ECKLER

Actuarial Report on

British Columbia College Pension Plan

as at August 31, 2024

Vancouver, British Columbia
May 23, 2025

Contents

Actuarial Report Highlights

We are pleased to present this report on the actuarial valuation of the College Pension Plan as at August 31, 2024. The main purposes of the valuation are to determine the financial position of the Plan as at August 31, 2024, to determine the member and employer Basic contribution rates, establish the level of sustainable indexing, and identify any transfers required between the Basic Account and the Inflation Adjustment Account (IAA) and/or the Rate Stabilization Account (RSA).

Key Results – Funding Valuation

Basic Account ($ millions)	2021[1]	2024
Asset smoothing cushion	427.9	68.6
Rate Stabilization Account (RSA)	246.6	310.4
Assets (smoothed) net of RSA	6,223.3	8,451.5
Liabilities	6,223.3	8,455.3
Surplus / (Unfunded Liability)	**0.0**	**(3.8)**
5% of net liabilities	(229.8)	(300.1)
Accessible Going Concern Excess	**0.0**	**0.0**

As permitted by the Joint Trust Agreement (JTA) and required by the funding policy, $3.8 million will be transferred from the RSA to the Basic account as at August 31, 2024, leaving the Basic account in balance at the valuation date.

Basic Contribution Rates	2024
Current contribution rate	16.88%
Entry-age normal cost (EANC) rate	16.84%
Minimum JTA Appendix B (JTA-B) contribution rate	16.84%
Required Contribution Rate = Minimum Permissible JTA Contribution Rate	**16.84%**

The Joint Trust Agreement (JTA) requires the calculation of a "Required Contribution Rate", being the greater of the Entry Age Normal Cost (16.84%) and the minimum JTA-B rate (also 16.84%, as there is no unfunded liability or accessible going concern excess to amortize, after the required transfer from the RSA). Since the Required Contribution Rate of 16.84% is less than the Current Contribution Rate of 16.88%, the JTA requires the Board to reduce Employer and Member contributions equally so that the aggregate contribution rate is equal to the Required Contribution Rate, unless the Board determines that the required reduction is not material.

The resulting contributions (due effective September 1, 2025 for the three years until the next valuation is completed) are summarized in the table below.

[1] After transfer of surplus to RSA/IAA – see "Key Plan Changes Since the Previous Valuation" below.

	Member	Employer	Total
Current Basic Account contributions	8.39%	8.49%	16.88%
Current IAA	1.85%	1.85%	3.70%
Current total contribution rate	**10.24%**	**10.34%**	**20.58%**
Required Contribution Rate (= EANC)	8.37%	8.47%	16.84%
Current IAA	1.85%	1.85%	3.70%
Required total contribution rate	**10.22%**	**10.32%**	**20.54%**

SFU members and their employer are required to pay 0.64% of salary each to the Basic Account and 0.20% of salary each to the IAA in addition to the above contributions.

Key Results – Sustainable Indexing Valuation

The Sustainable Indexing Valuation shows that indexing at 100% of CPI remains sustainable in the long term.

Key Plan Changes Since the Previous Valuation

There were no changes to plan benefits since the previous valuation. Plan benefits are summarized in Appendix A.

Our report on the 2021 valuation showed a Basic Account surplus of $201.7 million. As required by the JTA and the funding policy, this surplus was split 50/50 between the IAA and RSA, with $100.85 million transferred to each as at August 31, 2021.

Effective August 26, 2024, sessional instructors of the Simon Fraser University (SFU) Teaching Support Staff Union (TSSU) joined the College Plan for service from that date. In line with other SFU members, TSSU members and SFU each pay the following additional contributions:

- 0.64% of salary each to the Basic Account
- 0.20% of salary each to the IAA.

Based on data provided by BC Pension Corporation, approximately 139 TSSU members joined the Plan effective August 26, 2024. However, because of the timing of the end of their first pay period on joining, salary data for these members was excluded in the data provided. Therefore, this valuation excludes these members from liabilities, service cost and present value of contributions. Given the number of members, and the expected size of their payroll, excluding these amounts will not be material to the results of this valuation. The impact will be reflected in the next valuation.

The Plan rules include a provision that any investment returns on assets held in the Basic Account in respect of pensions in pay, in excess of the assumed return in the most recent Funding Valuation, may be transferred from the Basic Account to the IAA. Such annual transfers (referred to as "Excess Investment Return Transfers") were automatic until 2024. Going forward they will be discretionary and subject to the prior approval of the Board.

There were no other legislative changes or changes to the Plan that were not reflected in the previous valuation that would materially impact the valuation results.

Key Long-term Assumptions

We have used the same economic assumptions as the previous valuation.

We updated the assumed rates of retirement to reflect our analysis of Plan experience. We also added a reserve of $150 million in the liabilities and 0.3% of salaries in the Entry Age Normal Cost rate for the Funding Valuation, as a margin for uncertainty in the assumption for future improvements in longevity. The other demographic assumptions were unchanged from the previous valuation.

See Appendix H for details of the assumptions used in this valuation and the rationale employed in setting these assumptions. See Section 2(2) for the impact of the changes in assumptions on the valuation results.

Main Reasons for Change in Actuarial Position

After the transfer of Basic Account surplus to the RSA and IAA, the Basic Account was in balance at August 31, 2021, with no surplus or deficit. The deficit of $3.8 million at August 31, 2024 is the net result of several offsetting factors. The most significant of these were a gain from smoothed investment returns being higher than assumed over the three years, offset by losses due to excess investment returns transferred to the IAA, from salary increases being greater than assumed, and from the addition of the mortality reserve. See Section 2(2) for more detail of the actuarial gains and losses since the previous valuation.

Compliance with the Income Tax Act

The fully indexed valuation, recognizing the Income Tax Act limits and including the RSA, shows a surplus of $146.1 million. This surplus is less than 25% of the corresponding net liability (indexed liability less the present value of the indexed entry age normal cost), so the Plan does not have an excess ITA surplus. Given that there is a surplus, but not an excess surplus, the maximum contributions to the plan may not exceed the fully indexed, income tax limited, entry-age normal cost rate of 22.83%. The current total contributions of 20.58%, and the required total contribution rate of 20.54% are both less than the ITA limit and therefore are acceptable under the ITA.

The ITA also requires that individual member contributions not exceed the lesser of 9% of salaries or $1,000 plus 70% of the pension credit, though these conditions may be waived by the Minister of Finance provided members do not contribute more than half of the cost of benefits. Both the current member contribution rate of 10.24% and the required member contribution rate of 10.22% exceed this limit, so it will be necessary to apply to the Minister for a waiver. A similar exemption was required, and obtained, following the 2021 valuation.

Section 1. Scope and Overview of the Valuation

In accordance with Section 11 of the current Joint Trust Agreement (the "JTA") and on the instructions of the College Pension Board of Trustees (the "Board of Trustees"), we have completed an actuarial valuation of the Basic Account and the Inflation Adjustment Account of the College Pension Plan (the "Plan") as at August 31, 2024.

This report is addressed to the Board of Trustees. It is also intended to be used by the BC Financial Services Authority ("BCFSA") and Canada Revenue Agency ("CRA") to confirm compliance with the regulatory requirements. This report is not intended or necessarily suitable for other purposes.

Valuations included

We carry out several valuations to meet the primary objectives:

- Funding Valuation: To determine the financial position of the Plan as at August 31, 2024, and the resulting member and employer **Basic contribution rates.** This valuation focuses only on the Basic Account and does not examine the Inflation Adjustment Account ("IAA") and its ability to meet future indexing requirements;
- Sustainable Indexing Valuation: To determine the **level of indexing** that can be sustained in the long term, based on the financial position of the Basic Account and the Inflation Adjustment Account, and the overall level of contributions to the plan;
- Compliance: To demonstrate compliance with the Federal **Income Tax Act** and Regulations, and to prepare certain figures required for disclosure in the Plan's financial statements. This is achieved through supplementary funding valuations as follows:
    - For basic and indexed benefits, on the assumption that indexed benefits are to be fully funded, in advance, as for basic benefits; and
    - Limiting benefits to those permitted under the ITA; this is done both for basic benefits only, and for basic plus indexed benefits, and
    - Valuing accrued benefits only.

  The valuation process also identifies any transfers required between the Basic Account and the Inflation Adjustment Account (IAA) and/or the Rate Stabilization Account (RSA): these arise by applying the requirements set out in the **Joint Trust Agreement** and the **funding policy**.

Valuation inputs

We have based the valuations on the following inputs:

- The Plan's current benefit provisions, which are summarized in Appendix A.
- Data provided by BC Pension Corporation on each individual member of the Plan, as summarized in Appendices B-E.
- Details of the Plan's assets, as summarized in Appendix F. We have taken this information from the Plan's audited financial statements, the Statement of Investment Policies and Procedures, and additional information provided to us by BCI, the Plan's investment manager.

- The Entry Age Normal actuarial cost method, as required by the Plan's funding policy and described in Appendix G. We have also provided the key valuation results using the Projected Unit Credit cost method, as these figures are required for disclosure in the Plan's financial statements.
- Assumptions for future economic variables including the level of investment returns, price inflation and salary increases, and demographic variables including future rates of mortality, retirement, ill-health and termination of Plan service. The assumptions and the approach to setting them are described in Appendix H.

Plan wind-up valuation not included

The Standards of Practice issued by the Canadian Institute of Actuaries require that a valuation report "disclose the financial position of the plan if it were to be wound up on the calculation date, unless the plan does not define the benefits payable upon wind-up, in which case the actuary should include a statement to that effect".

While the Joint Trust Agreement deals with plan termination in Sections 15.4 and 15.5, it is our, and the Board's, opinion that the benefits on wind-up are not defined. Accordingly, we do not comment on the financial position of the plan if were to be wound up.

Funding requirements

The BC Pension Benefits Standards Act (PBSA) imposes certain minimum funding requirements on pension plans registered in British Columbia. These include the determination of a plan's financial position on a solvency basis as well as a going concern basis, the amortization of unfunded actuarial liabilities over a specified period, and special rules regarding the treatment of surplus. While the College Pension Plan is one of a number of British Columbia public sector plans that are exempt from these provisions, the JTA requires that the Plan's financing comply with the PBSA requirements for a going-concern valuation as those requirements existed prior to December 31, 2019. The relevant provisions are documented in Appendix B of the JTA, and we refer to them as JTA-B.

The Board of Trustees has established a funding policy, which sets out the Board's objectives and approach in managing the funding of the plan and the granting of non-guaranteed indexing.

This report complies with the requirements of JTA-B and the funding policy.

Section 2. Results of the Funding Valuation

1. Basic Account – Actuarial Position

Schedule 1 shows the actuarial position of the funding valuation of the Plan as at August 31, 2024. These results exclude liabilities for any future indexing that may be granted after the valuation date, and assumes that contributions will be made at the current rate of 16.88% for one year, then at the basic, non-indexed, entry-age normal cost rate of 16.84%. The comparative results shown as at August 31, 2021 are after the transfer of surplus to the IAA and RSA.

Schedule 1 – Basic Account Actuarial Position as at August 31, 2024

($ millions)	2021	2024
Assets		
Market Value of Basic Account including RSA	5,240.0	6,347.5
Asset Smoothing Adjustment	(427.9)	(68.6)
Smoothed Value of Basic Account including RSA	**4,812.1**	**6,278.9**
RSA	(246.6)	(310.4)
Smoothed Value of Basic Account net of RSA	**4,565.5**	**5,968.5**
Actuarial present values of future contributions at entry-age rates (current rate in first year)	1,628.1	2,452.7
PV of required amortization for SFU and SFU members[1]	29.7	30.3
Total Assets	**6,223.3**	**8,451.5**
Liabilities		
Actuarial present values for		
• active members	3,495.3	4,882.7
• inactive members		
deferred vested members	143.1	174.0
LTD members	89.2	115.1
other inactive members	39.5	0.0
• pensions being paid	2,403.0	3,053.4
• future expenses	53.2	80.1
• reserve for mortality uncertainty	n/a	150.0
Total Liabilities	**6,223.3**	**8,455.3**
Surplus (Unfunded Liability)	**0**	**(3.8)**
Funded Ratio: Total Assets ÷ Total Liabilities	**100.0%**	**100.0%**
5% of net liabilities[2]	229.8	300.1
***JTA-B* Accessible Going Concern Excess**	**0.0**	**0.0**

[1] SFU and SFU members are paying additional contributions of 0.64% of salary each to the Basic account until June 30, 2041

[2] Net liabilities equals total liabilities minus the value of future entry age contributions

2. Change in Actuarial Position

The statement of actuarial position included in Schedule 1 indicates an unfunded liability of around $4 million has emerged since August 31, 2021. This surplus is the net result of a number of items, the most significant of these being a gain from smoothed investment returns being higher than assumed over the three years, offset by losses due to excess investment returns transferred to the IAA, from salary increases being greater than assumed, and from the addition of the mortality reserve. A detailed reconciliation is shown in the table below.

Schedule 2 – Change in Actuarial Position

	Approximate effect on surplus ($ millions)
1. Surplus (Unfunded Liability) at August 31, 2021	**0**
2. Interest on Surplus	0
3. Change in new entrant profile	2
4. Excess investment return transfers	(142)
5. Contribution gain from paying higher than normal cost	1
6. Experience gains / (losses)	
a. Smoothed investment return greater than assumed	362
b. Expenses lower than assumed	3
c. SFU amortization: gain from higher than assumed payroll increases	2
d. Salary increases higher than assumed	(133)
e. YMPE increases higher than assumed	1
f. Retirements later than assumed	35
g. More terminations than assumed, net of rehires	18
h. Mortality lighter than assumed	0
i. Inflation higher than assumed for LTD deferred period	(5)
j. Disability lighter than assumed	(5)
7. Gains / (losses) due to changes in valuation assumptions	
a. Later assumed retirement for members terminating in future	15
b. Later assumed retirement from active service	4
c. Addition of mortality reserve	(111)
8. Changes in data treatment (see Appendix B for details)	(37)
9. Miscellaneous	(14)
10. Surplus (Unfunded Liability) at August 31, 2024	**(4)**

Item 7(c) in the table above shows the impact of adding the reserve for uncertainty in future mortality improvements. The net impact of $111 million consists of the reserve added to the actuarial liabilities of $150 million, less $39 million to allow for higher expected future contributions due to the reserve of 0.3% of salaries added to the entry-age normal cost.

3. Normal Cost Rate

The current service contribution required to finance the basic pensions of new entrants (i.e. the normal actuarial cost) has increased slightly from 16.83% of salaries as at August 31, 2021 to 16.84% of salaries as at August 31, 2024. The reasons for this 0.01% increase in normal cost rate are shown below, with the most significant being the addition of the reserve for mortality uncertainty, offset by the increase in assumed retirement age for members terminating in future.

Schedule 3 – Change in entry-age normal cost

	% of salaries
Entry-age normal cost at 2021 valuation	**16.83**
Changes in demographic profile of new entrants	0.02
Changes in data treatment	0.02
Assumption changes:	
• Later assumed retirement for members terminating in future	(0.34)
• Later assumed retirement from active service	0.01
• Reserve for mortality uncertainty	0.30
Total change	**0.01**
Entry-age normal cost at 2024 valuation	**16.84**

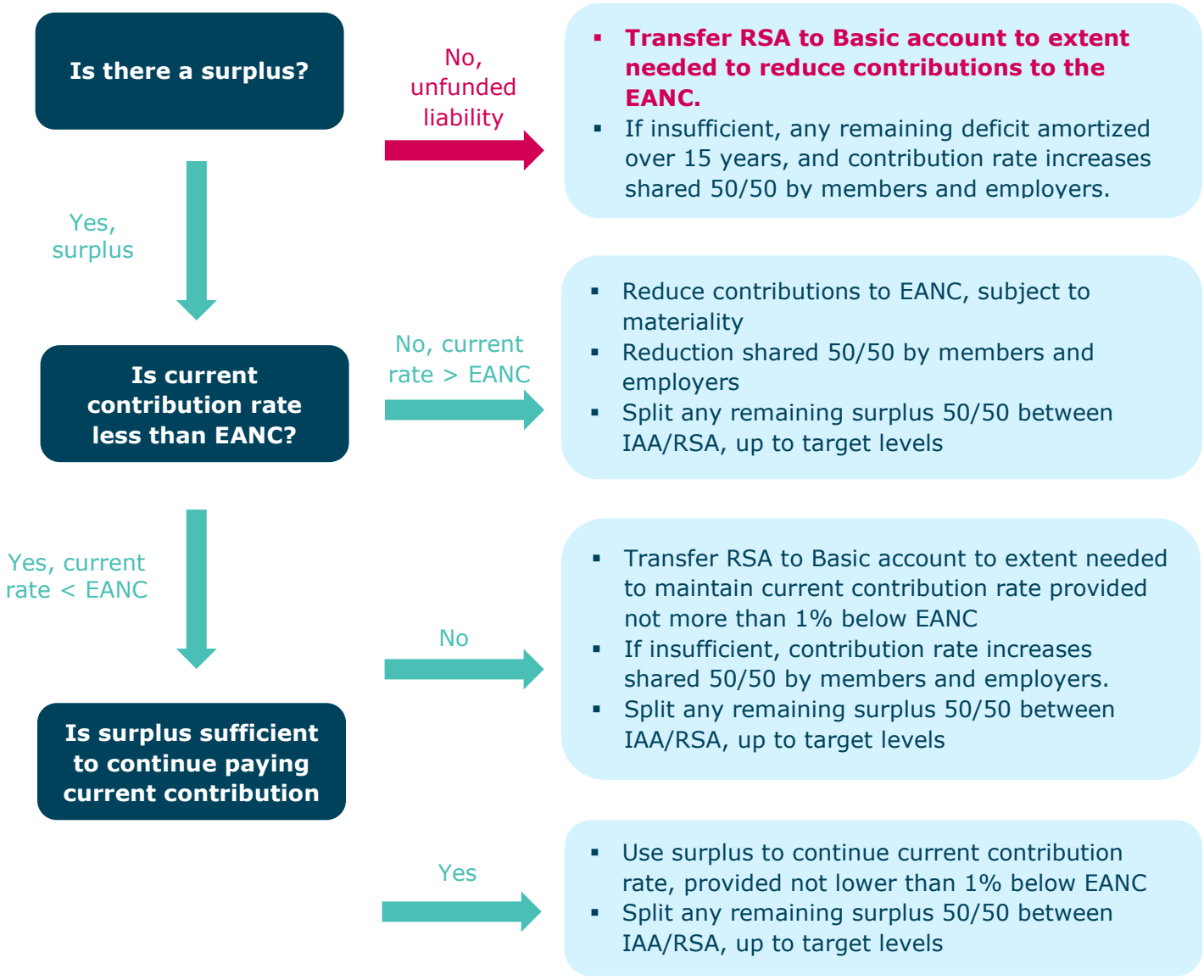
4. JTA and Funding Policy Requirements

Under the JTA (including the JTA-B requirements), the employers and the members must contribute the full entry-age normal cost. In addition, unfunded liabilities must be amortized over not more than 15 years from when they are established (with a one-year time lag).

Surpluses may be applied to reduce the contribution requirements. Under the JTA-B requirements. the rate may only be reduced below the normal actuarial cost after a surplus margin of 5% of the net liability has been set aside, with the remaining surplus to be amortized over not less than 5 years.

The asset value included for the Funding Valuation excludes the assets in the Rate Stabilization Account (RSA), which is held notionally within the Basic Account. The RSA can be drawn down as needed to stabilize the Basic contribution rate.

The requirements of the JTA and funding policy in the treatment of surpluses and deficits in the Funding Valuation, and the resulting contribution rates are summarized in the following chart. The steps required based on the results of the Funding Valuation are highlighted in pink. For full details, please refer to the JTA and funding policy.



The Funding Valuation shows a small unfunded liability of $3.8 million. $3.8 million will therefore be transferred from the (notional) RSA to the balance of the Basic account, leaving the Funding Valuation in balance with no surplus or deficit.

With the Basic account in balance after the required transfer from the RSA, the required Basic Account contribution rate per the JTA and the funding policy is equal to the normal cost of 16.84% of salaries.

The resulting contributions are summarized in the table below.

Schedule 4 – Contribution rate requirements

	Member	Employer	Total
Current Basic Account contributions	8.39%	8.49%	16.88%
Current IAA	1.85%	1.85%	3.70%
Current total contribution rate	**10.24%**	**10.34%**	**20.58%**
Required Contribution Rate (= EANC)	8.37%	8.47%	16.84%
Current IAA	1.85%	1.85%	3.70%
Required total contribution rate	**10.22%**	**10.32%**	**20.54%**

The JTA requires the Board to reduce Employer and Member contributions equally so that the aggregate contribution rate is equal to the Required Contribution Rate, unless the Board determines that the required reduction is not material.

SFU members and employer will continue to pay 0.64% of salary each to the Basic Account and 0.20% of salary each to the IAA in addition to the above contributions.

5. Sensitivity Analysis

The table below shows the impact of a one percentage point drop in the investment return assumption on the results of the Funding Valuation.

Schedule 5 – Funding Valuation Sensitivity Analysis

	($ millions)		
	6.00%	5.00%	Increase
Smoothed Value of Fund net of RSA	5,968.5	5,968.5	-
Actuarial present values of:			
Existing amortization for SFU and SFU members	30.3	32.6	2.3
Future contributions at entry-age rates	2,452.7	3,184.1	731.4
Total Assets net of RSA	**8,451.5**	**9,185.2**	**733.7**
Total Liabilities	**8,455.3**	**9,989.7**	**1,534.4**
Unfunded liability	(3.8)	(804.5)	(800.7)
Transfer from RSA	3.8	310.4	306.6
Unfunded liability after applying RSA	**-**	**(494.1)**	**(494.1)**
Entry Age Normal Cost	16.84%	20.89%	4.05%
JTA-B amortization of revised unfunded liability	n/a	2.56%	2.56%
Required contribution rate after applying RSA	**16.84%**	**23.45%**	**6.61%**

Section 3. Supplementary Funding Valuations

We have carried out a number of supplementary funding valuations to meet disclosure requirements and to demonstrate compliance with the Income Tax Act. These are carried out using the same data, methods and assumptions as are used for the Funding Valuation, except for the differences described below. The results of these supplementary valuations are set out in Appendix I.

1. A valuation on the assumption that indexed benefits are fully funded in advance, as for basic benefits;

2. A valuation where benefits are limited to those permitted under the ITA;

3. A valuation where benefits are limited to those permitted under the ITA *and* on the assumption that indexed benefits are fully funded in advance. These results are required for testing compliance with the maximum surplus provisions of the Income Tax Act, as described in Section 4.

4. The results of the Funding Valuation are also provided based on accrued benefits only, i.e. excluding both contributions and benefits in respect of future service from the assets and liabilities. In other words, we use the Projected Unit Credit actuarial cost method rather than the Aggregate Entry Age Normal method that is used for the Funding Valuation. These figures are required for disclosure in the Plan's financial statements.

5. The results of each of the first 3 supplementary valuations are also provided on an accrued benefits basis.

For valuations where indexing is treated as guaranteed and pre-funded, we have taken into account the IAA contributions of 1.85% from each of members and employers.

Section 4. Compliance with Income Tax Act

1. Member contributions

Under the ITA, there is a requirement that individual member contributions may not exceed the lesser of:

a) 9% of salary, or

b) $1,000 plus 70% of the member's pension credit

These conditions may be waived by the Minister of Finance provided that the contributions are "determined in a manner acceptable to the Minister and it is reasonable to expect that, on a long-term basis, the aggregate of the regular current service contributions made under the provision by all members will not exceed 1/2 of the amount that is required to fund the aggregate benefits in respect of which those contributions are made."

Both the current member contributions and the required member contributions will exceed this limit, so regardless of the decision by the Board with respect to contribution rates, it will be necessary to apply to the Minister for a waiver. The employer contributions currently exceed the member contributions by 0.1% of salaries. As IAA contribution rates are fixed and any future Basic contribution rate changes must be shared equally in terms of the JTA, the requirement that the member contributions will not exceed half of the amount required to fund the aggregate benefits is met. A similar exemption was required, and obtained, following the 2021 valuation.

2. Maximum surplus

Section 147.2(2) of the ITA limits employer contributions that may be made to a plan if there is a surplus that exceeds 25% of the actuarial liability. The ITA provides that the liability included in this test "may include anticipated cost-of-living and similar 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."

Under the sustainable indexing provisions outlined in the JTA, full indexing is provided if supported by the financial position of the plan and the committed contributions. It is therefore appropriate for the purposes of testing the ITA surplus limit to recognize the future indexing of pensions for the current Plan membership. Accordingly, the supplementary valuation results on the fully indexed basis, recognizing the income tax limits on benefits, should be considered. For the purpose of this test, the total assets should include the $310.4 million in the RSA.

The relevant figures from Appendix I are shown in the table below.

Schedule 6 – Pensions Limited to ITA Maximums: Maximum Surplus and Contributions Test

	($ millions)
Entry Age Basis Surplus (Unfunded Liability) net of RSA	(164.3)
Amount in RSA	310.4
Resulting Surplus for ITA test	146.1
Net liability	**7,752.9**
25% of Net liability	1,938.2
Contribution Rate	**%**
Fully Indexed Entry Age Normal Cost	22.83

Based on the figures set out in Appendix I, the fully indexed, income tax limited, valuation shows a net liability of $7,752.9 million (indexed liability of $11,077.2 million less the present value of the indexed entry age normal cost contributions of $3,324.3 million), so the 25% limit is $1,938.2 million. The surplus on this basis, including the assets in the RSA, is $146.1 million. This is less than the 25% limit, so the Plan does not have an excess ITA surplus. Given that there is a surplus, but not an excess surplus, the maximum contributions to the plan may not exceed the fully indexed, income tax limited, entry-age normal cost rate of 22.83%. The current total contributions of 20.58% and the total Required Contribution Rate of 20.54% are both less than the ITA limit and therefore are acceptable under the ITA.

Section 5. Sustainable Indexing Valuation

The Sustainable Indexing Valuation is carried out to establish the maximum level of indexing that can be provided over the period until the next valuation in a manner that allows indexing to be sustained in the long term and is fair from the perspective of intergenerational equity.

The key result from the sustainable indexing valuation is the sustainable level of indexing, given the contributions that have been committed to the Plan; this is different from the Funding Valuation, which excludes the value of future indexing and is used to determine the contribution requirements.

Details of the methods used for the sustainable indexing valuation are set out in Appendix G.

1. Long Term Funding Commitment

Based on the results discussed in Section 2, the contribution requirements of the plan can be summarised as:

Long Term Funding Commitment	2024
Basic benefit normal (entry-age) actuarial cost	16.84%
IAA contributions	3.70%
Long term funding commitment	**20.54%**

2. Results

Based on the long term funding commitment above, we have calculated that **indexing at 100% of CPI remains fully sustainable**.

Allowing for indexing of 2.25% per year (i.e. at 100% of CPI), and using the sustainable indexing assumptions discussed earlier, we obtain the following balance sheet and contribution requirements:

($ millions)	2024
Sustainable Indexing Target	**2.25%**
Assets	
Market Value of Fund	7,945.0
Asset Smoothing Adjustment	(85.8)
RSA[1]	(310.4)
Smoothed Value of Fund for Sustainable Indexing	**7,548.8**
Actuarial present values of contributions at Entry Age Normal Cost[2]	2,929.4
Present value of amortization for SFU and SFU members	38.3
Total Assets	**10,516.5**
Total Liabilities	**10,254.6**

[1] These results are presented prior to the required transfer of $3.8 million from the RSA. Allowing for this transfer would simply strengthen slightly the conclusion that indexing is fully sustainable.

[2] This allows for indexing at 2.25% and reflects a 6.25% discount rate.

($ millions)	2024
Surplus / (Unfunded Liability)	**261.9**
Contribution Requirements	
Entry Age Normal Cost - based on sustainable indexing target	20.75%
Amortization of (surplus) / unfunded liability over infinite period	(0.55%)
Required contribution	**20.20%**
Long term contribution commitment	**20.54%**

The above results show that, at an indexing rate of 2.25% per year, the required contribution rate is 20.20% of pay, which is 0.34% less than the long term contribution commitment of 20.54%.

Indexing at 100% of CPI was also sustainable at the 2021 valuation, with a higher margin of 2.02% of pay. The position has therefore deteriorated. The factors influencing the change in the sustainable indexing position are largely similar to those for the Funding Valuation as shown in Section 2(2), with the added effect of the transfer of $100.9 million of the 2021 valuation surplus to the RSA. In addition, investment gains were lower and losses from salary increases were higher on the sustainable indexing basis, because the assumptions on this basis exclude the margins that are present in the Funding Valuation, and the asset smoothing limit of -5% was applied at the previous sustainable indexing valuation.

The sustainable level of indexing will be re-evaluated at the next valuation and may be less than the full indexing as a result of future experience losses and any changes to the valuation assumptions at that time.

Section 6. Subsequent Events

Since the valuation date, and as of the date of this report, there has been considerable volatility in global investment markets and macroeconomic uncertainty in connection with international trade policies and tariffs. Any impact on the market value of Plan assets and the actuarial assumptions is not reflected in the valuation results and as such, the plan financial position shown in this report may be substantially different if those results were incorporated in our valuation. These effects will be revealed in future valuations.

To the best of our knowledge, there are no other material subsequent events that would affect the results and recommendations of this valuation.

Section 7. Actuarial Opinion

In our opinion,

a) the membership data on which the valuation is based are sufficient and reliable for the purposes of the valuation,

b) the assumptions are appropriate for the purposes of the valuation, and

c) the methods employed in the valuation are appropriate for the purposes of the valuation.

This report has been prepared and our opinions given in accordance with accepted actuarial practice in Canada. Pursuant to the JTA and regulatory requirements, the next valuation should be completed no later than as of August 31, 2027.

Section 8. Acknowledgement

We gratefully acknowledge the generous assistance of the staff of the BC Pension Corporation in the preparation of the data and other items required for this report.

Respectfully submitted,

Catherine Robertson
Fellow of the Canadian Institute of Actuaries[1]
Fellow of the Institute and Faculty of Actuaries

Euan Reid
Fellow of the Canadian Institute of Actuaries[1]
Fellow of the Institute and Faculty of Actuaries

May 23, 2025

[1] Canadian Institute of Actuaries is the Primary Regulator

Appendix A. Summary of Plan and Amendments as at August 31, 2024

Changes to the Plan

The previous valuation was based on the provisions of the Plan as at August 31, 2021. The main changes made to the Plan provisions up to August 31, 2024, not reported in the previous valuation report (unless otherwise indicated), are summarized below.

- Effective December 1, 2023, a plan rule amendment was made to improve clarity, update terminology and update references to legislation. The amendment clarifies that employee eligibility rules in section 3 that include specific provisions for employees hired prior to September 1, 1999 only apply if the employer was also in the plan prior to that date.
- Effective March 31, 2024, plan rule updates were made to allow unlocked amounts payable from the plan to be transferred not only to a registered retirement savings plan ("RRSP"), but also to a registered retirement income fund ("RRIF"). This change was made to comply with changes to the *Pension Benefits Standards Act* ("PBSA").
- Effective June 14, 2024, a plan rule amendment updated the disability benefits section of the plan rules. Instead of requiring medical examination from two medical doctors for eligibility for disability benefits, the plan now requires a written report from a single medical doctor or nurse practitioner. This report is then assessed by a medical professional that has been appointed by the plan to confirm the member is totally and permanently disabled. The plan has also removed the mandatory requirement for subsequent examinations, though the plan retains the ability to stop a disability benefit if, for any reason, it determines a member has recovered.
- Effective June 14, 2024, a plan rule amendment was made to permit new employee classes to join the plan. Prior to this date, plan membership was limited to educators and senior administrative staff. After this date, in certain circumstances, other employee classes may join the plan.
- Effective August 26, 2024, sessional instructors of the Simon Fraser University (SFU) Teaching Support Staff Union (TSSU) joined the College Plan for service from that date. In line with other SFU members and under sections (d) of both the Member Contributions and Employer Contributions below, TSSU members and SFU each pay the following additional amounts:
    - 0.64% of salary each to the Basic Account
    - 0.20% of salary each to the Inflation Adjustment Account.

The main provisions of the Plan taken into account in the valuation as at August 31, 2024, are summarized below.

Employer and Employee Eligibility

The Plan applies to a body designated under the *College and Institute Act*, and to any other body designated as an employer, on terms and conditions of eligibility specified by the Board. [Section 2]

Participation is compulsory for all eligible staff who are full-time or who earn more than 50 per cent of the year's maximum pensionable earnings ("YMPE") under the Canada Pension Plan in any calendar year. Enrolment is optional for eligible staff who are part-time and have not yet earned 50 per cent of the YMPE in a calendar year; enrolment is also optional for educational staff who were hired before September 1, 1999, if their employer also participated in the plan on September 1, 1999. [Section 3]. Individual employers may have additional criteria applying on top of these general provisions.

Member Contributions

Section 5 defines the following contributions which are deducted from a member's salary during a calendar year:

a) 8.39 per cent of the member's salary (paid into the Basic Account) – effective January 1, 2016.

b) any additional contributions (paid into the Basic Account) identified in the terms and conditions specified by the Board when the member's employer joined the Plan – effective June 11, 2021.

c) 1.85 per cent of the member's salary (paid into the Inflation Adjustment Account) – effective April 1, 2019.

d) any additional contributions (paid into the Inflation Adjustment Account) identified in the terms and conditions specified by the Board when the member's employer joined the Plan – effective June 11, 2021.

Employer Contributions

Section 6 requires every employer to contribute the following amounts during a calendar year:

a) 8.49 per cent of the member's salary (paid into the Basic Account) – effective January 1, 2016.

b) any additional contributions (paid into the Basic Account) identified in the terms and conditions specified by the Board when the employer joined the Plan – effective June 11, 2021.

c) 1.85 per cent of the member's salary (paid into the Inflation Adjustment Account) – effective April 1, 2019.

d) any additional contributions (paid into the Inflation Adjustment Account) identified in the terms and conditions specified by the Board when the employer joined the Plan – effective June 11, 2021.

Funding

Effective October 1, 2021, the Joint Trust Agreement ("JTA") was restated and article 11 provides that the Plan funding must comply with the pre-December 31, 2019 PBSA requirements for a going concern valuation, which are included in Appendix B of the JTA. Future contribution rate changes indicated by a valuation must be shared equally between employers and members.

Retirement Benefits: Eligibility Conditions for Pension

Section 50 provides that an active member who, on or after September 30, 2015, terminates employment is, on application, eligible to receive an unreduced retirement benefit calculated in accordance with sections 54 and 55 if the member has:

In respect of service prior to January 1, 2016:

a) attained age 55 and completed at least 35 years of contributory service;

b) attained age 60 with at least 2 years of contributory service; or

c) attained age 65.

In respect of service on or after January 1, 2016:

a) attained age 55 and completed at least 35 years of contributory service;

b) attained age 65.

A reduced retirement benefit is otherwise provided where the terminating member has reached age 55.

An active member who terminated employment prior to September 30, 2015, is entitled, upon application, to an unreduced retirement benefit if the member had:

a) attained age 55 and completed at least 35 years of contributory service;

b) attained age 60 with at least 2 years of contributory service; or

c) attained age 65.

A reduced retirement benefit is provided to such a terminating member who had reached age 55 and completed at least 2 years of contributory service, or attained age 60 but had not completed 2 years of contributory service.

Under certain conditions, the contributory service requirements mentioned above can include service during certain periods of child rearing.

Section 78 (4) provides that, before authorizing the payment of an immediate retirement benefit, the plan administrator may require a member and their employer to declare that no pre-arrangement to return to work with the same employer existed at the time of termination of employment.

Calculation of Unreduced Retirement Benefit

Section 54 provides that the unreduced lifetime monthly retirement benefit payable to a member terminating employment on or after January 1, 2002, in the form of a single life guaranteed option for 10 years (the "normal form"), is calculated as the sum of the following:

a) 2 per cent of the member's highest average salary multiplied by the number of years of pensionable service accrued before January 1, 1966;

b) 1.7 per cent of the lesser of

(i) the member's highest average salary; and

(ii) 1/12 of the YMPE for the calendar year immediately before the effective date of the retirement benefit payable to the member;

multiplied by the number of years of pensionable service accrued after December 31, 1965 and before January 1, 2016[1];

c) 2 per cent of the excess of the member's highest average salary over the amount determined under paragraph (b) (ii), multiplied by the number of years of pensionable service accrued after December 31, 1965 and before January 1, 2016[1]; and

d) 2 per cent of the member's highest average salary multiplied by the number of years of pensionable service accrued after December 31, 2015.

In addition, the member is entitled to a monthly bridge benefit, payable until the earlier of the death of the member and the member reaching age 65, that is:

a) 0.3 per cent of the lesser of

(i) the member's highest average salary; and

(ii) 1/12 of the YMPE for the calendar year immediately before the effective date of the retirement benefit payable to the member

multiplied by

b) the number of years of pensionable service accrued after December 31, 1965 and before January 1, 2016[1].

(Prior to January 1, 1999, retirement benefits were calculated under a 1.3 per cent/0.7 per cent lifetime/bridge formula for service accrued on or after January 1, 1966. This benefit formula was amended to 1.35 per cent/0.65 per cent for plan members terminating employment between January 1, 1999 and December 31, 2001. The YMPE integrated benefit formula of 1.7 per cent/0.3 per cent applies to plan members who terminated employment on or after January 1, 2002, with respect to pensionable service accrued after December 31, 1965 and before January 1, 2016, whereas the non-YMPE integrated benefit formula of 2 per cent applies with respect to pensionable service accrued by plan members after December 31, 2015.)

Highest average salary means one-twelfth of the average annual salary earned by a member during the 5 years of pensionable service (not necessarily consecutive) in which the salaries were highest (or, if the member has accrued less than 5 years of pensionable service, the total number of years and partial years of pensionable service). [Part 13 Division 2]

The calculation of the retirement benefit payable to a deferred member who terminated employment on or after January 1, 2002, and who is entitled to an unreduced retirement benefit is detailed in section 54. The retirement benefit is calculated on the basis of the single life guaranteed option with a term of 10 years using a benefit formula of 1.7 per cent/0.3 per cent for service accrued up to December 31, 2015 and a benefit formula of 2 per cent for service accrued after December 31, 2015. Section 45 stipulates that the retirement benefit payable to a deferred

[1] Prior to September 1, 2009, service was limited to 35 years.

member who terminated prior to January 1, 2002 will be based on the rules in force at the date of termination.

Accordingly, a member who terminated prior to January 1, 2002, but after January 1, 1999, will receive a retirement benefit on the basis of a single life guaranteed option with a term of 10 years, but using a benefit formula of 1.35 per cent/0.65 per cent.

A member who terminated prior to January 1, 1999 will receive a retirement benefit in the form of a single life annuity (no guarantee), using a benefit formula of 1.3 per cent/0.7 per cent.

Calculation of Reduced Retirement Benefit

Section 55 (1) provides that if a member referred to in section 45 (1) or section 50 terminated employment on or after January 1, 2002 and, on the effective date of the members' retirement benefit, the member has not either attained age 65 or age 55 and completed at least 35 years of contributory service, the lifetime and bridge benefits payable to the member need to be reduced as follows:

a) for pensionable service accrued prior to January 1, 2016:

   (i) sections 55 (2) and 55 (5) provide that if the member has not reached age 60 and has completed 2 years of contributory service, the benefits are reduced by a percentage equal to 3 per cent for each year of age by which the member is less than age 60, unless the member while an active member did not reach age 50, did not complete 10 years of contributory service or did not complete at least 8 months of contributory service in the 24 months preceding their termination of employment, in which case a percentage equal to 5 per cent applies;

   (ii) section 55 (3) provides that if the member has reached age 60 and completed 2 years of contributory service, the benefits are paid without reduction; and

   (iii) section 55 (4) provides that if the member has reached age 60 and has not completed 2 years of contributory service, the benefits are reduced by a percentage equal to 5 per cent for each year of age by which the member is less than age 65;

b) for pensionable service accrued after December 31, 2015, section 55 (6) provides the benefits are reduced by a percentage equal to 3 per cent for each year of age by which the member is less than age 65.

Where a retirement benefit is reduced the reduction is prorated for fractions of years.

Section 55 (8) provides that a reduced retirement benefit must have an actuarial present value that is at least equal to the actuarial present value of the retirement benefit payable at normal retirement age.

In the case of members who terminated employment on or after January 1, 2002, and prior to January 1, 2016, lifetime and bridge benefits are reduced as outlined above under point (a).

Alternative Types of Pensions

Section 56 provides that a pension may be granted on the single life plan with a guaranteed period (5, 10 or 15 years) or joint life and last survivor plan with a guaranteed period (5, 10 or 15 years). A temporary annuity until the member reaches age 65 may only be granted in

combination with either a single life plan with a guaranteed period of 5 years or a joint life and last survivor plan with a guaranteed period of 5 years. The amount of any pension granted on a form other than the normal form is calculated on an actuarially equivalent basis.

Where a member has a spouse at retirement, the member is required to elect a 60 or 100 per cent joint life and last survivor plan, unless the spouse waives this requirement in writing or there is a written agreement or court order made under Part 5 or 6 of the *Family Law Act* that is filed with the plan administrator. This option provides for a reduced amount payable to the member, continuing to the spouse on death of the member at 60 or 100 per cent of the initial reduced amount. A spouse is as defined in the PBSA, and includes a common-law or same-sex spouse.

Disability Benefits

Section 60 provides that a member is entitled upon application to disability benefits if the member, before reaching age 65, is totally and permanently disabled, has completed 2 years of contributory service and is not eligible for a monthly income benefit from a group disability plan. Despite the above provisions, a member who has received a lump sum payment instead of a monthly income benefit under a group disability plan is not eligible to receive disability benefits.

Disability benefits are equal to the full unreduced lifetime portion of the retirement benefit (i.e., there is no additional bridge benefit to age 65) earned to the date of disability.

Part 6 outlines the application process for disability benefits.

Sections 12 (5) and 99 (2) provide that if a member is receiving a monthly income benefit from an approved group disability plan, the member and employer do not make contributions and the member is not entitled to a retirement benefit under the Plan, but the period for which the member receives such group disability income benefit is considered pensionable service, with the final retirement benefit based on the highest average salary at disablement increased to retirement in accordance with changes in the consumer price index ("CPI").

Shortened Life Expectancy Benefits

Part 6.1 establishes a member's entitlement to benefits in the event of shortened life expectancy. Under this part, a member entitled to receive a benefit from the Plan and having an illness or disability that is certified by a medical practitioner to be terminal or likely to shorten the member's life considerably may, subject to and in accordance to the Pension Benefits Standards Regulation, elect to convert all or part of their benefit to a series of payments for a fixed term or to receive a lump sum equal to or of a lesser amount to the commuted value of the benefit.

Payments made to the member subsequent to a payment made under this part will be actuarially reduced to reflect that payment.

Pre-retirement Death Benefits

The pre-retirement death benefits for active and inactive plan members who die, on or after September 30, 2015, are covered in section 69 as follows:

a) if there is no surviving spouse or a valid spousal waiver has been filed, the benefit payable to the beneficiary is a payment of the greater of a refund of member's contributions with interest and the full commuted value of the retirement benefit earned to the date of death. If a spousal waiver has been filed, the surviving spouse cannot be designated as beneficiary.

b) if the member has not attained age 55 at the date of death, and there is a surviving spouse and a valid spousal waiver has not been filed, the spouse may elect to receive as a benefit either of the following:

   (i) the greater of a refund of member's contributions with interest and the full commuted value of the retirement benefit earned to the date of death; and

   (ii) an immediate pension that is actuarially equivalent to the full commuted value of the retirement benefit earned to the date of death.

c) if the member has attained age 55 on the date of death, and there is a surviving spouse and a valid spousal waiver has not been filed, then the benefit is an immediate retirement benefit to the spouse that is actuarially equivalent to the full commuted value of the retirement benefit earned to the date of death.

If a member terminated employment under the previous vesting and locking-in rules, left contributions on deposit and dies before taking a benefit from the Plan, the contributory service requirement in place at the time of termination (i.e., 10 years, 5 years or 2 years) is used to determine benefit eligibility.

For periods on and after October 1, 2019, interest credits for member's contribution are based on the average yields of 5-year personal fixed term chartered bank deposit rates, published in the Bank of Canada Review as CANSIM Series V80691336.

Refunds, Vesting and Portability

Under sections 42 (1) (b) and 45, a terminating member is entitled to a deferred retirement benefit equal to the full normal retirement benefit accrued to the date of termination; this may be paid on a reduced basis at an early retirement age depending on the service to termination - see above "Eligibility conditions for pension" section.

Sections 42 (1) (c) and 46 provide for the payment of a lump-sum commuted value in lieu of the deferred retirement benefit, if the member has not attained age 55, subject to the commuted value being payable on a locked-in basis. Under certain limited conditions (small retirement benefits, or small commuted values) the PBSA permits the election of a lump-sum payout, regardless of age, and on a non-locked-in basis.

Section 100 provides that the deferred vested retirement benefit of a terminating member is based on the highest average salary at termination, increased to retirement by the percentage increase granted to retirement benefits for the period between the month of termination and the month the retirement benefit becomes effective[1].

Section 75 (3) (h) provides that the cost of the indexing described above is funded from the Inflation Adjustment Account.

A member who terminated employment under age 60 with less than 2 years of contributory service on or after April 1, 2000, and before September 30, 2015, may receive a refund of their contributions plus interest. For periods on and after October 1, 2019, interest credits are based

[1] For increases prior to December 31, 1980, the increase in the highest average salary is in accordance with changes in the pension index.

on the average yields of 5-year personal fixed term chartered bank deposit rates, published in the Bank of Canada Review as CANSIM Series V80691336.

Cost of Living Benefits (Indexing)

Section 73 sets out how cost of living benefits are to be administered. It provides for increases to retired members on January 1 of each year, with the benefits funded from the Inflation Adjustment Account. The benefit is based on the total amount of indexable benefit being received, including previous cost of living increases, less any portion of the indexable benefit that is a result of voluntary contributions (which are no longer permitted). (The bridge benefit to age 65, payable as part of the regular retirement benefit formula, and the temporary life annuity are subject to indexing increases.)

Indexing granted on and after January 1, 2011 is generally calculated as the lesser of:

a) the percentage change in the average CPI for the 12 months ending October 31 over the highest average CPI for any previous 12 month period ending October 31, and

b) the sustainable indexing rate, which is to be recommended by the actuary during the triennial valuation and is subject to the approval of the board,

provided there are sufficient funds in the Inflation Adjustment Account to meet the cost of the increase.

Indexable benefits will not be reduced in years of deflation. In years immediately following a period of deflation, indexable benefits will only be increased as described above once there is net positive inflation over the period since the indexable benefits were last increased.

Section 73 sets out additional requirements with regards to the cost of living benefit, including:

a) the same uniform percentage increase will be granted in respect of all indexable benefits eligible for adjustment;

b) the increase is prorated if the indexable benefit has not been in payment for at least 12 months;

c) the total capitalized value of all cost of living benefits granted on January 1 must not exceed the amount in the Inflation Adjustment Account on the preceding September 30; and

d) the capitalized value of all cost of living benefits granted annually is transferred from the Inflation Adjustment Account to the Basic Account.

The Fund

Section 75 provides that the Pension Fund is divided into the following four accounts:

a) the **Basic Account**, consisting of all the assets in the fund other than assets in the Inflation Adjustment Account, the Supplemental Benefits Account and the Retirement Annuity Account;

b) the **Inflation Adjustment Account**, consisting of:

   (i) the contributions by each of the members under section 5 (1) (c) or (d);

   (ii) the matching employer contributions under section 6 (1) (c) or (d) less amounts allocated for the administration of group benefit entitlements;

(iii) the net investment income earned on the Inflation Adjustment Account; and

(iv) the income, as determined by the plan administrative agent, that is earned on other fund assets held in the Basic Account in respect of indexable benefits being paid and that is in excess of the investment return anticipated in the most recent actuarial valuation;

less:

(v) amounts transferred to the Basic Account in respect of capitalized cost of living benefits granted under section 73 and 88;

(vi) refunds to plan members in respect of the contributions made to this account under section 5 (1) (c) or (d), or amounts otherwise transferred out of this account in respect of member and employer contributions allocated to this account;

(vii) amounts determined by the plan administrative agent in respect of the portions of commuted value payments or other transfers out of the Plan that are attributable to cost of living adjustments;

(viii) amounts transferred to the Basic Account that are equal to the capitalized value of increases in deferred retirement benefits resulting from increases in highest average salaries under section 100; and

(ix) amounts transferred to the Supplemental Benefits Account, if any, as specified by the board;

(Article 11.2 of the JTA also permits the Board to transfer portions of any actuarial surplus in the Basic Account to the Inflation Adjustment Account.)

c) the **Supplemental Benefits Account**, consisting of assets required for the administration and payment of benefits that are non-registrable under the *Income Tax Act*; and

d) the **Retirement Annuity Account**, that consisted of voluntary contributions made under the previous statutes, and interest earnings thereon. This account no longer holds any funds.

Income Tax Act Limits

The *Income Tax Act* imposes certain limits on the contributions that may be made to, and the benefits that may be paid from, a registered pension plan. However, in total, the contribution requirements from, and the benefit promises to plan members have not been altered under the Plan. To this end, a Supplemental Benefits Account has been created to cover the financing and payment of benefits in excess of those registrable under the *Income Tax Act*.

The excess benefits are paid on a current cash basis, by allocating from the regular employer contributions, the amounts necessary to maintain the Supplemental Benefits Account at a zero balance. Effectively, from a plan member's perspective, it is expected that these procedures will be invisible—the total contribution and benefit obligations remain unchanged. We have ignored the implications of all such internal restructuring in completing the primary, Basic Account valuation. In the plan summary herein, and elsewhere in this valuation report, our references to contributions/benefits to/from the Basic/Inflation Adjustment Accounts are inclusive of the allocations to/from the Supplemental Benefits Account; in general, the allocations to/from the Supplemental Benefits Account have not been referenced.

We have also completed supplementary funding valuations recognizing the income tax limits on pensions. We understand that these limits are applied only in respect of service after 1991. The maximum annual pension permitted (before application of any early retirement reductions, where applicable) is the lesser of:

(i) $3,610.00 (for 2024) multiplied by the years of service; and

(ii) 2 per cent multiplied by the years of service further multiplied by the average of the best 3 years of remuneration paid to the member.

Under the income tax rules, the flat $3,610.00 limit will be automatically indexed each year.

Other Items

1. The College Pension Plan Post Retirement Group Benefit Rules, made under article 12 of the JTA, set out the non-pension (i.e., group) benefits that are provided for retired members. These post-retirement group benefit rules replaced the College Pension Plan Post Retirement Group Benefit Regulation, B.C. Reg. 490/2003, effective June 22, 2012.

   Effective September 1, 2009, the member is responsible for paying 100 per cent of the premium for extended health and dental benefits. Previously, the cost of those benefits was carved out from employer contributions to the Inflation Adjustment Account. This carve out was limited to a maximum of 1 per cent of pensionable salary (out of the total employer Inflation Adjustment Account contribution at that time of 1.09 per cent).

   Effective April 1, 2004, the member was responsible for paying 100 per cent of the premiums for coverage under the Medical Services Plan ("MSP"). The provincial government eliminated MSP premiums effective January 1, 2020.

2. Article 3.2 of the JTA provides that all expenses incurred in the administration of the Plan are to be paid from the fund.

3. A maximum of five years taken to raise a child may be recognized in establishing eligibility for a retirement benefit provided the member has a record of pensionable service immediately before and after the child-rearing period(s). [Section 13]

4. Section 57 enables an employer to request the plan administrative agent to adopt a Special Retirement Incentive Plan (“SRIP”), whereby the age and service conditions, or the early retirement percentage reductions, or both, may be adjusted. Where the plan administrative agent agrees, the administrative agent must also determine the members eligible for the SRIP, the period it remains open, the conditions applicable to the incentives, the additional costs to the employer, and the timing of these payments to fund the SRIP.

5. In 1999, the definitions of, and references to, approved and reciprocal employers were removed from the Plan by Bill 18 (1997), to comply with *Income Tax Act* requirements. In general, these provisions allowed for portability among various plans (mostly the four public sector plans in B.C.), whereby service and salaries were commonly recognized in all of the plans. The arrangements for the four public sector plans in B.C. were replaced by a transfer of reserve agreement, whereby the plan member could elect to have a reserve transferred and then be covered for full service by the rules of the importing plan. The College Pension Plan withdrew from the Interplan Pension Transfer Agreement effective October 31, 2002, and negotiated three separate "bilateral" agreements with the Municipal, Public Service and

Teachers' Pension Plans. On April 1, 2004, these "bilateral" service transfer agreements with the Municipal, Public Service and Teachers' Pension Plans were replaced with the Public Sector Transfer Agreement.

Effective April 1, 2010, reciprocal transfers between the College, Municipal, Public Service and Teachers' Pension Plans are made exclusively under the National Public Service Pension Transfer Agreement (NTA). Under the NTA, as with the Public Sector Transfer Agreement (and the previous bilateral agreements), if the importing plan's benefits are more generous, the transferred service is pro-rated based on each plan's benefits. Members may pay for any shortfall, subject to CRA approval, within deadlines set by the plans. Members can also choose to leave their entitlements with their respective plans and apply for the appropriate benefits available from each plan at termination and/or retirement.

Appendix B. Membership Data

1. Data received from BC Pension Corporation

Data as of August 31, 2024 were prepared by the BC Pension Corporation and the membership counts received are as follows:

	Pension Corp. Data
Active Members	17,692
Long Term Disability	311
Terminated Vested	8,548
Leave of absence	5
Limited Data	5
Pensioners	11,293
Total Membership	**37,854**

The data also included 5,288 active member terminations and 581 pensioner terminations during the period September 1, 2021 to August 31, 2024. The Pension Corporation advised us that the data supplied are generally proper, complete and in accordance with specifications, unless otherwise noted.

2. Data Validation

Where possible, we compared totals with corresponding details in the Plan's audited Annual Reports. We also subjected the data to a number of tests of reasonableness and consistency, including the following:

- A member's (and partner's as applicable) age is within a reasonable range;
- A member's date of birth did not change;
- A member joined the plan or commenced pension at a reasonable age;
- Accrued service increased by a reasonable amount (e.g. no more than 36 months since the last valuation and no more than 12 months in the valuation year);
- The salary level and the salary increase from the previous valuation was within a reasonable range;
- Pensions in pay increased by a reasonable amount (e.g. in line with the indexation since the last valuation); and
- We examined the additions to and deletions from each of the data files (i.e., the files for active employees, pensioners and terminated members) since the previous valuation to determine whether all Plan members were accounted for in this valuation, to check for duplicate records and to confirm pension amounts.

There were a number of discrepancies recorded during our examination of the data and we sought clarification of these from the Pension Corporation. Where necessary, we modified the data, our assumptions, or both, to compensate for these discrepancies.

3. Treatment of Member Data

Active Members

The active member data includes a number of individuals who work less than full time. For the purposes of calculating liabilities and normal actuarial costs, we treated all members as if they were full-time employees after the valuation date; however, in calculating any amortization costs as a percentage of total future payrolls, we reduced the total payroll base by 12% to reflect the part-time employment, based on an analysis of payroll data (an adjustment of 10% was applied at the previous valuation).

The active member data included 2,358 members for whom we were not provided salary data for the year before the valuation date. For these members, we set their salaries equal to the average salaries for active members of the same age and gender.

The salary details provided appeared inappropriate for a further 36 active members. We assumed that the 34 members with very low earnings would earn the BC minimum wage. For 2 members we were provided with very high salaries, which we understand is a result of annualizing a figure based on a very short period of pensionable service in the year before the valuation date. We replaced these inappropriately high salaries with the members' earnings in the prior year, based on additional information received from Pension Corporation.

The active member data also included 414 members whose most recent contribution to the plan was before September 2019; i.e. more than 5 years before the valuation date. We have included these individuals as active members in the membership count, but valued their liabilities assuming they terminated service immediately after the valuation date.

In the previous valuation, we made a number of additional adjustments to the data we received for the 2,986 active members who had no salary or service reported for the year ending August 31, 2021, or with a last-contribution-date prior to August 2021. We excluded them from the active member base, and included them with the inactive data as follows:

- We treated members who had at least 3 years of service, and a basic employee contributions with interest balance of at least $1,500, as if they would be reactivated on August 31, 2021 (we set their salaries equal to the average salaries for active members of the same age and gender);
- We treated members who had a salary history in the last five years as if they were deferred vested members; and
- We held a liability equal to twice the basic employee contributions with interest balance for the remaining members.

Based on the nature of the College Plan's membership and the high percentage of these members who have returned to active membership in recent valuations, we have simplified the approach for this valuation as described above, to assume all remain active, with a portion terminating immediately after the valuation date. The impact of this change is to increase both the liabilities and the assets in respect of future contributions.

Leaves of Absence

We calculated the liability for 5 members on a leave of absence on the assumption that these members became active members again immediately after the valuation date.

Members on Long-Term Disability

The liability for the 311 members on long-term disability was calculated as if these individuals would ultimately collect deferred vested pensions starting at age 64 (unchanged from the previous valuation), with deferred pensions on the basis of service projected to retirement date and the actual salaries indexed to the valuation date. For the 6 members missing actual salaries, we used the average salaries for active members of the same age and gender.

In the previous valuation, there were 8 members on long-term disability who had missing, invalid or inconsistent detail (mostly missing salaries), and we held a liability for these members of twice their basic employee contributions with interest balance. There were no members missing such details (other than salaries) in this valuation.

Terminated Members

For 346 terminated members whose accrued pension was equal to zero, we included a liability equal to twice their basic employee contributions with interest balance. The same approach was used in the previous valuation.

Members with Limited Data

With respect to the 5 remaining non-retired members with limited data, we held a liability equal to twice their basic employee contributions with interest balance. The same approach was used in the previous valuation.

Pensioners

Of the total pensioner data, there were 5 members excluded from the valuation because they died prior to the valuation date with no outstanding guaranteed pensions due or they were in receipt of a remaining guarantee only which rounded to zero months remaining, and hence their liability is zero.

Appendix C. Active Member Data as at August 31, 2024

Age group[1]		Active members August 31, 2024			New entrants Sept. 1, 2019 to Aug. 31, 2024 and still active Aug. 31, 2024	
	Number	Average annualized earnings valued $	Average Pre 2016 service (years)	Average Post 2015 service (years)	Number	Average annualized earnings valued $
Males						
19-24	26	47,750	-	0.1	59	64,233
25-29	136	75,527	-	0.8	259	84,684
30-34	488	92,727	-	1.3	495	97,026
35-39	804	101,611	0.1	2.4	541	101,140
40-44	1,076	108,647	0.4	3.3	432	102,871
45-49	1,134	113,727	1.3	4.0	328	107,412
50-54	1,196	118,937	2.5	4.7	304	109,746
55-59	1,160	119,088	4.2	5.1	206	109,089
60-64	950	123,044	5.5	5.2	111	116,047
65 & over	615	125,998	5.9	5.2	36	111,727
Total males	**7,585**	**113,263**	**2.5**	**4.0**	**2,771**	**101,363**
Females						
19-24	25	59,128	-	0.4	85	71,239
25-29	280	79,835	-	0.8	503	87,187
30-34	836	90,959	0.0	1.4	844	93,188
35-39	1,329	98,179	0.1	2.4	806	96,103
40-44	1,585	103,107	0.6	3.1	656	100,162
45-49	1,576	108,512	1.4	4.0	518	103,462
50-54	1,578	111,830	2.6	4.5	401	102,806
55-59	1,377	114,425	4.2	5.0	253	105,512
60-64	1,019	116,563	5.1	5.3	98	110,170
65 & over	507	117,743	5.8	5.0	25	108,496
Total females	**10,112**	**106,536**	**2.1**	**3.7**	**4,189**	**97,099**
Total males & females	**17,697**	**109,419**	**2.3**	**3.9**	**6,960**	**98,797**

The average age of the 17,697 active members is 48.6.

The table below shows a comparison of the August 31, 2024 active membership with the August 31, 2021 active membership, both based on the active data treatment changes made for this valuation (and as if they had applied for the 2021 valuation), along with the active membership valued as of 2021.

[1] Age nearest birthday at August 31, 2024 for actives and at entry for new entrants.

Active membership	Aug. 31, 2021	Aug. 31, 2021 (2024 data treatment)	Aug. 31, 2024	Change 2021 to 2024 (2024 data treatment)
Males				
Number	6,006	7,258	7,585	4.5%
Proportion of total	44.6%	44.1%	42.9%	-1.2%
Average age (at Aug. 31)	50.3	50.0	49.7	- 0.3 years
Average service	7.3	6.2	6.5	+ 0.3 years
Average salary	99,879	98,999	113,263	14.4%
Females				
Number	7,446	9,183	10,112	10.1%
Proportion of total	55.4%	55.9%	57.1%	1.2%
Average age (at Aug. 31)	48.5	48.2	47.8	- 0.4 years
Average service	6.8	5.7	5.8	+ 0.1 years
Average salary	93,731	93,185	106,536	14.3%

The above comparison shows an increase in the number of both the male and female membership during the 3 year inter-valuation period. This is in addition to the increase attributable to the change in treatment of data for active members who did not make a contribution to the Plan in the month before the valuation date, as described in Appendix B. The proportion of males to females has decreased. The average age has decreased slightly and the average service has increased slightly for both male and females. The increase in average salary is comparable for both males and females. These age and service comparisons do not materially change if we compare the active membership valued for the previous valuation against those valued for this valuation. There is an overall reduction in the average service as a result of the amended data treatment for both males and females, but this alone has a limited impact on the entry age normal cost given the plan provisions for unreduced and reduced retirement (i.e. a requirement for 35 years of contributory service for an unreduced pension.)

In calculating the entry age normal cost we assume that future new entrants will join the plan at ages and with salaries that are the same as recent new entrants (defined for this plan as members who joined the plan in the last five years). For this purpose SFU members have only been included in the new entrant profile based on their original hire date by SFU and not based on the date they joined the College Plan. This ensures that the entry age normal cost is not inappropriately increased by treating long serving SFU members as new entrants.

A comparison of the new entrant subset used at August 31, 2024 with that used at August 31, 2021 in determining the entry-age normal costs is included in the table below, again based on the active data treatment changes made for this valuation (and as if they had applied for the 2021 valuation), along with the active new entrant profile valued as of 2021.

New entrants	Aug. 31, 2021	Aug. 31, 2021 (2024 data treatment)	Aug. 31, 2024	Change 2021 to 2024 (2024 data treatment)
Males				
Number	2,071	2,739	2,771	1.2%
Proportion of total	42.2%	42.2%	39.8%	-2.4%
Average age at entry	41.5	41.6	41.7	+ 0.1 years
Average salary	88,141	88,749	101,363	14.2%
Females				
Number	2,838	3,747	4,189	11.8%
Proportion of total	57.8%	57.8%	60.2%	2.4%
Average age at entry	40.4	40.4	40.3	- 0.1 years
Average salary	83,987	84,766	97,099	14.5%

The number of new entrants has increased for both males and females, with a more significant increase for females than for males. The proportion of males to females has therefore decreased. The average age of new entrants has increased slightly for males and decreased slightly for females. The increase in average salary for new entrants is very similar to the increase in average salary for the actives for both males and females. These age, service and salary comparisons do not materially change if we compare the new entrant subset valued for the previous valuation against those valued for this valuation.

Appendix D: Inactive Member Data as at August 31, 2024

1. Members on Long-Term Disability

Age group[1]	Males				Females			
	Number	Average annual earnings ($)	Average Pre 2016 service (years)	Average Post 2015 service (years)	Number	Average annual earnings ($)	Average Pre 2016 service (years)	Average post 2015 service (years)
below 40	4	92,069	0.1	4.3	12	90,548	0.6	3.8
40-44	5	102,706	-	3.9	17	92,734	1.2	6.0
45-49	7	114,096	6.1	7.6	22	106,852	3.2	6.4
50-54	7	116,207	6.7	7.8	57	106,825	4.7	6.9
55-59	18	109,837	7.4	8.0	66	105,824	6.7	7.2
60 & over	35	106,827	10.2	7.9	61	104,558	11.4	7.8
Total	**76**	**108,025**	**7.6**	**7.4**	**235**	**104,107**	**6.4**	**7.0**

	Number	Average age	Average annual earnings	Average service
Total males & females	311	54.6	105,065	13.7 years

	Number	Average age	Average pensionable service	Average salary	Expected average remaining service life
Active and LTD Combined	**18,008**	**48.7**	**6.3**	**109,344**	**8.8**

[1] Age nearest birthday at August 31, 2024.

2. Terminated Members Assumed Electing Vested Pensions

Age group[1]	Males			Females		
	Average annual vested pensions			Average annual vested pensions		
	Number	Initial[2]($)	Offset at age 65($)	Number	Initial[2]($)	Offset at age 65($)
20-29	62	283	-	73	578	-
30-34	123	661	-	189	965	-
35-39	265	1,284	1	438	1,335	4
40-44	360	1,796	8	627	1,817	14
45-49	499	2,279	32	730	2,320	39
50-54	538	2,850	70	740	3,517	76
55-59	565	2,585	81	747	3,322	81
60 & over	1,146	2,402	63	1,100	2,065	50
Total	**3,558**	**2,240**	**49**	**4,644**	**2,368**	**45**

	Number	Average age	Average annual vested pension - Initial	Average annual vested pension - Offset at age 65
Total males & females	**8,202**	**52.2**	**2,313**	**47**

3. Remaining Inactive Members

	Number	Total Member contributions with interest
Value at 2 x contribution with interest	351	$18,124

[1] Age nearest birthday at August 31, 2024.

[2] These pensions are assumed to commence at age 60 (or immediately if over age 60) for members with more than two years of pensionable service and age 65 for members with less than 2 years of pensionable service.

Appendix E. Pensioner Data as at August 31, 2024

1. Former Contributors

Age group[1]	Number of pensioners[2]	Annual Pensions ($000's)[3]				
		Single life	Joint life & survivor	Joint life & survivor with guarantee	Single life with guarantee	Temporary life
Male pensioners						
Less than 60	111	-	-	1,229	404	370
60-64	454	462	476	6,493	2,547	1,716
65-69	945	1,929	2,850	13,610	4,792	225
70-74	1,247	5,568	7,290	13,768	5,465	-
75-79	1,075	8,328	11,407	7,992	2,636	-
80-84	738	7,740	11,717	1,698	594	-
85-89	242	3,058	3,357	2	16	-
90 & over	119	1,557	798	-	-	-
Total	**4,931**	**28,642**	**37,895**	**44,792**	**16,454**	**2,311**
Female pensioners						
Less than 55	4	-	-	-	37	-
55-59	171	18	-	1,658	1,119	512
60-64	688	817	592	6,859	5,689	2,490
65-69	1,341	6,227	2,584	11,534	10,952	373
70-74	1,514	13,674	5,840	8,967	8,223	-
75-79	1,104	17,411	6,081	2,892	3,708	-
80-84	489	9,453	2,720	269	154	-
85-89	154	2,849	255	-	-	-
90 & over	87	1,344	6	-	-	-
Total	**5,552**	**51,793**	**18,078**	**32,179**	**29,882**	**3,375**
Grand Total	**10,483**	**80,435**	**55,973**	**76,971**	**46,336**	**5,686**

Supplemental pensions included in the above amounts are as follows:

Supplemental Pensions included	**329**	**317**	**471**	**119**	**-**

Average age of the 10,483 pensioners is 72.6.

[1] Age nearest birthday at August 31, 2024.

[2] These numbers include only those who were formerly contributors to the plan as well as pre-retirement limited members (i.e. divorced spouses with a pension interest). Member in the 65-69 group are either over age 64.5 and round up to this group, or are limited members where the temporary bridge benefit ceases at the date the original member reaches age 65 and, as a result, it is possible to have a bridge pension payable past the recipient reaching age 65.

[3] Including supplements to January 1, 2024.

2. Beneficiaries

Age group[1]	Number of beneficiaries[2]	Annual Pensions ($000's)[3]	
		Single life	Single life with guarantee
Male beneficiaries			
Less than 55	4	39	6
55-59	3	2	42
60-64	12	48	100
65-69	17	260	119
70-74	30	325	190
75-79	37	737	251
80-84	22	538	-
85-89	13	188	-
90 & over	6	42	
Total	**144**	**2,179**	**708**
Female beneficiaries			
Less than 50	5	7	64
50-54	11	38	115
55-59	15	31	239
60-64	38	328	374
65-69	63	598	481
70-74	102	1,369	765
75-79	123	2,676	548
80-84	125	2,689	119
85-89	75	1,652	-
90 & over	70	948	-
Total	**627**	**10,336**	**2,705**
Remaining guarantees	**34**		**828**
Grand Total	**805**	**12,515**	**4,241**

Supplemental pensions included in the above amounts are as follows:

Supplemental Pensions included	**99**	**-**

Average age of the 771 beneficiaries (excluding those in receipt of remaining guarantees) is 76.7.

	Number	Average age	Average annual life pension
Total Pensioners & Beneficiaries	11,254	72.9	$24,493

[1] Age nearest birthday at August 31, 2024.
[2] These numbers include spouses (or estates) currently receiving benefits where the former contributor is deceased.
[3] Including supplements to January 1, 2024.

Appendix F. Plan Assets

1. Asset allocation

The fund's annual reports record assets on a market value basis. We relied on these annual reports for the asset values used for the years ending August 31, 2021 to August 31, 2024.

Following the August 31, 2018 valuation a Rate Stabilization Account (RSA) was established notionally as part of the Basic Account. Interest is applied to the RSA based on the smoothed one-year fund return. The RSA is excluded from the Funding and Sustainable Indexing valuations. It can be drawn down as needed to stabilize the Basic contribution rate.

The actual asset allocations for the Basic Account and IAA at August 31, 2024, as well as the long-term asset mix set out in the Plan's Statement of Investment Policies and Procedures are summarized in the table below.

Asset Class	Actual Assets ($m)	Actual Asset Mix (%)	Long-term Asset Mix (%)
Short Term	131.9	1.6%	2%
Government Bonds	1,908.7	24.0%	18%
Corporate Bonds			7%
Private Debt	465.8	5.9%	7%
Mortgages	308.2	3.9%	5%
Total Fixed Income	**2,164.9**	**35.4%**	**39%**
Canadian Equities	245.0	3.1%	3%
Global Equities	1,791.6	22.6%	15%
Emerging Markets	484.4	6.1%	5%
Private Equity	1,100.7	13.9%	16%
Total Equity	**3,621.7**	**45.7%**	**39%**
Real Estate	1,222.4	15.4%	17%
Infrastructure and Renewable Resources	930.5	11.7%	15%
Total Real Assets	**2,152.9**	**27.1%**	**32%**
Leverage[1]	(649.7)	(8.2%)	(10%)
Total Portfolio	**7,939.5**	**100%**	**100%**
Receivables and directly held derivatives	31.2		
Payables and directly held derivatives	(25.7)		
Total Market Value	**7,945.0**		

[1] At August 31, 2024, leverage consisted of bond repurchase agreements. Net of leverage, the bond allocation at that date was $1,259.0m (15.8%). This compares to the long-term asset mix for bonds net of leverage of 15%.

2. Asset smoothing

As in the previous valuation we applied a five year smoothing technique to these assets. We believe a smoothing approach is appropriate as it cushions the actuarial valuation results against dramatic swings in market value that can occur.

To obtain the unconstrained smoothed value, we first determine the actual return on the basis of market values during the year (taking into account the timing of non-investment related cashflows, i.e. the net contributions minus benefits and non-investment expenses). We then determine an assumed return for the year at a rate equal to the assumed underlying real return rate plus the year-over-year change in the consumer price index. The difference between these two returns is then spread over a five year period, recognizing one-fifth of it in each of the current and four succeeding years. This approach effectively spreads the difference between (a) the total investment return (including both realized and unrealized capital changes) and (b) a hypothetical return based on a long-term real return rate, over a five year period.

Effective September 1, 2024, we will use an assumed return for the year equal to the nominal investment return assumption. The method is being changed to reduce the potential volatility in the smoothing that can arise as CPI fluctuates.

a) Funding Valuation Assets

For the Funding Valuation, the smoothed value of assets is then restricted to a range of 92% to 108% of market value, if necessary (the same range was applied in the previous valuation). This means that in periods of significant market decline (growth) the smoothed value does not become too large (low) relative to the market value - effectively the constraint accelerates recognition of very poor (strong) market returns and allows the contribution rate to more appropriately reflect the actual returns earned by the plan. This lower constraint of 92% applied as at August 31, 2021.

The application of this approach to the total fund yields the following results:

Total Fund Smoothing

Target Return	2021	2022	2023	2024
1. Aug-over-Aug increase in CPI	4.1%	7.0%	4.0%	2.0%
2. Base return = (1) + 3.5%	7.6%	10.5%	7.5%	5.5%
Year-end asset values – $ millions				
3. Market value	6,695.8	6,607.9	7,153.7	7,945.0
4. Smoothed value	6,160.1	6,864.1	7,376.2	7,859.2
5. Ratio of (4) ÷ (3)	0.920	1.039	1.031	0.989
Annual Returns				
6. Market value	16.8%	-2.0%	7.9%	10.7%
7. Smoothed value	13.3%	10.6%	7.1%	6.2%

The annualized market value rate of return since the previous valuation is 5.4%.

Using the relationship between the market and adjusted values shown in line 5 above, and applying this relationship to the market values of the Basic Account and Inflation Adjustment Account balances as reported in the annual reports, we get:

Year-end asset values – $ millions

Basic Account (including RSA)	2021	2022	2023	2024
1. Market value	5,340.8	5,130.3	5,674.9	6,347.5
2. Smoothed value	4,912.9	5,329.2	5,851.5	6,278.9
3. Ratio of (2) ÷ (1)	0.920	1.039	1.031	0.989
Inflation Adjustment Account				
4. Market value	1,355.0	1,477.6	1,478.8	1,597.5
5. Smoothed value	1,247.2	1,534.9	1,524.8	1,580.3
6. Ratio of (5) ÷ (4)	0.920	1.039	1.031	0.989
RSA				
7. Market Value and Smoothed Value	145.7	272.8	292.2	310.4
Basic Account excluding RSA				
8. Market value	5,195.1	4,857.5	5,382.7	6,037.0
9. Smoothed value	4,767.2	5,056.4	5,559.2	5,968.5

The Basic Account market value includes contributions receivable of $7.9 million.

b) Sustainable Indexing Valuation Assets

As mentioned previously, a primary reason for using a sustainable indexing approach is to improve intergenerational equity. Intergenerational equity would be best served by using best estimate assumptions (as we are doing) and not smoothing the assets. However, an important secondary objective is to attempt to stabilise the indexing target over time. This secondary objective is aided by smoothing the assets. In discussion with the Board, it was concluded that using a best estimate basis together with a low smoothing limit would provide a suitable balance between these two objectives. Accordingly, in our assessment we have used the five year smoothed value of assets, restricted to a range of 95% to 105% of the market value of assets. This lower constraint applied as at August 31, 2021 where the smoothed assets for the sustainable indexing purposes were capped at 95% of market value.

Sustainable indexing asset values – $ millions

Total assets (including RSA)	2021	2022	2023	2024
1. Market value	6,695.8	6,607.9	7,153.7	7,945.0
2. Smoothed value	6,361.0	6,864.1	7,376.3	7,859.2
3. Ratio of (5) ÷ (4)	0.950	1.039	1.031	0.989
RSA				
4. Market Value and Smoothed Value	145.7	272.8	292.2	310.4
Total assets excluding RSA				
5. Market value	6,550.1	6,335.1	6,861.5	7,634.7
6. Smoothed value	6,215.3	6,591.3	7,084.1	7,548.8

Appendix G. Actuarial Methods

The actuarial methods we have used are described below; these are substantially the same as those used for the previous valuation.

1. Funding Valuation

The plan has been valued on a going concern basis, which assumes that the plan will continue to operate indefinitely. The basis is used to estimate the funded position of the Plan, and to determine the contributions required to be made to the Plan's fund.

As required by the funding policy, we have used an Entry Age Normal actuarial cost method. Under this approach, the actuarial liabilities are calculated as follows:

- The liability for current pensioners, deferred vested and active members was calculated by projecting the benefit payments to be made to those persons and to their eligible spouses using the actuarial assumptions described in Appendix H and then discounting those projected payments to the valuation date at the investment return assumption. For active members, the projected payments include allowance for pensionable service accrued after the valuation date.

- The liability for members currently receiving benefits from a long-term disability plan was calculated as if they would continue to earn service credits and ultimately receive a pension from the Plan.

- The liability for the remaining inactive members was calculated as twice their accumulated refund values.

The required contribution rate is calculated over the working life of new entrants to the Plan (expressed as a level % of salaries), based on the data for those members who joined the plan in the last five years prior to the valuation date[1]. This rate is referred to in the JTA and throughout this report as the entry age normal cost of the Plan, or EANC.

The valuation assets consist of:

(i) The assets held in the Basic Account, calculated on a smoothed basis as described in Appendix F and net of the RSA; and

(ii) The present value of future contributions at the entry-age normal cost rates (with the first year's contributions at the current rate), for the closed active group, for the basic non-indexed benefits.

(iii) The present value of any existing amortization requirements established at previous valuations.

2. Indexing Treatment

Under the Plan terms, future cost-of-living adjustments to pensions in pay and to deferred pensions are not guaranteed, but are granted at the discretion of the Board, subject to the

[1] For this purpose, SFU members are included as new entrants based on their date of hire by SFU, not based on their date of joining the plan. This is to ensure that the new entrant profile is representative of what we expect for future new entrants and not distorted by a large group of joining the plan mid-career.

availability of funds in the IAA. Accordingly, we do not include any provision for future indexing in the Funding Valuation.

When cost of living increases are granted to pensions in pay, the capitalized value of the indexing granted is transferred from the IAA to Basic Account, and the increase becomes part of each member's guaranteed Basic benefit. The granting of any indexing should not create (or increase) a Basic account unfunded liability, or reduce a Basic account actuarial surplus. All indexing granted to pensions in pay up to the valuation date is included in the Funding Valuation.

Although future indexing is excluded from the Funding Valuation, we show in Appendix I supplementary results on the assumption that the assets of, and future contributions to, the Basic Account and the IAA are combined, with benefits to be fully indexed and funded in advance, as for basic benefits.

For members who have terminated employment, we were supplied with deferred pension amounts both including and excluding indexing during the deferred period to date. We understand that transfers from the Inflation Adjustment Account to finance this indexing do not occur until retirement (theoretically, such transfers should be made on an annual basis as the indexing occurs, so as to reduce the inter-generational transfer of the costs of such indexing). We have therefore used the deferred pension amounts without indexing so that the Basic Account liability is aligned with the allocation of assets between the Basic and IAA accounts. The indexing of salaries before retirement in the case of members on long-term disability is, on the other hand, a charge to the Basic Account rather than to the Inflation Adjustment Account. Accordingly, in valuing the deferred pensions for those currently on long-term disability, we have made an allowance for this by applying an escalation assumption at the full underlying inflation assumption of 2.50% per annum during the deferral period to retirement.

3. Sustainable Indexing Valuation

The key result from the sustainable indexing valuation is the sustainable level of indexing, given the contributions that have been committed to the Plan; this is different from the Funding Valuation, which excludes the value of future indexing and is used to determine the contribution requirements.

As for the Funding Valuation, the sustainable indexing valuation is based on the entry age normal actuarial cost method. We start by calculating the long-term contribution rate that is required to fund the benefits (including indexing at the target rate) over the lifetime of a typical new entrant, assuming the Plan has neither a surplus nor an unfunded liability.

Next, we need to calculate how this long-term contribution rate should be adjusted to reflect the funded position of the Plan. The assets, consisting of the current funds net of the RSA plus the value of future contributions at this entry age rate, are compared to the liabilities (including the provision for indexing at the target rate). Subtracting the liabilities from the assets gives rise to a surplus or unfunded liability. We amortize this surplus or unfunded liability (in certain cases, adjusted as described below) over an infinite period to obtain the level long-term contribution that is required to support indexing at the target level.

For the target level of indexing to be sustainable, this long-term contribution requirement must not exceed the long-term contributions that are committed to be paid into the plan, while from an intergenerational equity perspective, we require the long-term commitment and long term requirement to be equal.

The calculation of the long-term contribution commitment can be complicated when the members and employers are paying amortization amounts into the plan for a temporary period. We therefore defined the long-term contribution commitment as the normal cost of the current Basic benefits, plus the fixed IAA contributions. Effectively, these are the amounts that the members and employers can expect to pay in the absence of any unfunded liabilities or surplus.

Any Funding Valuation amortization requirements are excluded from the long-term contribution commitment, as these amounts are only payable for a limited period of time. Instead, the effect of these amortization amounts, if any, is allowed for by including their present value as an adjustment to the unfunded liability; the unfunded liability calculated in the Sustainable Indexing Valuation is thus reduced by the present value of any Funding Valuation required amortization amounts.

4. Income Tax Act Maximum Pension Rule

As noted earlier, we have not applied the maximum pension rules in the Funding Valuation. We have applied them, as described below, when doing the supplementary valuations with benefits limited to the *ITA* maximums.

The maximum annual pension currently permitted under the income tax rules is the lesser of:

(i) $3,610.00 in 2024 ($3,756.67 in 2025) multiplied by the years of service; and

(ii) 2% multiplied by the years of service further multiplied by the average of the best 3 years of remuneration paid to the member.

While the Plan applies the ITA limits only in respect of service after 1991, we have, for ease of calculation, assumed that this limit applies on all service; this assumption does not affect the future normal costs, but the accrued liabilities will be slightly understated.

For an individual in this Plan to be currently affected by the $3,610.00 maximum the final average salary must be very high. While current salaries are not such as to cause many problems, the salaries projected in the future through application of the assumed salary increase rates outlined above are such that some individuals would be limited. However, under the income tax rules, the flat $3,756.67 limit is automatically indexed each year after 2025 in accordance with increases in the average wage. Accordingly, we have applied a 3.25% per annum increase to the $3,756.67 limit after 2025. (At the previous valuation, the corresponding dollar limit was $3,245.56 for 2021, $3,420.00 for 2022, and was scheduled to be automatically indexed each year after 2022 in accordance with increases in the average wage; an increase rate of 3.25% was applied after 2022 to the $3,420.00 limit at the previous valuation.)

As with the previous valuation, in the tax-limited results, we valued the deferred vested pensions not yet in pay, in full, as provided to us, i.e. we were unable to carve out any "excess" portions. Supplemental pensions in pay were carved out.

Appendix H. Actuarial Assumptions

The most significant actuarial assumptions are summarized below. The assumptions used for the previous valuation, if different, are shown in brackets. Further details of the assumptions and the underlying rationale are set out in the remainder of this appendix.

	Funding Valuation	Sustainable Indexing Valuation
Investment Return	6.00% per annum	6.25% per annum
CPI Increases	2.50% per annum	2.25% per annum
General Salary Increases	3.25% per annum	3.00% per annum
Seniority Salary Increases	Annual percentages varying by age and sex	Same as funding valuation
YMPE increases	3.25% per annum	3.00% per annum
Mortality pre-retirement	No allowance	Same as funding valuation
Mortality post-retirement		
- Base tables	Below age 80: 70% for males and 60% for females of the rates in the 2014 Public Sector Mortality Table (CPM2014Publ) Age 80+: 100% for males and 90% for females of CPM2014Publ	Same as funding valuation
- Improvements	CPM-B improvement scale	Same as funding valuation
- Reserve for uncertainty in improvements	$150 million added to liabilities and 0.3% of salaries added to EANC *(2021: no allowance)*	$280 million added to liabilities and 0.55% of salaries added to EANC for funding valuation *(2021: no allowance)*
Withdrawal	Annual percentages varying by age and sex	Same as funding valuation
Disability	Annual percentages varying by age and sex	Same as funding valuation
Retirement		
- From active service	Annual percentages varying by age and sex *(minor changes made to rates used for 2021 valuation)*	Same as funding valuation
- From LTD	Age 64	Same as funding valuation

	Funding Valuation	Sustainable Indexing Valuation
- From inactive status	Age 60 *(2021: age 60 for inactive members at the valuation date; age 55 for members terminating service after the valuation date)*	Same as funding valuation
Active Population	No future growth or decline	Same as funding valuation
Expenses	0.55% reserve added to liabilities, 0.55% of payroll added to EANC and expected future contributions included in asset value	Same as funding valuation
Recognition of Child-Rearing Periods for Pension Eligibility	Contributory service (used for determining pension eligibility but not amount) increased by 2 years for female members	Same as funding valuation

1. Summary of Interrelationships

The annual investment return and general salary increase assumptions, and their underlying economic interrelationships, are summarized below. These assumptions are unchanged from the previous valuation.

Assumptions (%)		2024			2021
		Best Est.	Margin	Valn.	Valn.
1	Nominal Investment Return	6.25	(0.25)	6.00	6.00
2	Real Investment Return	4.00	(0.50)	3.50	3.50
3	**Implied Inflation (1) – (2)**	**2.25**	**0.25**	**2.50**	**2.50**
4	Real Salary Growth	0.50	0.25	0.75	0.75
5	**Nominal Salary Growth (3) + (4)**	**2.75**	**0.50**	**3.25**	**3.25**
	Resulting Net Rates				
6	Pre-retirement			2.75	2.75
7	Post-retirement			6.00	6.00

2. Investment return

We determined the allowance for future investment returns, or discount rate, based on expected long-term capital market returns, standard deviations and correlations for each major asset class noted in Appendix F. These long-term expectations are determined using a stochastic model which projects rates of inflation, bond yields and asset class returns for 5,000 paths over a long-term (30 year) projection horizon. Based on the plan's target asset mix, and assuming annual rebalancing, the simulated going concern discount rate is determined as the annualized median return over the projection horizon.

In setting the Funding Valuation assumptions, it is necessary to reduce the expected returns by a margin, so that the resulting liabilities have a suitable provision for adverse deviations. Following discussions with the Board and taking into account the requirements of the Board's funding policy, we included a margin of 0.25% in the discount rate for the Funding Valuation. As the sustainable indexing target is not guaranteed, and the primary objective of the sustainable indexing approach is to improve intergenerational equity, it is not appropriate to include margins in the sustainable indexing basis.

The following table shows the development of the discount rate assumption:

	Discount Rate
Weighted average return	6.30%
Diversification and rebalancing effect	0.25%
Passive investment management fees	(0.27%)
Active investment management fees	(0.59%)
Value added from active management	0.59%
Rounding	(0.03%)
Best estimate discount rate (used for sustainable indexing valuation)	**6.25%**
Margin for adverse deviation	(0.25%)
Discount return with margin (used for Funding Valuation)	**6.00%**

The same discount rates were used in the 2021 and 2024 valuations (6.00% for the Funding Valuation; 6.25% for the sustainable indexing valuation).

The total investment expense allowance of 0.86% and the allowance for passive investment management fees of 0.27% shown in the table above were derived from estimates provided by BCi. The allowance for additional fees for active management (and our allowance for the value added from active management) is calculated as the difference between these two figures. For the purposes of establishing the discount rates, we have assumed that there will be no added-value returns from employing an active management strategy in excess of the associated additional investment management fees.

3. CPI Increases

We have based our assumed CPI inflation rate on our estimate of future inflation considering the Bank of Canada's inflation control target of 1% to 3% per year and the output of the same stochastic model as was used to determine the discount rate. For the sustainable indexing valuation, we use a best estimate assumption of 2.25% pa. For the Funding Valuation we add a margin for adverse deviations of 0.25%, giving an assumed rate of CPI inflation of 2.50% pa. The same assumptions were used for the 2021 valuation.

4. General Salary Increases

We assumed that the general, or "across the board" rate of future salary increases would be 0.75% above the rate of CPI inflation.

The 2024 valuation data indicates that average annual earnings increased by about 13.3% from mid-2021 to mid-2024 (i.e. about 4.26% per annum), as compared with an expected increase of about 10.1% (i.e. about 3.25% per annum) on the basis of the assumptions used in the 2021 valuation.

The input data salaries provided to us for this valuation were the annualized earnings during fiscal 2024. We took them without further adjustment as being equal to the salary rates on the valuation date (this may slightly understate the actual salary rates at the valuation date). Thereafter, the assumed rates of salary increase are applied annually.

5. Seniority Salary Increases

Individual members are assumed to receive additional salary increases to reflect increasing seniority, recognition of merit and promotion.

We examined the seniority salary scales based on the earnings history of the active members during the 3 year period ended August 31, 2024, compared these with the experience observed and rates used in the previous valuation and concluded no changes to this assumption were warranted.

The annual seniority increases are assumed to reduce with age. Sample seniority increase assumptions at key ages are shown below. The assumptions represent the assumed seniority increase in the next year.

Sample Seniority Earnings Rates

Age	2021 and 2024 valuations	
	Males	Females
25	.036	.026
35	.022	.018
45	.007	.008
55	.002	.004
65	.000	.000

6. YMPE Increase

We assumed that the YMPE under the Canada Pension Plan would increase at the general salary increase rate (Funding Valuation = 3.25% per year, Sustainable Indexing Valuation = 3.00%) from its 2025 level of $71,300. In the previous valuation we assumed that the YMPE would increase at the same rates from its 2022 level of $64,900.

7. Mortality

We examined the mortality experience of the Plan's pensioners over the period September 1, 2015 to August 31, 2024. Actual deaths over the period were broadly in line with the assumptions made for the 2021 valuation, and we continued with the same assumptions for this valuation, namely:

a) The incidence of mortality both prior to and after retirement (other than employees retired on account of disability) was assumed to be in accordance with 70% for males and 60% for

females of the rates in the 2014 Public Sector Mortality Table (CPM2014Publ) for ages below 80, and 100% for males and 90% for females of the rates of CPM2014Publ for ages 80 and above, all projected using CPM Improvement Scale B (CPM-B).

b) For deferred vested pensions, mortality was ignored during the deferral period before retirement.

c) For employees retired on account of disability we used 85% for males and 85% for females of the mortality rates (applicable from April 1, 2020 to March 31, 2021) for similar retirees used for the valuation of the Pension Plan for the Public Service of Canada as at March 31, 2020, projected using CPM Improvement Scale B (CPM-B).

Given the considerable uncertainty in the future trajectory of mortality rates following the COVID-19 pandemic and research recently published by the Canadian Institute of Actuaries that suggests a higher long-term rate of improvement than has been included in the past, we have added a reserve of $150 million in the liabilities and 0.30% of salaries in the entry-age normal cost on the funding basis and $300 million / 0.60% of salaries on the fully indexed basis. The reserves on other bases (e.g. sustainable indexing basis) have been calculating by pro-rating based on the corresponding liabilities and normal costs, and rounding to the nearest $10 million / 0.05% of pay. This is broadly equivalent to the impact of adopting the new Canadian mortality improvement scale recently released by the Canadian Institute of Actuaries.

8. Withdrawal

We examined the rates of withdrawal for reasons other than death, retirement or disability over the period September 1, 2021 to August 31, 2024 and compared this with the experience observed and the rates used for previous valuations. In general, the observed rates are close to those assumed in the previous valuation for both males and females. As a result, we have kept the same withdrawal rates used for the previous valuation. Sample withdrawal rates are shown in the following tables.

A. Withdrawal Rates Applicable in the First 3 Years of Service (These include terminations from disability)

Age at Entry	2021 and 2024 Valuations		
	1st year	2nd year	3rd year
Males			
20	.221	.165	.125
30	.221	.165	.125
40	.221	.165	.125
50	.221	.165	.125
Females			
20	.093	.117	.102
30	.243	.244	.158
40	.214	.147	.117
50	.214	.147	.117

B. Withdrawal Rates Applicable After 3 Years of Service

Attained Age	2021 and 2024 Valuations	
	Males	Females
23	.092	.140
33	.055	.097
43	.038	.041
53	.038	.038

The withdrawal rates we have used do not extend past age 54.

As explained in Appendix B, the 414 active members whose last contribution to the Plan was before September 1, 2019 are assumed to withdraw immediately after the valuation date.

9. Disability

The Plan provides for either the payment of a disability pension from the Plan or, for members receiving long-term disability benefits, the continued accrual of pension benefits. Because of limited experience, and given the similarity of the plans, we have continued to use the experience observed for the B.C. Teachers' Pension Plan to adjust the rates used for the valuation of the Pension Plan for the Public Service of Canada. The rates used for this valuation are 120% for males and 105% for females of the respective rates used for the valuation of the Pension Plan for the Public Service of Canada as at March 31, 2020. This is unchanged from the previous valuation. The most recent valuation of the BC Teachers' Pension Plan used the same disability rates.

Since most members receive continuing disability service credits rather than an immediate pension, we have continued to value the disability cost for active members as a deferred pension (indexed before retirement) with continued accrual of service, rather than as an immediate pension. Based on an examination of recent experience of those now retired who had, prior to retirement, been in receipt of disability service credits, we assumed that the deferred pensions would commence at age 64 (or, immediately, for those older than age 64). The same commencement age was assumed in the 2021 valuation.

Sample disability rates are shown in the following table. No allowance is made for the possibility of an individual recovering from disability prior to retirement.

Sample Disability Rates

Age	2021 and 2024 Valuations	
	Males	Females
25	.0001	.0001
35	.0005	.0009
45	.0017	.0029
55	.0049	.0074

10. Retirement

We examined the 2021-2024 retirement experience of members retiring from active service and compared this with the experience observed in our previous analyses of the retirement rates and with the rates used in the previous valuation. In general, the actual experience show fewer retirements than were indicated on the basis of the rates used in the previous valuation, indicating that members are generally retiring later than assumed. We gave partial recognition to the observed experience by making modest adjustments to the assumed retirement rates below age 65, and kept the assumed retirement rates after age 65 unchanged.

The rates used in this and the previous valuation, are as follows:

Retirement Rates From Active Service

Age	Service	2021 valuation		2024 valuation	
		Males	Males	Males	Females
55-59	at least 10 years, but age plus service add to less than 80	.02	.03	.02	.03
55-59	age plus service add to at least 80	.08	.10	.08	.10
55-59	35	.25	.20	.25	.20
60	10	.20	.30	.18	.25
61	10	.13	.20	.13	.18
62	10	.15	.18	.15	.18
63	10	.14	.20	.12	.20
64	10	.18	.25	.16	.23
65	0	.50	.50	.50	.50
66	0	.50	.50	.50	.50
67	0	.50	.50	.50	.50
68	0	1.00	1.00	1.00	1.00

Even though pensions are available with less than 10 years of service, we have continued to apply the retirement rates before age 65 only to those with 10 or more years of service, on the assumption that those with fewer than 10 years would not retire until at least age 65. Adding an assumption allowing for retirement with less than 10 years based on observed experience would not have a material impact on the results.

We assumed that current deferred vested members and members terminating service in the future will retire at age 60, or immediately if older than 60.

In the previous valuation, we made the same assumption for current deferred vested members, but we assumed that members terminating service in future would subsequently retire at age 55.

11. Proportions of Members Married at Death

Given the pre-retirement death benefit, we value a commuted value on pre-retirement death for all members. As the benefit is the same regardless of marital status, the proportions of members assumed to be married at death are irrelevant.

12. Active Population

We assumed in all the actuarial projections that there would be no future growth or decline in the College population. The same assumption was made in the previous valuation.

13. Payroll for Amortization

The data provided was the annualized salary at the valuation year. We examined the experience of members working part time and assumed that the total payroll is 88% of annualized salary from the valuation data. An adjustment of 90% was used in the previous valuation. The total payroll for amortization purpose was assumed to be $1,480.7 million. This amount is calculated based on the data received, prior to resetting salaries for actives missing salary information as described in Appendix B.

14. Expenses

Administration expenses are paid out of the College fund. These amounts totaled 0.49%, 0.52% and 0.45% of salaries during fiscal 2022, 2023 and 2024 respectively. The projected expenses provided by the Pension Corporation for the next three years anticipated that the administration expenses will continue at a similar rate. We kept the expense provision unchanged from 0.55% of payroll used in the previous valuation, as part of the normal actuarial costs in the determination of the required contribution rates under the entry-age funding method. This provision represents the average projected expenses, expressed as a percentage of projected payroll, over the next valuation period. We also include a provision for the present value of expenses in the statement of actuarial position. The same methodology was used in the previous valuation. Based on the projected payroll of $1,480.7 million, the estimated expenses for fiscal 2024/2025 are $8.1 million.

As before, the investment management fees are excluded from our analysis above and from the expense provision we have made as they are reflected in the long-term investment return assumption.

15. Recognition of Child-Rearing Periods for Pension Eligibility

We continued to assume that this would only affect female members (while males are eligible for this benefit, the take-up rate for males does not justify an assumption that males will utilize it), and that, on average, it would increase the member's contributory service (which is used for determining pension eligibility) by 2 years; there would, of course, be no increase to the member's pensionable service (which is used for determining pension amounts). The impact of this would be to reduce the eligibility requirement for unreduced pensions from 35 years to 33 years, and we assumed that there would be no impact on the eligibility assumptions made for other benefits. The same assumption was made in the previous valuation.

Appendix I. Supplementary Funding Valuation Results

The schedules below set out the results of the supplementary funding valuations described in Section 3, which are carried out to meet disclosure requirements and to demonstrate compliance with the Income Tax Act.

Statement of Actuarial Position as at August 31, 2024 ($ millions)

	Without Tax Limits		With Tax Limits	
	Basic Only	Basic + Indexed	Basic Only	Basic + Indexed
Assets				
Market value of Fund net of RSA	6,037.1	7,634.6	6,037.1	7,634.6
Asset smoothing adjustment	(68.6)	(85.8)	(68.6)	(85.8)
Smoothed value of Fund net of RSA	**5,968.5**	**7,548.8**	**5,968.5**	**7,548.8**
Present values of:				
– SFU amortization contributions	30.3	39.8	30.3	39.8
– Future contributions at entry-age rates	2,452.7	3,372.4	2,417.2	3,324.3
Total Assets	**8,451.5**	**10,961.0**	**8,416.0**	**10,912.9**
Actuarial present values for:				
– active members	4,882.7	6,515.9	4,839.7	6,461.1
– inactive members	289.1	457.8	289.1	457.8
– pensions being paid	3,053.4	3,796.1	3,038.8	3,778.2
– future expenses	80.1	80.1	80.1	80.1
– mortality reserve	150.0	300.0	150.0	300.0
Total Liabilities	**8,455.3**	**11,149.9**	**8,397.7**	**11,077.2**
Surplus (Unfunded Liability)	**(3.8)**	**(188.9)**	**18.3**	**(164.3)**
Accessible Going Concern Excess	**-**	**-**	**-**	**-**
RSA	310.4	310.4	310.4	310.4
Surplus / (Unfunded Liability) including RSA	**306.6**	**121.5**	**328.7**	**146.1**

Current and Required Contribution Rates – August 31, 2024

	Without Tax Limits		With Tax Limits	
	Basic Only (%)	Basic + Indexed (%)	Basic Only (%)	Basic + Indexed (%)
Current contribution rates				
Member[1]	8.39	10.24	8.39	10.24
Employer[1]	8.49	10.34	8.49	10.34
Combined member/employer	**16.88**	**20.58**	**16.88**	**20.58**
Required contribution rates				
Entry age normal cost rate	**16.84**	**23.16**	**16.57**	**22.83**

Accrued Liabilities and Funded Ratio – August 31, 2024

($ millions)	Without Tax Limits		With Tax Limits	
	Basic Only	Basic + Indexed	Basic Only	Basic + Indexed
Assets – smoothed	**6,278.9**	**7,859.2**	**6,278.9**	**7,859.2**
Accrued Liabilities				
– active members	2,326.6	3,090.2	2,310.7	3,070.0
– inactive members	289.1	457.8	289.1	457.8
– pensions being paid	3,053.4	3,796.1	3,038.9	3,778.2
– Mortality reserve	100.0	200.0	100.0	200.0
Total Accrued Liabilities	**5,769.1**	**7,544.1**	**5,738.7**	**7,506.0**
Surplus (Unfunded Actuarial Liability)	**509.8**	**315.1**	**540.2**	**353.2**
Funded Ratio – Fund ÷ Total Accrued Liabilities	**109%**	**104%**	**109%**	**105%**
Assets in RSA	(310.4)	(310.4)	(310.4)	(310.4)
Adjusted surplus (unfunded liability) net of RSA	**199.4**	**4.7**	**229.8**	**42.8**
Normal cost rate (Projected Unit Credit method)	**17.04%**	**23.27%**	**16.69%**	**22.83%**

[1] Non-indexed costs ignore IAA contribution; indexed costs include IAA contributions of 1.85% for both employee and employer.

Accrued Liabilities and Normal Cost Sensitivity Analysis

The table below shows the impact of a one percentage point drop in the investment return assumption on the results of the valuation on an accrued benefits basis (the first column of supplementary results in the table above).

Basic Only without Tax Limits	($ millions)		
	6.00%	5.00%	Increase
Assets – smoothed value	6,278.9	6,278.9	0
Total Accrued Liabilities	5,769.1	6,536.6	767.5
Surplus (Unfunded Actuarial Liability)	509.8	(257.7)	(767.5)
Normal Actuarial Cost	17.04%	20.99%	3.95%

Appendix J. Plausible Adverse Scenarios

The following analysis does not impact the funding requirements of the Plan and is for information purposes only and to meet disclosure requirements. In practice, the Board generally considers additional factors and analysis when monitoring plan risks.

A plausible adverse scenario is considered to be one that will occur in the short term (immediately to one year) with a likelihood of occurring between 1 in 10 and 1 in 20 based on the opinion of the actuary. The purpose of the following scenarios is to illustrate the impact on the Plan's financial position of the following adverse but plausible assumptions relative to the best estimate assumptions selected for the Plan's going concern valuation. The purpose of disclosing these results is to demonstrate the sensitivity of the key valuation results to certain key risk factors affecting the Plan. The results of the scenarios selected are shown in the table below, with a description of each scenario following. Some figures may appear not to add correctly, due to rounding to the nearest $1 million.

	Basic Account Results at August 31, 2024	Plausible Adverse Scenario Results at August 31, 2024		
		Interest Rate Risk	Deterioration of Asset Values	Longevity Risk
Basic Account ($ millions)				
Smoothed Value of Fund	6,279	6,302	6,095	6,279
Less RSA	(310)	(312)	(301)	(310)
PV of SFU member amortization	30	31	30	30
Actuarial present values of future contributions at entry-age rates	2,453	2,721	2,453	2,477
Total Assets	**8,451**	**8,743**	**8,277**	**8,476**
Total Liabilities	**8,455**	**9,028**	**8,455**	**8,574**
Surplus / (unfunded liability)	**(4)**	**(285)**	**(179)**	**(98)**
Funded Ratio: Total Assets ÷ Total Liabilities	100%	97%	98%	99%
Entry-age normal cost rates	**16.84%**	**18.35%**	**16.84%**	**17.01%**
Discount rate	6.00%	5.60%	6.00%	6.00%
Adjusted market value of assets (including RSA)	6,347	6,464	5,644	6,347

Interest Rate Risk

This scenario illustrates the sensitivity of the key Basic Account valuation results to an immediate change in the market interest rates underlying fixed income investments.

In order to assess the impact of a decrease in interest rates of a magnitude consistent with a 1 in 10 likelihood of occurring, we have used the same stochastic model that is used to determine the going concern discount rate (see Appendix B). The stochastic model is based on 5,000 simulations of projected financial variables, including long term yields on fixed income investments and asset class returns. Our long-term best estimates for these variables, and the going concern discount rate are based on the median values over these 5,000 simulations.

To determine the sensitivity to interest rate risk, and the resulting impact on Plan assets and liabilities, we have:

- considered the hypothetical going concern discount rate over the 500 trials where fixed income yields are lowest at the one-year horizon, and
- determined the decrease in median long-term fixed income yields over the 500 trials where fixed income yields are the lowest at the one-year horizon.

As such, under the interest rate risk scenario, the going concern discount rate is decreased by 0.40% to 5.60% as of August 31, 2024.

With respect to the impact on fixed income assets, the scenario results in a decrease in long term yields on fixed income investments of 0.88%.

Based on the estimated duration of the Plan assets, liabilities and the entry age normal cost rate, we have then determined the estimated change to the Plan's key valuation results under the interest rate risk scenario.

Deterioration of Asset Values

This scenario illustrates the sensitivity of the funded status of the Plan to short-term shock which causes a reduction in the market value of assets, with no change to the liabilities of the Plan. This scenario is assumed not to impact the current expectation of the long-term rate of return, and consequently, the going concern discount rate.

In order to assess the impact of a decrease in asset values of a magnitude consistent with a 1 in 10 likelihood of occurring, we have used the same stochastic model that is used to determine the going concern discount rate (see Appendix B). The stochastic model is based on 5,000 simulations of projected financial variables, including long term yields on fixed income investments and asset class returns.

To determine the sensitivity to a deterioration in asset values, based on the Plan's target asset mix, we have:

- determined the decrease in median investment returns over the 500 trials where investment returns are the lowest at the one-year horizon.

As such, under the deterioration of asset values scenario, the actuarial value of assets (smoothed assets) is decreased by 2.93% as of August 31, 2024. Note that market value of assets is assumed to decrease by 11.09%; the use of smoothed assets decreases the immediate effect of the asset shock.

Longevity Risk

This scenario illustrates the sensitivity of the funded status of the Plan to pension plan members living longer than expected. The impact of this scenario was determined by assuming that mortality rates are 90% of those in the mortality table used for the going concern valuation as of August 31, 2024, that is, a more conservative mortality assumption than currently employed.