,523
Percent female	65.0%	64.6%
Average full-time equivalent earnings	$48,605	$47,802
Average years of eligibility service	7.7	7.8
Average years of pensionable service	6.8	6.9
Average age	46.6	46.7
Average contributions with interest	$30,430	$29,671

Table D.1 – Summary of Membership Data (continued)

	December 31, 2022	December 31, 2021
Active members – Designated		
Number	311	310
Percent female	12.5%	12.3%
Average full-time equivalent earnings	$101,735	$101,406
Average years of eligibility service	11.3	11.7
Average years of pensionable service	11.2	11.6
Average age	41.5	41.7
Average employee required contributions with interest	$128,169	$128,669
Disabled members		
Number	352	315
Percent female	54.8%	57.1%
Average full-time equivalent earnings	$49,553	$47,885
Average years of eligibility service	10.2	10.4
Average years of pensionable service	9.1	9.3
Average age	54.2	54.4
Deferred members		
Number	2,513	2,268
Average monthly accrued pension	$418 (2,295)	$411 (2,049)
Average monthly bridge pension	$227 (136)	$219 (133)
Average age	51.0	51.0
Total excess employee contributions	$2,701,000	$2,797,000
Pending terminations		
Number	1,473	1,443
Average monthly accrued pension	$379 (810)	$374 (910)
Average monthly bridge pension	$274 (74)	$264 (68)
Average age	42.4	43.7
Total pending payments	$4,922,000	$3,789,000

Table D.1 – Summary of Membership Data (continued)

	December 31, 2022	December 31, 2021
Pensioners		
Number	6,170	5,905
Average monthly lifetime pension	$1,141 (6,095)	$1,127 (5,807)
Average monthly temporary pension	$3,153 (75)	$2,942 (97)
Average monthly bridge pension	$430 (1,200)	$428 (1,179)
Average age	71.7	71.5
Average period since retirement	9.9	9.9
Survivors		
Number	1,025	1,004
Average monthly lifetime pension	$614 (968)	$591 (938)
Average monthly temporary pension	$463 (57)	$480 (66)
Average monthly bridge pension	$368 (18)	$354 (20)
Average age	77.8	78.8
Average period since retirement	21.5	21.8
Former Plan Pension – Annuitants		
Number	92	113
Average monthly pension	$306	$297
Average age	88.7	88.4
Average period since retirement	29.1	28.3
Former Plan Pension – Survivors		
Number	189	213
Average monthly pension	$254	$244
Average age	87.8	87.2
Average period since retirement	31.8	30.9

Table D.1 – Summary of Membership Data (continued)

	December 31, 2022	December 31, 2021
Pension from Excess – Annuitants		
Number	258	307
Average monthly pension	$110	$100
Average age	87.3	87.1
Average period since retirement	24.3	24.0
Pension from Excess – Survivors		
Number	301	321
Average monthly pension	$48	$46
Average age	87.1	87.1
Average period since retirement	29.8	29.1
Former members with transfer deficiency holdbacks		
Number	6	1,305
Average holdback amount	$7,984	$20,062
Average time until payment of holdback	0.3	2.0

Table D.2 – Changes in Plan Membership

	General	Designated	Disabled	Pensioner	Survivor	Deferred	Pending	Total
Members as at December 31, 2021	15,523	310	315	5,905	1,004	2,268	1,443	26,768
New members	2,343	30	10	0	0	1	125	2,509
To general	99	0	(58)	0	0	0	(41)	0
To designated	0	1	(1)	0	0	0	0	0
To LTD	(136)	0	136	0	0	0	0	0
To pensioner	(338)	(14)	(18)	450	0	(50)	(30)	0
To survivor	0	0	0	(83)	84	(1)	0	0
To deferred	(94)	0	0	0	0	382	(288)	0
To pending	(710)	(11)	(10)	(3)	0	(2)	736	0
Benefits ended	0	0	0	(22)	(9)	0	0	(31)
Deaths, no survivor	0	0	0	(79)	(63)	0	0	(142)
Paid out	(1,047)	(5)	(22)	0	0	(80)	(471)	(1,625)
Data Adjustments	(68)	0	0	2	9	(5)	(1)	(63)
Members as at December 31, 2022	15,572	311	352	6,170	1,025	2,513	1,473	27,416

Table D.2 – Changes in Plan Membership (continued)

	Former plan Pension - Annuitants	Former plan Pension - Survivors	Pension from Excess - Annuitants	Pension from Excess - Survivors	Total
Members as at December 31, 2021	113	213	307	321	954
To survivor	(5)	5	(7)	7	0
Deaths, no survivor	(16)	(26)	(42)	(27)	(111)
Data Adjustments	0	(3)	0	0	(3)
Members as at December 31, 2022	92	189	258	301	840

Table D.3 – Age/Service distribution for active General members as at December 31, 2022

Years of service		Age 20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65 and +	Total
0-4	**Number**	731	728	921	1,090	1,149	847	721	612	543	313	**7,655**
	Average Salary	35,176	42,355	44,090	41,218	42,979	42,755	45,464	45,564	45,387	43,342	**42,659**
5-9	**Number**	8	122	286	391	541	516	451	366	329	197	**3,207**
	Average Salary	42,515	54,515	56,256	56,521	52,833	49,652	51,426	49,986	52,645	45,561	**52,125**
10-14	**Number**		2	61	215	288	336	351	356	286	126	**2,021**
	Average Salary		*	64,341	65,901	60,756	55,950	51,932	52,172	53,245	51,196	**55,919**
15-19	**Number**				36	144	221	266	287	271	100	**1,325**
	Average Salary				68,621	61,211	61,095	50,178	50,932	49,777	52,525	**53,957**
20-24	**Number**					30	127	165	232	196	70	**820**
	Average Salary					69,797	62,761	56,338	50,794	47,218	43,340	**52,967**
25-29	**Number**						27	53	72	84	29	**265**
	Average Salary						89,444	70,987	58,503	51,137	60,887	**62,078**
30-34	**Number**							21	63	49	30	**163**
	Average Salary							79,465	77,088	52,816	50,252	**65,159**
35-39	**Number**							1	31	32	17	**81**
	Average Salary							*	66,166	82,518	57,151	**70,978**
40-44	**Number**								5	16	10	**31**
	Average Salary								49,604	72,924	70,154	**68,269**
45-49	**Number**										4	**4**
	Average Salary										71,358	**71,358**
Total	**Number**	**739**	**852**	**1,268**	**1,732**	**2,152**	**2,074**	**2,029**	**2,024**	**1,806**	**896**	**15,572**
	Average Salary	**35,255**	**44,163**	**47,808**	**48,306**	**49,429**	**50,395**	**50,449**	**50,654**	**50,182**	**47,444**	**48,605**

** Omitted for confidentiality*

Notes:
- The age is computed at the nearest birthday.
- Years of service means the number of years of participation for pension plan purposes, fractional parts being rounded to the lower integer.

Appendix E – Summary of Plan Provisions

The Municipal Employees' Pension Plan (the "Plan") is governed by:

- *The Municipal Employees' Pension Act* and Regulations

and must comply with:

- *The Pension Benefits Act, 1992* and Regulations; and
- The *Income Tax Act* (Canada) and Regulations.

The following description of the Plan provisions is a summary only. For more complete information, reference should be made to *The Municipal Employees' Pension Act* (the "Act") and Regulations.

Effective Date

July 1, 1973

Eligibility and Membership

A "General Member" is an employee of a participating employer who has joined the Plan and is entitled to benefits, and is not a Designated Member.

A "Designated Member" is a Firefighter or Police Officer designated by their employer who has joined the Plan and is entitled to benefits.

Permanent employees, who are employees employed on an ongoing basis (full-time, part-time, seasonal or who work more than 700 hours in each of two consecutive years), must join the Plan on the date they become an employee.

Non-permanent employees, who are employees on a term or temporary basis with a definite end date, may choose to join the Plan on the date of hire. Non-permanent employees who work at least 700 hours in two consecutive years become permanent employees and must join the Plan immediately. Once an employee has joined the Plan, they remain a member even if their hours of work reduce to less than 700 hours in a year.

Plan members who move from one participating employer to another within 2 years, must immediately rejoin the Plan regardless of the terms of employment with the second employer.

Service

"Continuous Service" is used to determine members' retirement dates. It is the total number of years and portion of years working with a participating employer without a break in service of more than 2 years. Continuous Service is awarded for each pay period that contributions are made to the Plan. For 10-month employees, one year of Continuous Service is awarded if the member works the entire school year.

“Contributory Service” is used to determine members' retirement benefits. It is service for which a member makes contributions to the Plan, including:

- service granted because of a waiting period prior to January 1, 1993 (one-half of the relevant period of service is awarded);
- leaves of absence for which contributions were made; and
- service that has been purchased by the member.

For 10-month employees, one year of Contributory Service is awarded if the member works full-time for the entire school year. Less than one year of Contributory Service is awarded if the member:

- works less than full-time during a year; or
- works full-time for less than the entire year.

Salary

“Salary” is defined as regular remuneration and commissions, but excludes overtime pay and bonuses.

“Highest Average Salary” for members with three years of service is the average of the highest three calendar years of salary, annualized if the member worked less than the whole year or less than full-time during the year. For members with less than three years of service, it is the total salary during the member's period of service divided by the number of years of service, including any fractional year of service.

Employee Contributions

Employee contributions are 9.00% of salary for General Members effective July 1, 2018 and 12.50% of salary for Designated Members for the period from July 1, 2018 to December 31, 2023.

Members can purchase prior service in respect of approved leave, or where contributions were not made. Designated members can also purchase an election to count a period of pre-Designated service as Designated service.

Employer Contributions

The participating employers shall contribute to the Plan such amounts equal to the required employee contributions.

Interest on Employee Contributions

Member contributions are credited with interest at a rate based on the average of the Bank of Canada 5-year Personal Fixed Term deposit rates.

Retirement Dates

Normal Retirement

General Members: the first day of the month immediately following the attainment of age 65.

Designated Members: the first day of the month immediately following the attainment of age 60.

Earliest Unreduced Retirement Date

General Members: the first day of the month immediately following the attainment of:

- age plus continuous service equals at least 80; or
- age 65.

Designated Members: the first day of the month immediately following the attainment of:

- age plus continuous service equals at least 75; or
- at least 25 years of continuous service; or
- age 55.

Early Retirement

General Members: the first day of the month immediately following the attainment of:

- at least 15 years of continuous service; and
- age 55.

Designated Members: the first day of the month immediately following the attainment of:

- age plus continuous service equals at least 70; or
- age 45.

Retirement Pension at Normal Retirement

General Members employed on or after January 1, 1993:

- 1.5% of Highest Average Salary multiplied by the number of years and fractional years of contributory service before January 1, 2001 and on or after January 1, 2006.
- 1.8% of Highest Average Salary multiplied by the number of years and fractional years of contributory service between January 1, 2001 and December 31, 2005

Designated Members employed on or after January 1, 1993:

- 1.7% of Highest Average Salary multiplied by the number of years and fractional years of contributory service before January 1, 2001 and on or after January 1, 2006.
- 2.0% of Highest Average Salary multiplied by the number of years and fractional years of contributory service between January 1, 2001 and December 31, 2005

General Members employed before January 1, 1993:

For service before January 1, 1990 and service between January 1, 2001 and December 31, 2005, a pension for each year of contributory service equal to the greater of:

- 1.3% of Highest Average Salary not in excess of the three year average YMPE plus 2% of Highest Average Salary in excess of the three year average YMPE, and
- 1.8% of Highest Average Salary.

For service on or after January 1, 1990, but excluding years 2001 to 2005, a pension for each year of contributory service equal to the greater of:

- 1.3% of Highest Average Salary not in excess of the three year average YMPE plus 2% of Highest Average Salary in excess of the three year average YMPE, and
- 1.5% of Highest Average Salary.

Designated Members employed before January 1, 1993:

For service before January 1, 1990 and service between January 1, 2001 and December 31, 2005, a pension for each year of contributory service equal to 2% of Highest Average Salary.

For service on or after January 1, 1990, but excluding years of 2001 to 2005, a pension for each year of contributory service equal to the greater of:

- 1.3% of Highest Average Salary not in excess of the three year average YMPE plus 2% of Highest Average Salary in excess of the three year average YMPE, and
- 1.7% of Highest Average Salary.

Prior to January 1, 2019, retiring members may elect to transfer the commuted value of their monthly retirement pension out of the Plan. On or after January 1, 2019, members eligible for retirement will be required to receive a monthly pension from the Plan.

Retirement Pension at Early Retirement

Pension benefits before age 65: A pension of 2% of Highest Average Salary multiplied by the number of years of contributory service.

Pension benefits on or after age 65: Pension described in the Retirement Pension at Normal Retirement section.

General Members: The pension earned to the date of early retirement is reduced by 0.25% for each complete month prior to the date at which the member could have retired with an unreduced pension. The reduction applies to the lifetime pension and the bridge benefit.

Designated members: The pension earned to the date of early retirement in respect of service up to and including December 31, 1991 is not reduced. The pension earned to the date of early retirement in respect of service after December 31, 1991 is reduced by 0.25% for each complete month prior to the date at which the member's age plus continuous service equals at least 75. The reduction applies to the lifetime pension and the bridge benefit.

Maximum Pension Limits

Pensions are limited at the member's retirement date to the maximums prescribed under the *Income Tax Act* (Canada).

Indexing

For pensions in respect of service accrued before 1999, and subject to there being funds available to provide it, the Plan provided for future indexation equivalent to the lesser of 2% per year or the increase in the Saskatchewan Consumer Price Index (CPI) with the excess of 2% over the increases in the CPI carried forward on a cumulative basis. Indexing on post-1998 benefits may also be provided if funds permit, but this was a decision of the Commission and does not happen automatically. The 2% increase for benefits in respect of pre-1999 service was paid at January 1, 2007 and 2008 – no increase was provided for benefits in respect of post-1998 service at these times.

The Commission cancelled the automatic provision of 2% indexing on pre-1999 benefits effective June 1, 2009.

In 2021, the Commission approved providing a one-time ad-hoc pension increase of 1.57% effective January 1, 2022.

Vesting

Benefits vest after 2 years of continuous service.

Termination other than Death or Retirement

For non-vested members, a return of employee contributions with interest.

For vested members terminating employment prior to retirement, an immediate or deferred pension.

Prior to January 1, 2019, upon termination, a member could elect to receive a lump sum that does not exceed one half of the member's accumulated contributions with interest as at December 31, 1993, in lieu of part of the member's pension. After January 1, 2019, the contributions must remain as part of the total pension benefit.

Death before Retirement

Upon the death of a member prior to retirement, an amount equal to the sum of the member's additional contribution account, the member's annuity and annuity surplus account, the employer additional contribution account and the employer annuity account, plus the commuted value of the defined benefit pension is paid to the member's spouse, beneficiary or estate. The spouse also has the option to receive a monthly lifetime pension based on the total value of the death benefit.

Death after Retirement

With spouse at retirement: 100% of the pension payable to the member is guaranteed to be paid for five years from the retired member's date of retirement. After the guaranteed payments are made, 60% of the pension to which the retired member was entitled shall be paid to the surviving spouse for life. If there is no surviving spouse, 60% of the pension to which the retired member was entitled shall be paid to the dependant or dependants named by the member while they remain a dependant. A dependant means:

- a child under the age of 18 years; or
- an unmarried child under the age of 21 years who is attending an approved educational institution on a full time basis.

No spouse at retirement: 100% of the pension payable to the member is guaranteed to be paid to the beneficiary for fifteen years from the retired member's date of retirement. No pension is payable beyond that period.

Members can choose alternative forms of survivor benefit (60%, 75%, 100%) or guarantee periods (5, 10, 15 years) provided on an actuarial equivalent basis.

Disability

A member qualifies for a disability pension if they are:

- permanently and totally disabled; and
- have at least 15 years of eligibility service on the date the disability pension would begin; and
- are under 60 years of age; and
- are in receipt of the disability allowance from the Canada Pension Plan; and
- have been prevented, by the disability, from working for at least four consecutive months before the date the pension is to begin.

The member is eligible for a lifetime pension without an early retirement reduction. There is no bridge benefit associated with a disability pension.

A member who is totally and permanently disabled and who has been away from work for a 2-year period may, on application, continue to accrue service without employee or employer contribution. In this event, the salary on which the pension is based will be increased from the date of disability based on the increase in the average Canadian salaries and wages. The waiver will cease on the member's unreduced retirement date.

Annuities Underwritten by the Plan

Life annuities are paid for the life of the annuitant based on:

- rates of interest offered at the time the annuity commences; and
- the form of the annuity.

Life Annuity

The annuity is payable on a monthly basis in arrears for the life of the annuitant. If the annuitant dies before the end of the guarantee period, the remaining guaranteed payments are paid to the last designated beneficiary. A single member can purchase an annuity guaranteed for 0, 5, 10, or 15 years. A member with a spouse can purchase a single life annuity if the spouse waives the right to a joint annuity.

Joint and Last Survivor Annuity

The annuity is payable on a monthly basis in arrears for the life of the annuitant and the spouse. In the month following the death of the annuitant, monthly benefits are payable to the spouse for the remainder of the spouse's lifetime. The continuing benefits for the spouse are selected at the time of retirement as 100%, 75%, 60% or 50% of the annuitant's payments. The member may purchase a joint annuity with a 0, 5, 10 or 15-year guarantee on the annuitant's payments. The current annuities being paid include continuing benefits for spouses at percentages equal to 50%, 60%, 75% and 100%.

Upon the death of both the annuitant and the spouse and after any applicable guarantee period, payments cease and no further benefits are payable.

Indexed Annuities

Effective February 28, 1997, the Plan began underwriting annuities that included provisions for indexing at 100% of the increases in the Saskatchewan Consumer Price Index (CPI). Increases in the annuity payments for "indexed annuities" are granted on each January 1 following the member's retirement date. The increase for indexing on the first January 1 following a member's date of retirement is provided on a pro-rata basis from the month of retirement. Members have the option of choosing an annuity that includes future indexing or not.

Excess Interest Increases for Non-Indexed Annuities

With effect from January 1, 2003, annuities, other than indexed annuities, will be increased by the excess over the lesser of 6% and the discount rate used to determine the annuity at retirement, of the rate of return in the immediately preceding year on the assets supporting the annuity liabilities, subject to there being sufficient funds to do so. The rate of return in a particular year will be determined by PEBA using a smoothing technique. The increase in any year will not be greater than the increase in the Consumer Price Index for the previous year.

Appendix F – Administrator Certification

With respect to the actuarial valuation report of Municipal Employees' Pension Plan as at December 31, 2022, we hereby confirm that to the best of our knowledge:

- the contributions have been paid to the fund in conformity with the previous actuarial report;
- the data regarding Plan members and beneficiaries provided to TELUS Health constitutes a complete and accurate description of the information contained in our files;
- the data regarding Plan assets provided to TELUS Health are complete and accurate;
- copies of the official text of the Plan and all amendments to date were provided to TELUS Health and the summary of Plan provisions contained in this report adequately reflects the Plan provisions for the purposes of this actuarial valuation;
- there are no subsequent events, modifications or extraordinary changes to the membership or the Plan that would materially affect the results of this actuarial valuation that have occurred, except as indicated in this report.

On behalf of the Public Employees Benefits Agency

Signature

Leo Ferreira

Name (printed)

Manager, Policy and Research

Title

September 20, 2023

Date

Appendix G – Terms of Engagement

For the purposes of preparing the actuarial valuation as at December 31, 2022 of Municipal Employees' Pension Plan, the Commission has directed that:

Applicable Objectives of Funding

Except as specified in this Terms of Engagement, the actuary should reflect the funding objectives described in the Funding Policy of the Commission last reviewed in November 2022 in establishing the assumptions, actuarial cost method, and asset valuation method.

Assumptions – Going-concern valuation

The going-concern valuation shall be prepared using best-estimate economic and demographic assumptions and in accordance with accepted actuarial practice, as established by the Canadian Institute of Actuaries. Best-estimate assumptions means that, in the opinion of the actuary, the assumptions are without bias, neither conservative nor non-conservative. The valuation discount rate should be set at a level that reflects the expected long-term return of the total asset portfolio on a market basis and will include a provision for investment management expenses and administration expenses of the Plan.

Asset valuation method – Going-concern valuation

The actuarial value of assets should be determined using a method that smooths market fluctuations not over more than five years and the resulting actuarial value of assets should be within in the range of 90% to 110% of the market value of assets.

Actuarial cost method – Going-concern valuation

The projected unit credit method should be used for the going-concern valuation. In addition, a reserve equal to the present value of all future accruals of presently disabled members should be included.

Explicit margins – Going-concern valuation

The actuary should include an explicit margin reserve in the going-concern liabilities equal to the minimum of 20% of the best estimate going-concern liabilities and the going-concern surplus. The actuary should also include an explicit margin in the going-concern normal cost equal to the minimum of 20% of the best estimate going-concern normal cost and the contribution excess.

Frequency of Valuations

Actuarial valuations shall be prepared as required under *The Pension Benefits Act, 1992*, or more often as directed by the Commission.

On behalf of the Municipal Employees' Pension Commission

Digitally signed by
Jeremy Phillips
Date: 2023.09.26
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Signature

Name (printed)

Title

Date

About TELUS Health

TELUS Health is a global healthcare leader serving people in more than 160 countries delivering both digital innovation and clinical services to improve total physical, mental and financial health and wellness across the full spectrum of primary and preventative care. By leveraging the power of technology to deliver connected solutions and services both in-person and virtually, TELUS Health is improving access to care and revolutionizing the flow of information while facilitating collaboration, efficiency, and productivity for physicians, pharmacists, health authorities, allied healthcare professionals, insurers, employers and people globally, progressing its vision of transforming healthcare and empowering people to live healthier lives.

Our clinical team is composed of renowned and passionate health professionals around the world delivering best-in-class people-centric care to hundreds of thousands of employers, professionals and their families.

For more information please visit:
www.telushealth.com.