



# Joint Health Science Benefits Trust

Actuarial Valuation as at December 31, 2022

April 26, 2023

PREPARED BY: Mike Greschner and Kristina Percy

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## Table of Contents

Executive Summary.....	2
Section 1 — Introduction.....	3
Section 2 — Financial Position .....	4
Section 3 — Contribution Sufficiency .....	7
Section 4 — Sensitivity Testing.....	10
Section 5 — Actuarial Opinion.....	11
Appendix A — Plan Provisions .....	12
Appendix B — Claimant and Claims Data.....	15
Appendix C — Assets .....	18
Appendix D — Actuarial Methods .....	20
Appendix E — Actuarial Assumptions.....	22
Appendix F — Detailed Results and Claims Movement.....	29
Appendix G — Data Certificate .....	32

## Executive Summary

### Financial Position

	December 31, 2021	December 31, 2022
	\$000,000s	\$000,000s
Assets	152.3	156.7
Liability	100.5	127.8
Surplus (Deficit)	<b>51.8</b>	<b>28.9</b>
Funded Ratio	<b>151.5%</b>	<b>122.7%</b>

### Contribution Sufficiency

The Trustees have been presented with a draft funding policy that sets out the funding requirements for the Trust. The draft funding policy defines two metrics to be used to assess the funding requirements of the Trust:

1. Funding Ratio ("FR") – this is calculated as the ratio of the actuarial value of assets to the actuarial value of liabilities both as at the valuation date.
2. Net Income Ratio ("NIR") – this is calculated as the ratio of the expected total value of contributions to be received in the year following the valuation date to the expected value of all claims payments, expenses and reserve adjustments expected over the same period.

The draft funding policy calls for the following actions based on the calculated FR and projected NIR:

Metric	Resulting Action
NIR < 90%. FR is not applicable.	Mandatory Benefit Reductions to increase NIR to a minimum of 95%
90% ≤ NIR < 100%. FR is not applicable.	Discretionary Benefit Reductions
100% < NIR ≤ 120%. FR is not applicable.	No action required.
120% < NIR ≤ 130% and FR > 110%	Discretionary Benefit Increases
NIR > 130% and FR > 110%	Mandatory Benefit increases to decrease NIR to a maximum of 125%

The FR as at December 31, 2022 is 122.7% and we have projected the NIR to be 100.4% for the 2023 calendar year. As such, we conclude that contributions for 2023 are sufficient for current benefit levels – contributions plus existing assets are expected to fund outstanding obligations and benefits to be incurred in the following year, leaving the Trust in an acceptable projected financial position at the end of 2023.

## Section 1 – Introduction

### 1.1 Purpose of Actuarial Valuation

We have been retained by the Board of Trustees (the “Trustees”) of the Joint Health Science Benefits Trust (the “Trust”) to conduct an actuarial valuation of the Trust as at December 31, 2022.

This report was prepared for its intended users, the Trustees, for the following purposes:

- to provide a summary of the results of the actuarial valuation of the Trust’s financial position to the Trustees;
- to determine the sufficiency of 2023 contributions for the current level of benefits; and
- to review the financial experience of the Trust in the year ending December 31, 2022.

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The next actuarial valuation for the Trust will be performed as at December 31, 2023.

Note: Totals within this report may not sum due to rounding.

### 1.2 Purpose of Trust

The Trust was implemented effective on April 1, 2017 with negotiated funding from employers and some funding from employees. The Trustees are charged with using the assets to provide health and welfare benefits to members of the Health Science Professionals Bargaining Association (“HSPBA”).

## Section 2 – Financial Position

### 2.1 Financial Position

The following table describes the Trust’s financial positions as at December 31, 2022 and December 31, 2021. The liabilities are based on the costs for claims incurred prior to the valuation date.

Financial Positions	December 31, 2021 \$000,000s	December 31, 2022 \$000,000s
Assets	<b>152.3</b>	<b>156.7</b>
Liabilities		
Admitted LTD <sup>1</sup> claims (reported)	65.7	90.4
LTD (IBNR <sup>1</sup> )	16.1	16.9
Active EHC <sup>1</sup> (IBNR)	2.4	2.3
Active dental (IBNR)	0.7	0.8
Active group life and AD&D <sup>1</sup> (IBNR)	0.1	0.1
EHC for disabled claimants	11.7	13.0
Dental for disabled claimants	1.9	2.3
Group life and AD&D for disabled claimants	1.9	2.1
Total Liability	<b>100.5</b>	<b>127.8</b>
Surplus/(Deficit)	<b>51.8</b>	<b>28.9</b>
Funded Ratio	<b>151.5%</b>	<b>122.7%</b>

The financial position of the Trust has worsened in the year ending December 31, 2022 by \$22.8 million.

<sup>1</sup> Long-Term Disability (“LTD”), Incurred But Not Reported (“IBNR”), Extended Health Care (“EHC”), and Accidental Death & Dismemberment (“AD&D”).

## 2.2 Reconciliation of Financial Position

The following table reconciles the change in the financial position over the course of the inter-valuation period.

<b>Reconciliation of Financial Position</b>	<b>\$000,000s</b>
<b>Financial Position as at December 31, 2021</b>	<b>51.8</b>
1. Contributions different than expected cost	2.2
2. Interest on funded position/amortizations	2.7
3. Investment return different than expected	(17.9)
4. LTD - Existing Claims (Terminations)	(1.5)
5. LTD - Existing Claims (Demographics)	(2.9)
6. LTD - New Claims (New entrants / IBNR)	(6.7)
7. Active EHC/dental/group life/AD&D experience	0.4
8. Disabled EHC/dental/group life/AD&D experience	(1.1)
9. Gain / (Loss) due to Assumption Changes	7.2
10. Gain / (Loss) due to Indexing <sup>2</sup> /CPP <sup>3</sup> updates	(5.2)
<b>Financial Position as at December 31, 2022</b>	<b>28.9</b>

<sup>2</sup> Includes the impact of the 2022 Shared Recovery Mandate.

<sup>3</sup> Canada Pension Plan.

## 2.3 Analysis of Assumption Changes

The preparation of an actuarial valuation requires the actuary to make assumptions about future economic and Trust experience. Changes in the assumptions result in gains or losses.

As noted in Section 2.2, the Trust had a \$7.2 million gain due to assumption changes from the previous valuation. The following table shows the main sources of these gains and losses.

<i>Assumption change gains (losses)</i>	<i>\$000,000s</i>
1. Active Group Life/AD&D IBNR	0.0
2. LTD IBNR	(0.3)
3. Active EHC IBNR	0.6
4. Active Dental IBNR	(0.0)
5. Disabled Non-Income Benefits IBNR	0.0
6. Wage Rate Indexing	(1.2)
7. CPI <sup>4</sup> Indexing	0.0
8. EHC Escalation	0.0
9. Dental Escalation	(0.1)
10. Expenses	(1.7)
11. Termination from Disability	3.7
12. CPP <sup>3</sup> Approval	0.4
13. ICBC <sup>3</sup> Offset	0.0
14. Mortality	0.1
15. Discount Rate	5.7
<b>Total gains (losses)</b>	<b>7.2</b>

<sup>4</sup> Consumer Price Index (“CPI”), Canada Pension Plan (“CPP”), Insurance Corporation of British Columbia (“ICBC”).

## Section 3 – Contribution Sufficiency

### 3.1 Funding Policy

The Trustees have been presented with a draft funding policy that sets out the funding requirements for the Trust. The draft funding policy defines two metrics to be used to assess the funding requirements of the Trust:

1. Funding Ratio (“FR”) – this is calculated as the ratio of the actuarial value of assets to the actuarial value of liabilities both as at the valuation date.
2. Net Income Ratio (“NIR”) – this is calculated as the ratio of the expected total value of contributions to be received in the year following the valuation date to the expected value of all claims payments, expenses and reserve adjustments expected over the same period.

The draft funding policy calls for the following actions based on the calculated FR and projected NIR:

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NIR < 90%. FR is not applicable.	Mandatory Benefit Reductions to increase NIR to a minimum of 95%
90% ≤ NIR < 100%. FR is not applicable.	Discretionary Benefit Reductions
100% < NIR ≤ 120%. FR is not applicable.	No action required.
120% < NIR ≤ 130% and FR > 110%	Discretionary Benefit Increases
NIR > 130% and FR > 110%	Mandatory Benefit increases to decrease NIR to a maximum of 125%

### 3.2 2023 Contributions

Employers contribute to the Trust using different contribution rates, to achieve aggregate negotiated employer contributions. In addition, employees contribute to the Trust. The anticipated contributions during 2023 are summarized in the table below:

	To March 31, 2023 \$000,000s	From April 1, 2023 \$000,000s	2023 Total \$000,000s
Anticipated Regular Employer Contributions	24.8	77.5	102.3
Anticipated Regular and Other Employee Contributions	3.0	9.5	12.5
Anticipated Total Contributions	<b>27.8</b>	<b>87.1</b>	<b>114.9</b>



### 3.3 2023 Cost of Benefits

The following table summarizes the anticipated cost of benefits by line of benefit during 2023:

	Active Benefit Payments and Expenses	Change in Active Reserve	Cost of Disabilities Incurred in 2023	2023 Cost of Benefits
	\$000,000s	\$000,000s	\$000,000s	\$000,000s
LTD	0.0	0.0	36.1	36.1
Active EHC	50.3	0.0	0.0	50.3
Active Dental	26.5	0.0	0.0	26.5
Active Group Life and AD&D	0.4	0.0	0.0	0.4
Operating Expenses	1.1	0.0	0.0	1.1
<b>Total</b>	<b>78.3</b>	<b>0.0</b>	<b>36.1</b>	<b>114.5</b>

### 3.4 NIR

The projected NIR is calculated as anticipated 2023 Contributions / anticipated 2023 Cost of Benefits. From the prior tables the projected NIR for 2023 is 100.4%.

	2023 Total \$000,000s
Anticipated Total Contributions	114.9
Cost of Benefits	114.5
<b>NIR for 2023</b>	<b>100.4%</b>

### 3.5 Financial Position

The December 31, 2022 financial position is as follows:

	<b>December 31, 2022</b>
	<b>\$000,000s</b>
Assets	156.7
Liability	127.8
Surplus (Deficit)	<b>28.9</b>
Funded Ratio	<b>122.7%</b>

### 3.6 NIR and Projected Financial Position

The FR as at December 31, 2022 is 122.7% and we have projected the NIR to be 100.4% for the 2023 calendar year. As such, we conclude that contributions for 2023 are sufficient for current benefit levels – contributions plus existing assets are expected to fund outstanding obligations and benefits to be incurred in the following year, leaving the Trust in an acceptable projected financial position at the end of 2023.

## Section 4 – Sensitivity Testing

Sensitivity tests have been conducted on certain assumptions, as prescribed by actuarial standards of practice.

### 4.1 Discount Rate Sensitivity

As the assumed discount rate has a significant impact on the Trust's liabilities, actuarial standards of practice require that the impact on the liabilities of a 1% change in the assumed discount rate be disclosed.

The following table shows the effect of a 1.0% decrease and a 1.0% increase in the discount rate on the overall liability:

Discount Rate Change	Revised Liability (\$000,000s)	Original Liability (\$000,000s)	Change in Liability (\$000,000s)	% Change in Liability
+1.0%	121.4	127.8	(6.4)	-5.0%
-1.0%	135.0	127.8	7.3	5.7%

### 4.2 EHC and Dental Escalation Rate Sensitivity

The EHC escalation rate used within the valuation is shown Appendix E.1. The dental escalation rate used within the valuation is 6.0% in 2023 and 3.5% per annum thereafter.

The following table shows the effects of a 1.0% change in the EHC and dental escalation rates:

EHC Escalation Rate Change	Revised Liability (\$000,000s)	Original Liability (\$000,000s)	Change in Liability (\$000,000s)	% Change in Liability
+1.0%	128.8	127.8	1.0	0.8%
-1.0%	126.9	127.8	(0.9)	-0.7%

Dental Escalation Rate Change	Revised Liability (\$000,000s)	Original Liability (\$000,000s)	Change in Liability (\$000,000s)	% Change in Liability
+1.0%	127.9	127.8	0.2	0.1%
-1.0%	127.6	127.8	(0.1)	-0.1%

## Section 5 – Actuarial Opinion

This opinion is given with respect to the Trust. We conducted a valuation of the Trust as at December 31, 2022. The administrator has confirmed that, between December 31, 2022 and the date of this report, no subsequent events nor any extraordinary changes to the beneficiaries or plan provisions that would materially affect the results of this valuation have occurred, except as indicated in this report.

In our opinion, for the purposes of this report:

- The beneficiary data on which the valuation is based are sufficient and reliable for the purposes of the valuation;
- The assumptions are appropriate for the purposes of the valuation; and
- The methods employed in the valuation are appropriate for the purposes of the valuation.

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

1. The Trust is fully funded. The assets exceed the liabilities by \$28.9 million. The funded ratio is 122.7%.
2. Anticipated contributions in 2023 are sufficient: Contributions plus existing assets are expected to fund outstanding obligations and benefits to be incurred in 2023, leaving the Trust in an acceptable projected financial position at the end of 2023.
3. The next valuation should be conducted no later than as at December 31, 2023.

The content herein has been prepared exclusively from a financial viewpoint. This report does not constitute a legal opinion on the rights and duties of the administrator, the Trustees or the beneficiaries concerning the Trust.

Actuarial valuation results are estimates only and are based on assumptions and methods developed in accordance with actuarial standards of practice. Emerging experience differing from the assumptions used will result in gains or losses which will be revealed in future valuations, and which may affect future actuarial opinions.

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

We would be pleased to discuss any questions the user may have regarding the valuation.



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Michael Greschner  
Fellow, Canadian Institute of Actuaries  
April 26, 2023



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Kristina Leanne Percy  
Fellow, Canadian Institute of Actuaries  
April 26, 2023

## Appendix A – Plan Provisions

### A.1 Plan Provisions

The primary benefits provided by the Trust are Group Life Insurance, AD&D, LTD, Dental and EHC. The following summary was provided to us by the Healthcare Benefit Trust (“HBT”) and capture the major standard plan provisions in effect as at December 31, 2022.

Provisions	JHSBT Plan Provisions
<b>Group Life</b>	
Benefit Amount	\$50,000
Advance Payment	50% to a maximum of \$25,000
Reduction at age 65	None
Termination Age	None
<b>AD&amp;D</b>	
Benefit Amount	\$50,000
Reduction at age 65	None
Termination Age	None
<b>LTD</b>	
Benefit Amount	70% of the first \$7,049* (as at Apr 1/22) of basic monthly earnings and 50% of the excess or 66-2/3% of basic monthly earnings, whichever is greater (*adjusted annually for new claims based on increases in the weighted average wage rate)
Maximum Benefit	None
Indexing	Adjustments every 4 years based on compounded annual increases in weighted average wage rate for most recent 4 years
Qualification Period	5 months
Own Occupation Period	24 months
Own Occupation Definition	The employee's inability to perform the duties of his/her own occupation or any available position that is not less than 75% of pre-disability earnings.
Any Occupation Maximum	70% of current rate of pay
Pre-Existing Condition Clause	No
Early Retirement Incentive Benefit	Provided, with 50/50 cost sharing of EHC & Dental
Termination Age	65

Provisions	JHSBT Plan Provisions
<b>Dental</b>	
Basic	100%
Basic - Recall Exams	2 per calendar year
Major	60%
Orthodontics	60%
Orthodontics Lifetime Maximum	\$2,750
PBC <sup>5</sup> Fee Schedule	No. 2
Termination Age	None
<b>EHC</b>	
Deductible	\$100.00
Reimbursement	80% up to \$1,000 claims paid per family per calendar year; 100% thereafter (except Drugs & Vision Care)
Lifetime Maximum	Unlimited
Drug Formulary	PharmaCare drugs, Prometrium and drugs that have received Special Authority reimbursed at 100%; Non-PharmaCare drugs reimbursed at 50%
Drug Pricing Restrictions	Low Cost Alternative and Reference Drug Pricing as established by BC PharmaCare
Mark-Up Limit	As established by BC PharmaCare
Dispensing Fee Cap	As established by BC PharmaCare
Pay-Direct Drug Card	Yes
Acupuncture	\$100 per person per year
Chiropractor	\$200 per person per year
Massage Therapy	Unlimited
Naturopath	\$200 per person per year
Physiotherapy	Unlimited
Podiatrist	\$400 per person per year
Registered Clinical Psychologist & Clinical Counselor	\$900 per person per year combined maximum
Speech Therapist	\$100 per person per year
Vision Care	\$350 per person every 24 months
Eye Exams	Not covered
Hearing Aids	\$600 per person every 48 months

<sup>5</sup> Pacific Blue Cross.

Provisions	JHSBT Plan Provisions
Termination Age	None

## Appendix B – Claimant and Claims Data

### B.1 Source of Data

In performing the calculations for this valuation, we obtained data from the Trust and its service providers.

LTD claimant data was provided to the Healthcare Benefit Trust by Canada Life. We received this information from the Healthcare Benefit Trust.

For benefits aside from LTD, the actuarial valuation does not require individual claim data to perform the valuation. Reserves held are based on the aggregate payments in recent periods or are held constant. Aggregate claims and contribution data are collected from the Healthcare Benefit Trust. The data is provided to the Healthcare Benefit Trust from Pacific Blue Cross (EHC and dental) and Canada Life (group life and AD&D).

In performing this valuation, we use asset data and financial statements provided to us by the Healthcare Benefit Trust. The calculation of the asset position of the Trust within this report is detailed in Appendix C.

We have reviewed the data to ensure its sufficiency and reliability and confirm that the provided data was sufficient and reliable for the purpose of this valuation.

### B.2 Summary of LTD Claims Data

The following tables summarize the composition of LTD claimants at December 31, 2022:

Duration of Disability	Age at Disability					Total
	Under Age 30	30 – 39	40 – 49	50 – 59	Age 60 and Over	
< 1 year	2	18	24	24	7	75
1 to 2 years	7	23	51	57	12	150
2 to 3 years	4	17	16	31	5	73
3 to 5 years	2	22	27	46	4	101
5 to 10 years	0	3	7	12	0	22
> 10 years	0	0	0	0	0	0
<b>Total</b>	<b>15</b>	<b>83</b>	<b>125</b>	<b>170</b>	<b>28</b>	<b>421</b>



The following table summarizes the total net monthly LTD income after assumed CPP and Insurance Corporation of British Columbia (“ICBC”) approval of disabled employees as at December 31, 2022:

Duration of Disability	Age at Disability					Total
	Under Age 30	30 – 39	40 – 49	50 – 59	Age 60 and Over	
	\$	\$	\$	\$	\$	
< 1 year	4,000	67,000	85,000	93,000	19,000	269,000
1 to 2 years	25,000	74,000	163,000	196,000	38,000	497,000
2 to 3 years	13,000	52,000	42,000	99,000	19,000	225,000
3 to 5 years	6,000	74,000	73,000	138,000	12,000	304,000
5 to 10 years	0	11,000	21,000	32,000	0	64,000
> 10 years	0	0	0	0	0	0
<b>Total</b>	<b>48,000</b>	<b>279,000</b>	<b>385,000</b>	<b>558,000</b>	<b>89,000</b>	<b>1,359,000</b>

### B.3 Changes in LTD Claimant Data

The following table shows the changes in the LTD claimants since December 31, 2021:

<b>Reconciliation of LTD Claimant Data</b>	<b>Number of Claimants</b>
As at December 31, 2021	338
New entrants	267
Claim terminations	(184)
As at December 31, 2022	<b>421</b>

## Appendix C – Assets

### C.1 Asset Information

The asset position is calculated from the Trust's financial statements as provided by the Healthcare Benefit Trust.

The table below shows the development of these assets from December 31, 2021 to December 31, 2022:

<b>Calculation of Asset Position<sup>6</sup></b>	<b>\$000,000s</b>
<b>Assets as at December 31, 2021</b>	<b>152.3</b>
Employer contributions	96.8
Employee contributions	11.4
Investment return (net of investment expenses)	(9.8)
Benefit payments	
- LTD	(19.4)
- EHC	(45.6)
- Dental	(24.9)
- Group Life/AD&D	(0.7)
Non-investment expenses	<b>(3.2)</b>
<b>Assets as at December 31, 2022</b>	<b>156.7</b>

<sup>6</sup> Accrued to December 31, 2022.

## C.2 Asset Mix

Invested assets are held and invested by the Healthcare Investment Unit Trust (“HIUT”). The following table shows the actual and long-term policy asset mixes as at December 31, 2022 of the Trust:

<b>Asset Class</b>	<b>December 31, 2022 Mix</b>	<b>Target Mix</b>
<b>Fixed Income</b>		
Cash and Money Market	3.1%	2.0%
Nominal Bonds	17.2%	8.0%
Credit	15.7%	10.0%
Subtotal	<b>36.0%</b>	<b>20.0%</b>
<b>Equity</b>		
Canadian	7.6%	5.0%
Global	24.3%	25.0%
Emerging Markets	10.2%	10.0%
Subtotal	<b>42.1%</b>	<b>40.0%</b>
<b>Alternatives</b>		
Infrastructure	6.0%	25.0%
Real Estate	16.0%	15.0%
Subtotal	<b>21.9%</b>	<b>40.0%</b>
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

## C.3 Asset Valuation

The asset position is taken as the market value of assets as at December 31, 2022. Reliance is placed on the provided Financial Statements for the appropriate valuation of the assets.

## Appendix D – Actuarial Methods

### D.1 Actuarial Cost Method

The liabilities at the valuation date were calculated as the expected present value of future benefits for claims incurred up to the valuation date, where future payments incorporate future indexing. This actuarial method may be referred to as a “unit credit” cost method, although a unit credit method generally implies some accumulation in liabilities rather than event-driven liabilities.

### D.2 Asset Valuation Method

The market value of the assets has been used as the assets.

### D.3 Provision for Adverse Deviation (“PfAD”)

The Trust’s liabilities have been calculated on a best estimate basis.

### D.4 Liability Valuation Methodology

The following outlines the methodology used for calculating the liability for each line of benefit. Future costs are discounted to the present assuming cash flows occur at the middle of each month. The liabilities for reported disabled claimants are calculated on an individual basis, whereas the liabilities related to incurred but not reported claims are determined on an aggregate basis.

#### Admitted LTD claims (Reported)

The liability for admitted (reported) LTD claims is equal to the actuarial present value of projected future benefit payments for LTD claimants as at December 31, 2022. The actuarial present value is calculated by applying the probability of receipt of disability (i.e., probability of the claim not terminating) to the projected benefit claim costs at future ages for each LTD claimant, and further discounted by the interest rate assumption to the calculation date.

#### LTD (IBNR)

The liability for incurred but not reported LTD claims is calculated by taking the product of the LTD IBNR assumption shown in Appendix E, the current cost of LTD, and the Straight-Time Payroll (“STP”) for each of the prior four quarters.

### Active EHC and dental (IBNR)

The liability for incurred but not reported EHC and dental claims is calculated by taking the product of the EHC and dental IBNR assumptions shown in Appendix E and the total EHC and dental claims and expenses incurred in the most recent four quarters ending December 31, 2022.

### Active group life and AD&D (IBNR)

The liability for incurred but not reported group life and AD&D claims is assumed to be \$100,000.

### EHC and dental for disabled claimants

The liabilities for EHC and dental costs for disabled claimants is calculated as the product of the average annuity factor for each line of benefit across all LTD claimants, the count of disabled claimants at the valuation date and the estimated annual difference between benefit claims and expected employee contributions<sup>7</sup> for the average disabled claimant. The annuity factors incorporate the future benefit cost escalation assumptions listed in Appendix E.

The EHC and dental IBNRs for disabled claimants are equal to the ratio of the LTD (IBNR) to the admitted LTD claims liability, multiplied by the liabilities for EHC and dental costs for disabled claimants.

### Group life and AD&D for disabled claimants

The liability for group life and AD&D is calculated as the present value of a payment at the life volume using the mortality assumption.

The group life and AD&D IBNR for disabled claimants is equal to the ratio of the LTD (IBNR) to the admitted LTD claims liability, multiplied by the liabilities for group life and AD&D costs for disabled claimants.

<sup>7</sup> Actual employee contributions are adjusted to account for future increases based on actual claims experience since the last date employee contributions were adjusted.

## Appendix E – Actuarial Assumptions

### E.1 Liability Assumptions

The valuation is based on the assumption that the Trust will continue to pay for benefits indefinitely into the future related to disabilities already incurred at the valuation date. At each valuation, past experience is compared to the assumptions made at the last valuation to determine if, together with known changes to plan provisions, investment policy, and expectations of future trends, the assumptions should be changed.

Emerging experience differing from these assumptions will result in experience gains and losses that will be revealed in future valuations.

The table below summarizes the assumptions used in the calculation of the Trust's December 31, 2022 actuarial liabilities:

Assumptions	December 31, 2021	December 31, 2022		
<i>Economic</i>				
Discount rate	5.1% per year	6.0% per year		
Retroactive CPP	Where CPP is assumed, retroactive CPP to a maximum of 18 months is assumed	Where CPP is assumed, retroactive CPP to a maximum of 18 months is assumed		
Potential CPP benefits	Potential CPP benefits are calculated based on the following information (as set by the CPP): 2022 flat CPP monthly amount: \$524.64 2022 maximum CPP monthly amount: \$1,464.83	Potential CPP benefits are calculated based on the following information (as set by the CPP): 2023 flat CPP monthly amount: \$558.74 2023 maximum CPP monthly amount: \$1,542.77		
Benefit indexing (indexing to wage increases)	Annual wage increases of 2.0% are assumed, except where negotiated wage increases are known. Where negotiated wage increases are known, these apply.	4.92% as at April 1, 2022, 6.75% as at April 1, 2023 and 3% as at April 1, 2024. Annual wage increases of 2.25% are assumed thereafter		
Benefit indexing (indexing to CPI)	2.0% per year	2.0% per year		
Future expenses as a percentage of claims payments	LTD	4%	LTD	6%
	EHC	4%	EHC	3%
	Dental	3%	Dental	3%
	Group Life/AD&D	4%	Group Life/AD&D	4%
EHC escalation	EHC costs for disabled employees are assumed to increase according to the G&B High Trend Rate Table. An ultimate escalation rate of 3.5% applies in and after 2037. Table of annual escalation rates is provided later in this report.	EHC costs for disabled employees are assumed to increase according to the G&B High Trend Rate Table. An ultimate escalation rate of 3.5% applies in and after 2037. Table of annual escalation rates is provided later in this report.		

Assumptions	December 31, 2021	December 31, 2022
Dental escalation	Dental costs for disabled employees are assumed to increase by 3.5% per annum.	Dental costs for disabled employees are assumed to increase by 6.0% per annum for 2023 and 3.5% per annum for 2024 onwards.
<i>Demographic</i>		
Termination from disability	Assumed based on adjustments for the Trust's experience applied to the aggregate female non-Quebec termination table published in of the CIA <sup>8</sup> Report entitled "Group Long-Term Disability Termination experience 2009-2015." Tables of adjustments are provided later in this report.	Assumed based on adjustments for the Trust's experience applied to the aggregate female non-Quebec termination table published in of the CIA Report entitled "Group Long-Term Disability Termination experience 2009-2015." Tables of adjustments are provided later in this report.
Mortality	Assumed to be in accordance with the mortality tables for males and females in the CIA report entitled "Canadian Group Long-Term Disability Termination Experience 1988-1994".	Assumed to be in accordance with the mortality tables for males and females in the CIA report entitled "Canadian Group Life Waiver Study (2009–2015) - Tables".
CPP approval	Rates are based on age and duration since disability. Where CPP is approved, retroactive CPP to a maximum of 18 months is assumed. Table of approval rates is provided later in this report.	Rates are based on age and duration since disability. Where CPP is approved, retroactive CPP to a maximum of 18 months is assumed. Table of approval rates is provided later in this report.
ICBC offset	2.5% of the net benefit <sup>9</sup> for claimants with a disability date within five years of the valuation date and May 17, 2018	2.5% of the net benefit for claimants with a disability date within five years of the valuation date and May 17, 2018
<i>Incurred but not reported</i>		
Group life and AD&D	\$100,000	\$100,000
LTD	Proportion of cost remaining at quarter end: 4.8% For claims incurred three quarters prior 18.4% For claims incurred two quarters prior 85.6% For claims incurred one quarter prior 100.0% Latest quarter	Proportion of cost remaining at quarter end: 6.7% For claims incurred three quarters prior 20.3% For claims incurred two quarters prior 85.1% For claims incurred one quarter prior 100.0% Latest quarter
Active EHC	As a percentage of claims paid to date with an incurral date from the prior four quarters, plus expenses: 0.5% Three quarters prior to latest quarter 1.4% Two quarters prior to latest quarter 3.9% Quarter prior to latest quarter 18.4% Latest quarter	As a percentage of claims paid to date with an incurral date from the prior four quarters, plus expenses: 0.5% Three quarters prior to latest quarter 1.0% Two quarters prior to latest quarter 2.7% Quarter prior to latest quarter 15.9% Latest quarter

<sup>8</sup> Canadian Institute of Actuaries.

<sup>9</sup> Including the assumed CPP offset. Excludes claims with an ICBC offset.



Assumptions	December 31, 2021	December 31, 2022
Active dental	As a percentage of claims paid to date with an incurral date from the prior four quarters, plus expenses	As a percentage of claims paid to date with an incurral date from the prior four quarters, plus expenses
	0.1%      Three quarters prior to latest quarter	0.1%      Three quarters prior to latest quarter
	0.3%      Two quarters prior to latest quarter	0.4%      Two quarters prior to latest quarter
	1.1%      Quarter prior to latest quarter	1.1%      Quarter prior to latest quarter
	11.5%     Latest quarter	11.5%     Latest quarter
Disabled non-income benefits (EHC, dental and group life/AD&D)	Ratio of LTD IBNR liability to reported LTD liability applied to the corresponding liability for reported active LTD claims	Ratio of LTD IBNR liability to reported LTD liability applied to the corresponding liability for reported active LTD claims

### EHC Escalation

The following table provides the EHC escalation rates:

Year:	
2022	9.2%
2023	8.4%
2024	7.5%
2025	6.6%
2026	6.3%
2027	6.1%
2028	5.8%
2029	5.5%
2030	5.3%
2031	5.0%
2032	4.7%
2033	4.5%
2034	4.2%
2035	3.9%
2036	3.7%
In and after 2037	3.5%

### Termination from disability

The following table presents the assumed adjustments made to the 2009-2015 CIA Disability Termination Experience for females (non-Quebec) table:

<b>Duration (months)</b>	<b>December 31, 2021</b>	<b>December 31, 2022</b>
Less than 24	85%	85%
24-30	270%	260%
31-60	145%	150%
Greater than 60	95%	120%

### CPP approval

The following table presents the assumption for the probability of eventual CPP qualification for claims that are not in receipt of a CPP offset:

<b>Duration (months)</b>	<b>December 31, 2021</b>	<b>December 31, 2022</b>
Less than 24	40%	40%
24-36	50%	55%
37-60	50%	50%
Greater than 60	10%	10%

## E.2 Projection Assumptions

In our projections we have assumed the following:

<b>Assumption</b>	<b>Source</b>	
<b>EHC IBNR as a percentage of claims paid to date for incurred claims from:</b>		
Three quarters prior to latest quarter	0.5%	2022 Assumptions Review
Two quarters prior to latest quarter	1.0%	
Quarter prior to latest quarter	2.7%	
Latest quarter	15.9%	
<b>Dental IBNR as a percentage of claims paid to date for incurred claims from:</b>		
Three quarters prior to latest quarter	0.1%	2022 Assumptions Review
Two quarters prior to latest quarter	0.4%	
Quarter prior to latest quarter	1.1%	
Latest quarter	11.5%	
<b>Projected Claims Adjudication Expenses as a percentage of claims paid</b>		
EHC	2.27%	HBT
Dental	1.75%	HBT
Life/AD&D	2.96%	HBT
LTD	4.12%	HBT
<b>Projected Operating Expenses</b>		
January 1, 2023 to December 31, 2023	\$1,067,000	HBT
<b>Investment Return</b>		
From January 1, 2023	6.0%	George & Bell
<b>Other</b>		
LTD Service Cost – to March 31, 2023	2.77% of STP	JHSBT April 1, 2022 Self-Pay Rates
LTD Service Cost – from April 1, 2023	2.72% of STP	JHSBT April 1, 2023 Self-Pay Rates
Group Life/AD&D IBNR	\$100,000	2022 Assumptions Review
Discount Rate	6.0%	2022 Assumptions Review
EHC Trend Rate	See EHC Escalation table in Appendix E.1	2022 Assumptions Review
Dental Trend Rate	3.5% <sup>10</sup>	2022 Assumptions Review
Operating Expense Trend Rate	1.5% per annum	George and Bell

<sup>10</sup> A dental trend rate of 6.00% was used in 2023 commensurate with the BC Dental Fee Guide increases.

### Straight-time Payroll Projection

STP is projected based on the following:

- Estimates provided by Health Authorities from April 1, 2022 to March 31, 2023 and April 1, 2023 to March 31, 2024;
- Reported STP from July 1, 2022 to December 31, 2022 for Affiliates (including estimates for non-reported employers); and
- Assumed annual wage rate increases thereafter.

### Contributions Projection

Employer and employee contributions are estimated based on the negotiated/estimated rates and the projected STP.

### Claims/Liability Projection

LTD claims payments are projected on a monthly basis based on:

- (A) A listing was developed of open claims as at December 31, 2020 with a Date of Disability (“DOD”) in the prior ten years. The monthly claims payments from January 1, 2011 for these claims were estimated based on the net benefit from the Date of Benefit Start to December 31, 2020. These monthly claims payments were then assumed to approximate claims payments from April 1, 2017, adjusted for actual claims payments made;
- (B) The net benefit between January 1, 2011 and December 31, 2020 for terminated claims with a DOD in the ten years prior to December 31, 2020. The same methodology in (A) was applied to these claims, assuming claims payments from the Date of Benefit Start to the Termination Date;
- (C) The assumed Non-Operating Expense LTD Cost Factor is applied to (A) and (B) to cover costs allocated to LTD which are not paid directly to claimants, such as rehabilitation program and early intervention program costs.

The LTD liability is projected to be:

- (A) LTD liability at valuation date;
- (B) Plus: projected STP from the last valuation date to the projection date x the assumed LTD service cost;
- (C) Less: projected claims payments from the last valuation date;
- (D) Less: the estimated LTD portion of claims adjudication and operating expenses; and
- (E) Plus: estimated interest.

EHC and Dental active claims have been projected based on active claims incurred in the prior twelve months and paid to date, adjusted for the assumed trend rate.

EHC and Dental disabled claims are projected based on the average disabled claims in the prior three months and increasing monthly at the same rate as the projected LTD claims.

The EHC and Dental active IBNR liabilities are projected to be equal to the projected active claims and allocated expenses x the IBNR assumption.

Group Life and AD&D claims are projected based on actual claims paid in the past three years. The Group Life and AD&D active IBNR liability is assumed to be \$100,000.

### Expense Projection

Estimated operating expenses have been provided by HBT to March 31, 2024. For April 1, 2024 onwards, operating expenses were projected based on the estimated operating expenses for the prior three months, adjusted for assumed trend rate.

### Asset Projection

The asset is projected to be:

- (A) Current asset;
- (B) Plus: projected contributions;
- (C) Less: projected claims payments;
- (D) Less: projected claims adjudication expenses;
- (E) Less: projected operating expenses; and
- (F) Plus: estimated investment income.

## Appendix F – Detailed Results and Claims Movement

### F.1 LTD Liability Results

The table below shows the results of the LTD Income (Reported) liability by duration of disability and age at disability

Duration of Disability	Age at Disability					Total
	Under Age 30	30 – 39	40 – 49	50 – 59	Age 60 and Over	
	\$	\$	\$	\$	\$	\$
< 1 year	177,000	3,197,000	4,238,000	3,767,000	231,000	11,609,000
1 to 2 years	1,465,000	4,973,000	9,764,000	8,734,000	816,000	25,752,000
2 to 3 years	1,235,000	5,739,000	4,035,000	6,185,000	295,000	17,489,000
3 to 5 years	916,000	11,572,000	9,289,000	7,613,000	75,000	29,465,000
5 to 10 years	0	1,699,000	2,525,000	1,825,000	0	6,049,000
> 10 years	0	0	0	0	0	0
<b>Total</b>	<b>3,793,000</b>	<b>27,179,000</b>	<b>29,851,000</b>	<b>28,125,000</b>	<b>1,417,000</b>	<b>90,364,000</b>

## F.2 LTD Claims Movement

The table below shows the movement of active LTD claims by major employer group within the Trust.

Employer	Claims as at Dec 31, 2021	Termination Reasons							New Entrants	Claims as at Dec 31, 2022
		Age 65	Death	Return to Work	ERIB <sup>11</sup>	Change of Definition	Retired / Resigned	Other		
Fraser	57	(2)	(1)	(24)	0	(4)	(1)	(1)	47	71
Coastal	74	(2)	(1)	(28)	0	(17)	(2)	(4)	64	84
Island	64	(1)	(2)	(15)	0	(2)	(1)	(1)	37	79
Interior	55	(1)	(2)	(14)	(2)	(13)	(2)	0	39	60
Northern	15	0	0	(3)	0	(2)	0	0	16	26
Provincial	40	0	(1)	(8)	(1)	(8)	(1)	0	27	48
Providence	14	(1)	(1)	(2)	0	(4)	(1)	0	20	25
Affiliates	19	(1)	0	(3)	0	(4)	0	0	17	28
<b>Total</b>	<b>338</b>	<b>(8)</b>	<b>(8)</b>	<b>(97)</b>	<b>(3)</b>	<b>(54)</b>	<b>(8)</b>	<b>(6)</b>	<b>267</b>	<b>421</b>

<sup>11</sup> Early Retirement Incentive Benefit.

### F.3 LTD Cost by Date of Disability and Reported Claim

The table below shows the development of LTD costs (including non-income related benefits) by date of disability and date of reported claim. Reserves are calculated using latest assumptions, including:

- LTD Reported reserve; and
- Estimated LTD Unreported reserve.

*In \$000s*

DOD	Present Value of Claims Payments as at December 31, 2022 (by Date of Reported Claim)					LTD Reserve <sup>12,13</sup>	Total	Straight-time Payroll		Total Cost as % of STP	
	2018	2019	2020	2021	2022			Actual	PV	Unadjusted	Adjusted <sup>14</sup>
	\$000s	\$000s	\$000s	\$000s	\$000s			\$000s	\$000s	\$000s	
2018	1,567	6,758	4,479	2,239	2,209	13,097	30,349	997,076	1,295,916	2.34%	2.79%
2019	0	1,356	6,441	4,266	2,604	14,480	29,146	1,064,731	1,305,522	2.23%	2.66%
2020	0	0	1,258	6,315	4,668	16,337	28,578	1,064,668	1,231,560	2.32%	2.76%
2021	0	0	0	1,231	7,486	24,080	32,797	1,216,642	1,327,660	2.47%	2.94%
2022	0	0	0	0	1,390	27,749	29,139	1,247,141	1,283,908	2.27%	2.70%
<b>Total</b>	<b>1,567</b>	<b>8,114</b>	<b>12,177</b>	<b>14,050</b>	<b>18,357</b>	<b>95,742</b>	<b>150,009</b>	<b>5,590,257</b>	<b>6,444,566</b>	<b>2.33%</b>	<b>2.77%</b>

<sup>12</sup> As at December 31, 2022.

<sup>13</sup> Includes estimated LTD IBNR.

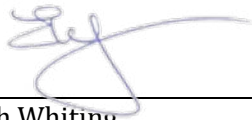
<sup>14</sup> Adjusted for assumed cost of non-income related benefits for disabled employees, rehabilitation costs, and expenses.



## Appendix G – Data Certificate

With respect to the information used within this report, we hereby confirm that to the best of our knowledge and belief:

- LTD claimant data provided to the actuaries and summarized in Appendix B and Appendix F are a complete and accurate description of all individuals meeting the definition of disability under the Trust;
- The financial data provided to the actuaries and summarized in Appendix B are a complete and accurate representation of the contributions, claims and expenses by benefit line;
- The plan provisions summarized in Appendix A are an accurate description of the plan provisions in effect at the valuation date; and
- There have been no events subsequent to the valuation date, up to the report date, that would materially change the December 31, 2022 valuation results or the Trust's financial position or cost.



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Elisabeth Whiting  
President & Chief Executive Officer  
Date:



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Daniel Gumprich  
Interim Chief Financial Officer  
Date: