Municipal Pension Plan

Annual Report 2022

Prepared for tomorrow, today

mpp.pensionsbc.ca

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Your plan—prepared for tomorrow, today

A message from your trustees

Retirement income members can count on

As pension plan trustees, we're proud to manage a plan that offers members reliable and predictable pension income throughout their retirement.

The strength and resilience of the Municipal Pension Plan is reflected in its latest actuarial valuation. A valuation is a financial health checkup conducted by an expert in risk and financial modelling. As at December 31, 2021, the plan is fully funded, meaning there is enough money to pay pensions for all current and retired members.

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As part of the valuation, the actuary reviews the inflation adjustment account (IAA), which pays for cost-of-living adjustments (COLAs) for retired members. Because of the financial strength of the plan's basic and IAA accounts, we have removed the COLA cap for 2023–2025. We continue to monitor inflation and market trends and apply a prudent approach when making annual decisions about COLAs.

Our long-term approach to investing the plan's assets allows us to make decisions with a steady hand and avoid overreacting to short-term trends. Despite investment losses in 2022, members' pensions are secure and will be there for them when they retire. Members "pre-pay" for their pensions through contributions while they're working, and their final pension is based on a formula. This means that a member's pension is not vulnerable to volatility in financial markets. We closely monitor the plan's 5- and 10-year rates of return to track the health of the plan over the longer term.

Preparing the plan for a low-carbon future

Events in recent years have shown the importance of considering environmental impacts when developing investment strategies. Doing so keeps the plan secure and sustainable.

We recognize that climate change brings both risk and opportunity to plan investments. In November 2022, we announced our goal of reaching net zero in plan investments by 2050. One way we're working toward this goal is by cutting the emissions intensity of plan investments to 55 per cent less than 2020 levels by 2030. More information on this can be found in the sections on responsible investing and climate-related disclosures in this report.

> *We announced our goal of reaching net zero in plan investments by 2050.*

Our investment goals align with British Columbia Investment Management Corporation's (BCI's) Climate Action Plan, which allows BCI to manage these risks and opportunities under our instruction.

Value for new and younger members

Demonstrating the value of a defined benefit pension plan to new, younger and future members through pension education will help them make the choices they need to prepare for retirement.

Canadian Public Pension Leadership Council commissioned research that shows that Canadians over age 65 with an employer pension have an average of nearly five times more retirement savings than those without a pension. This information highlights the importance of contributing to a pension plan as early as possible.

We strive to help all members meet their retirement goals by making the plan easier to understand and access. Part of this work is refining educational materials for members, including shorter, more focused webinars that provide useful information in manageable pieces.

Looking ahead

The longevity of the plan reflects the success of responsible investing and managing risk over the long term, and we will take that success into the future.

As the plan's trustees, we remain committed to plan sustainability, improving awareness of the value of the plan for new, younger and future members, and working toward our climate targets. We look forward to serving members and employers in the year ahead.

The longevity of the plan reflects the success of responsible investing and managing risk over the long term, and we will take that success into the future.

Member Donna McCallum

Plan investments

Plan portfolio overview

The Municipal Pension Board of Trustees is responsible for overseeing an investment portfolio of $71.5 billion on behalf of Municipal Pension Plan beneficiaries. The board's primary objective is to ensure the pension plan is secure and stable over the long term, which depends on several factors, including whether the plan earns enough through returns on its investments.

The board oversees and monitors the performance of its investment management agent, the British Columbia Investment Management Corporation (BCI). The board sets the investment beliefs and financial goals of the plan through the Statement of Investment Policies and Procedures, and BCI puts that investment strategy into action.

Understanding the plan's investment portfolio

The board takes a long-term approach to investing as the plan's commitment to its members is long term in nature. The goal is to meet or exceed the plan's investment return objective, which is the minimum amount the plan needs to earn through investments each year to pay for its obligations, including pensions. The board sets an investment strategy that is designed to meet this goal without taking on too much risk.

Risk management is a primary responsibility of both the board and BCI. This includes analyzing risk in the short and long term and taking appropriate steps to limit exposure or capitalize on opportunities. Types of risk vary from market trends to environmental, social and governance (ESG) factors such as climate change.

With investments across a wide range of assets, the plan is protected if one type of asset generates lower returns in a given period.

To manage risk effectively, the board and BCI have constructed a diversified portfolio that is invested in multiple asset types, industries and geographies. With investments across a wide range of assets, the plan is protected if one type of asset generates lower returns in a given period (which we have seen this year with inflation). Depending on the market outlook, investment holdings will be adjusted to either protect the plan or take advantage of opportunities to add value.

In recent years, the plan's long-term asset mix policy has increased focus on private markets and real assets (tangible investments, such as land and buildings). These types of assets typically increase in value over time and help buffer the portfolio against the short-term volatility associated with public markets. Many of these investments also present opportunities for BCI to manage assets directly and influence the strategic direction of these companies to create long-term value for the plan.

FIVE-YEAR FINANCIAL SUMMARY ($ MILLIONS)
for the year ended December 31

	2022	2021[1]	2020	2019	2018
Increase (Decrease) in assets					
Investment income (loss)	**$ (2,312)**	$ 7,789	$ 7,091	$ 6,693	$ 1,210
Contributions					
Members	**1,204**	1,169	1,131	1,034	971
Employers	**1,325**	1,342	1,293	1,185	1,117
Transfers from other plans	**71**	21	23	18	97
Total increase in assets	**288**	10,321	9,538	8,930	3,395
Decrease in assets					
Benefit payments	**2,565**	2,342	2,232	2,068	1,928
Transfers to other plans	**24**	19	29	13	11
Retired member group benefits	**102**	143	26	50	51
Investment and administration costs[1,2]	**211**	132	211	143	170
Total decrease in assets	**2,902**	2,636	2,498	2,274	2,160
Increase (decrease) in net assets	**(2,614)**	7,685	7,040	6,656	1,235
Net assets at beginning of year	**74,165**	66,480	59,440	52,784	51,549
Net assets at end of year	**$ 71,551**	74,165	66,480	59,440	52,784
Investment and administration costs as a percentage of net assets(%)					
Investment management	**0.43**	0.32	0.39	0.37	0.35
Benefits administration	**0.08**	0.08	0.08	0.09	0.09

1 2021 restated to reflect a change in accounting policy.

2 Investment and administration costs as a percentage of net assets include external investment management costs netted against investment income of $148.3 million (2021—$102.5 million; 2020—$73.5 million; 2019—$112.1 million; 2018—$61.8 million). They are not included in investment and administration costs in the financial statements.

Investment highlights

The year has been defined by the highest rate of inflation in 40 years. In response, central banks raised their key benchmark interest rates to the highest levels in more than a decade in an attempt to curb inflation. The speed with which markets have contracted in response, along with high inflation, geopolitical tension and slowing economic growth, weighed down the plan's year-end returns. BCI took all these challenges into account when managing the plan's portfolio throughout the year.

Overall plan performance

As a long-term investor, it is important to look at both short- and long-term performance as a measure of plan health. Considering the volatile market environment this year, the long-term results are positive: the plan delivered a 6.7 per cent return over five years, which is above both the 5.2 per cent five-year benchmark as well as the plan's 6.25 per cent return objective.

> *The plan delivered a 6.7 per cent return over five years, which is above both the 5.2 per cent five-year benchmark as well as the plan's 6.25 per cent return objective.*

The plan was impacted by the market conditions of the year (discussed below). As a result, the annual return was -3.5 per cent. Despite the negative performance, the portfolio outperformed its one-year benchmark of -5.9 per cent, which indicates the importance of active management. The plan also ended the year with $71.5 billion in assets, down from $74.2 billion the year before. The plan remains strong and is prepared to navigate these impacts.

Public equities and fixed income

Within public markets, the plan is invested in public equities (e.g., publicly traded stocks) and fixed income (e.g., government and corporate bonds). Both were heavily impacted by rising inflation and slow economic growth in the second half of the year.

The plan's public equity returns were negative this year as challenging market conditions and higher interest rates affected expectations for corporate earnings. As at December 31, 2022, the plan's public equity portfolio returned -11.5 per cent for one year; this was only slightly above the benchmark return of -11.6 per cent. Five-year returns were stronger at 6.0 per cent compared to a 5.6 per cent benchmark.

Generally, fixed income assets provide stability and liquidity for the portfolio. However, these assets were directly impacted over the year by rising yields as central banks raised policy interest rates. And, as rates rose, the value of existing fixed income assets fell. As a result, the plan generated a one-year fixed income return of -8.0 per cent, which is above the benchmark return of -9.7 per cent.

The five-year returns were also affected by the lower one-year return: the plan's five-year fixed income return was 1.5 per cent, versus a benchmark return of 0.9 per cent.

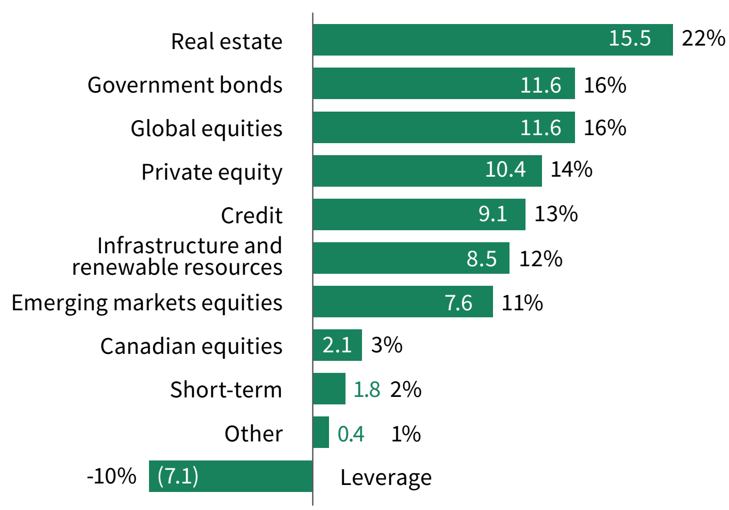
BCI's strategy of managing more assets in-house enables it to be both responsive and defensive in the face of market uncertainty. The plan has ample liquidity and is under no pressure to sell assets we want to continue to hold. While markets may be challenging, BCI remains well positioned to look for opportunities to add value in the long term. BCI and the board continue to work together to meet the plan's long-term objectives and safeguard the financial futures of plan beneficiaries.

Private equity

Private equity added the most value for the plan over the year. While public equity conditions were volatile, private market asset values remained relatively stable. BCI's private equity team took advantage of high prices and sold several assets when markets were at their peak, locking in high returns for the plan's portfolio. This timing was crucial as global private equity deal activity slowed considerably in the latter part of the fiscal year. Ultimately, the plan returned 3.9 per cent for the year versus a benchmark return of -10.4 per cent. Five-year returns were also positive at 17.5 per cent compared to the 8.9 per cent benchmark return, demonstrating the quality and positioning of the plan's private equity portfolio.

Five-year returns for the plan's private equity portfolio were positive at 17.5 per cent compared to the 8.9 per cent benchmark return, demonstrating the quality and positioning of these assets.

INVESTMENT HOLDINGS (MARKET VALUE)
($ BILLIONS)
as at December 31, 2022



INVESTMENT PORTFOLIO[1]
as at December 31, 2022

	Market value ($ millions)	Asset mix market value (%)
Short-term	$ 1,746	2.4
Leverage	(7,149)	(10.0)
Bonds	11,616	16.2
Debt[2]	9,098	12.7
Canadian equities	2,122	3.0
Global equities	11,599	16.2
Emerging markets	7,565	10.6
Private equity	10,412	14.6
Real estate[3]	15,541	21.8
Infrastructure and renewable resources	8,537	11.9
Currency hedging	425	0.6
Cash and unsettled trades	1	0.0
Total investments	**$71,513**	**100.0**
2021 comparison	$ 74,123	

1 Asset classifications vary from the financial statements for performance reporting.
2 Coporate bonds and private debt.
3 Includes real estate debt (mortgages).

Member Ravneet Dhillon

MARKET VALUE ASSET MIX AND RATES OF RETURN (%)
as at December 31, 2022

	Approved range	Target asset mix market value	Actual asset mix market value	Rate of return	Performance benchmark
Fixed income					
Short-term	0–7	2	2.4	3.5	3.8
Bonds	10–29	21	16.2	(11.8)	(12.0)
Credit[1]	7–24	18	12.7	(2.2)	(4.8)
	27–49	**41**	**31.3**	**(8.0)**	**(9.7)**
Equity					
Public equities	10–40	25	29.8	(11.5)	(11.6)
Private equity	10–20	16	14.6	3.9	(10.4)
	30–60	**41**	**44.4**	**(7.1)**	**(11.1)**
Real assets					
Real estate[2]	15–29	23	21.8	4.3	4.4
Infrastructure and renewable resources	7–18	15	11.9	9.4	6.5
	25–45	**38**	**33.7**	**7.6**	**6.2**
Other	**0–5**	**0**	**0.6**	**n/a**	**n/a**
Leverage	**0–(25)**	**(20)**	**(10.0)**	**2.0**	**2.0**
Basic asset mix		**100**	**100**	**(3.5)**	**(5.9)**
Annual rates					
2022				**(3.5)**	**(5.9)**
2021				11.5	7.8
2020				11.6	11.8
2019				12.5	13.2
2018				2.1	0.2
Five-year annualized rates					
2022				**6.7**	**5.2**
2021				9.7	8.5
Ten-year annualized rates					
2022				**8.5**	**7.1**
2021				10.0	8.7

1 Corporate bonds and principle credit. Returns are for the period April 1, 2022 to December 31, 2022.

2 Real estate includes mortgages starting April 1, 2022. Returns are for the period April 1, 2022 to December 31, 2022.

Real estate

Real estate, excluding mortgages, was another positive contributor to the plan's overall performance. The plan's annual real estate equity performance was driven by strong returns in residential and industrial real estate (e.g., warehouses and e-commerce distribution centres). The industrial sector specifically benefited from the trend toward a more digital world, and QuadReal, the plan's real estate manager, was well positioned to take advantage of this growth. Overall, the plan returned 7.2 per cent for the year, slightly above the one-year 6.8 per cent benchmark, and 7.6 per cent over five years, also above the 6.8 per cent five-year benchmark.

The plan's real estate debt performance was also positive, even with market uncertainty making it challenging for borrowers. The plan returned 2.9 per cent for the year and 4.3 per cent for five years, exceeding the -2.1 per cent and 2.3 per cent benchmarks respectively.

Infrastructure and renewable resources

As inflation rose over the year, so did demand for real assets with long-term inflation protection. One of the benefits of portfolio diversification is that real assets tend to hold their value better in a market downturn and can help buffer the plan against short-term volatility in public markets.

The plan was able to take advantage of this market opportunity and sell assets for good prices because of BCI's focus on high-quality, regulated investments within the infrastructure portfolio. This resulted in outperformance over both one and five years: the plan returned 9.4 per cent versus a 6.5 per cent benchmark return over one year, and 9.2 per cent versus a 6.9 per cent benchmark over five years.

BCI will continue to seek out sustainability-focused and renewable energy investments for the plan's portfolio as the global demand for those sectors increases.

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Managing investment costs

BCI operates on a cost-recovery, not-for-profit basis, meaning the plan pays fees only to cover the cost of managing the investments. Since BCI manages a large amount of assets, it has access to significant economies of scale when investing on behalf of the plan. Managing investment costs is important to the board, and BCI's fees continue to be competitive with its peers and are much lower than those charged by investment managers in the private sector.

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Investment management fees are affected by the types of assets, the plan's asset mix (what is in the portfolio) and BCI's investment strategy. Some asset classes that produce higher returns are complex and more expensive to manage, which affects fees. The goal is to earn enough investment income to fulfil the plan's pension promises at reasonable cost.

Responsible investing

Responsible investing is a key part of the plan's investment approach and beliefs. Responsible investing means taking ESG factors into account when making investment decisions. These factors can be company-specific, like board compensation or employee safety; they can also be widespread and systemic, like climate change, water management and data security. Both the board and BCI believe that responsible investing is a core part of understanding and managing the opportunities and risks associated with long-term investments, and part of the duty of growing the plan in a sustainable way.

Both the board and BCI believe that responsible investing is a core part of understanding and managing the opportunities and risks associated with long-term investments, and part of the duty of growing the plan in a sustainable way.

BCI takes material ESG factors into account in every investment decision made for the plan and monitors these factors throughout the life of an investment. Taking a multi-pronged approach, BCI:

- **Integrates** ESG factors together with traditional financial analysis into assessments of new investments or monitoring the portfolio
- **Influences** companies and policy-makers to promote good ESG practices and policies
- **Invests** in ESG-related opportunities that have positive risk or return characteristics for the plan
- Uses ESG-related **insight** to adapt and improve its investment strategies to better support the plan's investment goals

The plan's climate actions are detailed in the climate-related disclosures included in this report.

It is important to the board to collaborate with like-minded investors and organizations. The board and BCI are signatories to the Principles for Responsible Investment (PRI), a United Nations–supported international network of investors that share the goal of incorporating ESG elements into the processes and activities of institutional investors. As part of this commitment, both the board and BCI take part in an annual assessment of their responsible investing activities and progress.

The plan received four or five stars in most categories in the PRI 2021 Assessment Report, outperforming peers in Investment & Stewardship Policy, the category that captures the overall approach toward responsible investment (including voting).

In addition, the board supports BCI's responsible investing efforts as a member of the steering committee for the 30% Club, which advocates for companies to enhance gender diversity, and the Sustainability Accounting Standards Board, which has a mandate to promote standards of sustainability reporting.

To learn more about BCI's responsible investing activities on behalf of the plan, visit **BCI.ca**.

> *Find more information about how BCI invests on behalf of the plan at BCI.ca.*

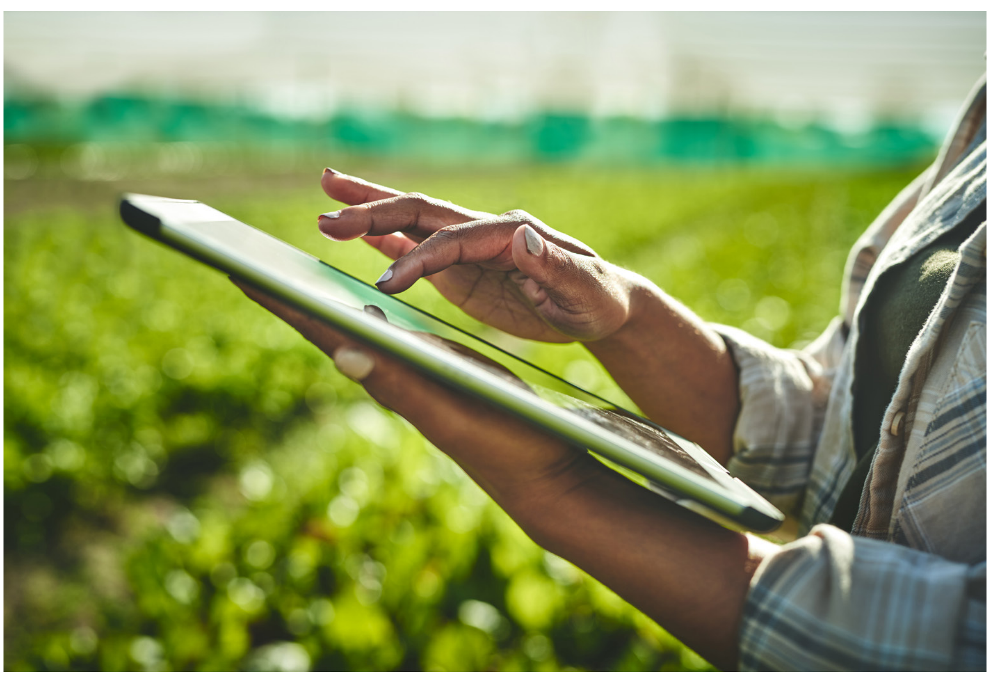
Highlights of 2022 climate-related disclosures

In 2022, the board continued to make climate-related risk and opportunities a strategic priority. We solidified the plan's strategy to address climate risk with the introduction of our path toward net zero, outlining the actions needed to reach our net-zero goal by 2050 or sooner.

We will coordinate the work with BCI to ensure that the actions to support our climate strategy align with our fiduciary duty. As we track climate change actions and impacts on markets, we see an opportunity within the portfolio to improve our pension security goals over the long term and reduce emissions. We are dedicated to taking action on climate change through investor stewardship, asset selection, education, collaboration, public policy advocacy and our net-zero goal and strategy.

This is our fourth year of providing climate-related disclosures in alignment with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). TCFD was formed by the global Financial Stability Board of the G20 to develop a consistent and comparable climate-related disclosure framework for organizations across all sectors. The intent is to disclose how climate-related risks and opportunities are evaluated, managed and integrated in planning and decision making.

The TCFD framework is structured on four disclosure areas: governance, strategy, risk management, and metrics and targets.



See the complete climate-related disclosures in the appendix.

2022 highlights

Governance

Our commitment is to comprehensively understand opportunities, challenges and risks of climate change to make informed investment decisions. The board has overall accountability to invest in the best financial interests of beneficiaries and places a high priority on managing climate change risk appropriately.

We delegate investment management and stewardship to BCI, which invests in a manner consistent with the board's policies. The board's investment committee monitors the plan's investments and BCI's services on behalf of the plan, including oversight of climate-related risks and opportunities.

To support trustee education on climate change and the risks and opportunities associated with investments, the board collaborated with experts to create a climate change orientation package for new trustees. Trustees are required to take two courses through the PRI Academy, and other climate change–related education opportunities are available.

Strategy

The board considers climate-related systemic risks and opportunities over the short, medium and long term, including physical and transition risks. Physical risks and opportunities arise from changes in weather and climate that affect economic productivity and real assets, like real estate and infrastructure. Transition risk and opportunities arise from the shift to the low-carbon economy. Understanding risks and opportunities across all time frames inform the board's asset allocation decisions, guide the plan's strategic policy advocacy efforts and support the board's oversight of BCI's performance. This includes overseeing the effectiveness of BCI's Climate Action Plan and its engagement and proxy voting activities.

The board has taken several actions to enable a successful path toward net zero by 2050:

- Continued to engage with BCI on the implementation of its Climate Action Plan, including risk management, proxy voting, policy advocacy and shareholder engagement
- Considered systemic climate change as part of the triennial asset-liability reviews
- Reviewed climate scenario analysis
- Monitored climate-related metrics, including climate stress test results, climate opportunity exposure, portfolio carbon footprint and weighted average carbon intensity for public equities.

Risk management

The board regularly receives climate risk reports from BCI to oversee investment risk. BCI conducts scenario analyses to identify the primary risks and opportunities for the portfolio under different climate change scenarios. The board used these scenarios in its asset-liability review, which evaluated the possible effects of various climate scenarios on the plan's long-term investment performance.

BCI continues to analyze data gathered by the SDI Asset Owner Platform to assess the plan's exposure to firms that offer products and services that contribute positively to the UN's Sustainable Development Goals pertaining to climate change.

Metrics and targets

This year we introduced our goal to reach net zero by 2050. We have a net-zero-by-2050 goal for the portfolio and an interim target to reduce the carbon intensity of our portfolio 55 per cent by 2030. This reduction is relative to 2020 levels.

We are evolving the metrics we use to track our progress to align with leading standards, including the Partnership for Carbon Accounting Financials. The summarized portfolio carbon footprint using the updated methodology is included below:

	2020	2021	2022	2030 target
MPP total portfolio carbon footprint[1] (t CO_2e/$M EVIC[2])	85	67	66	38

See the appendix for the complete climate-related disclosures.

1 Applies to analyzed portion of the portfolio as at December 31 each year. The trend in carbon intensity reductions will not be linear year over year and could be influenced by various factors such as changing asset values and improving data quality and completeness.

2 Enterprise value including cash (EVIC) is the sum of the market capitalization of ordinary shares and preferred shares at fiscal year-end, and the book values of total debt and minorities' interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.

Plan details

A look at our membership

The Municipal Pension Plan had 240,549 active members who worked for 971 employers as of December 31, 2022. The total membership was 421,666.

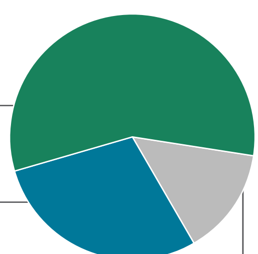
There are four types of members:

- **Active:** Currently contributing, on a leave of absence or receiving benefits from an approved long-term disability plan. There were 240,549 active plan members, an increase of 5.7 per cent from 2021.
- **Inactive:** Not currently contributing; has ended employment with a plan employer and left contributions in the plan. Inactive members may be eligible for a pension in the future or may become eligible if they return to work for a plan employer where they contribute to the plan and accrue additional service. There were 57,209 inactive plan members, a 9.3 per cent increase from 2021.
- **Retired:** Currently receiving a pension, including a survivor pension or disability benefit. There were 123,908 retired plan members, a 5.0 per cent increase from 2021.
- **Limited:** A plan member's former spouse who has the right to a portion of the plan member's pension and applies to become a limited member after separation or divorce. These members are included in the retired total if they are receiving a pension.

The plan had 240,549 *active members,* 123,908 *retired members and* 971 *employers in 2022.*

MEMBERSHIP PROFILE
as at December 31, 2022

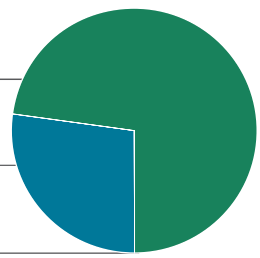
Active	240,549	57%
Retired	123,908	29%
Inactive	57,209	14%
Total	**421,666**	



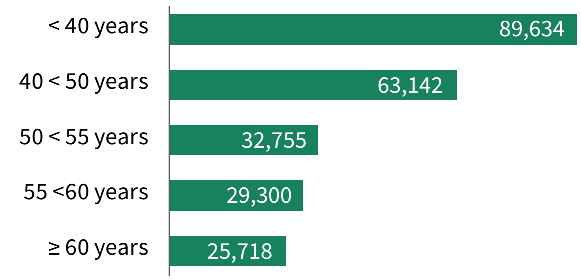
Member Mia Frankl

ACTIVE MEMBERS BY GENDER
as at December 31, 2022

Female	175,484	73%
Male	64,615	27%
Gender X	450	0.1%
Total	**240,549**	



ACTIVE MEMBERS BY AGE
as at December 31, 2022



Members Alison Waldick, Adrian Nyland, Sarah Venn and Joseph Chen

Plan contributions

Both plan members and employers make contributions to fund future pension payments.

Contribution rates are set by the board and based on a valuation. An independent actuary—a professional with specialized training in financial modelling, the laws of probability and risk management—does the valuation at least once every three years. This ensures there is enough money in the pension fund to pay lifetime pensions to all members.

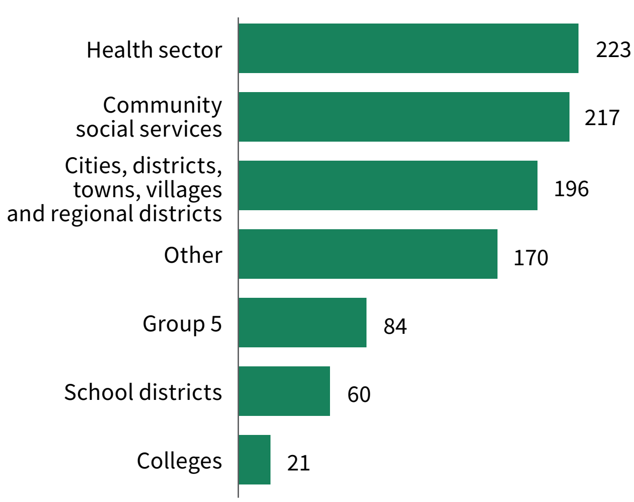
If a contribution rate increase is necessary, the Municipal Pension Plan Joint Trust Agreement requires that the increase be split equally between members and employers.

Membership in the plan is divided into member groups, some of which have separate accrual rates or earlier retirement ages. Employers are assigned contribution rates based on the member groups they have within their employee populations.

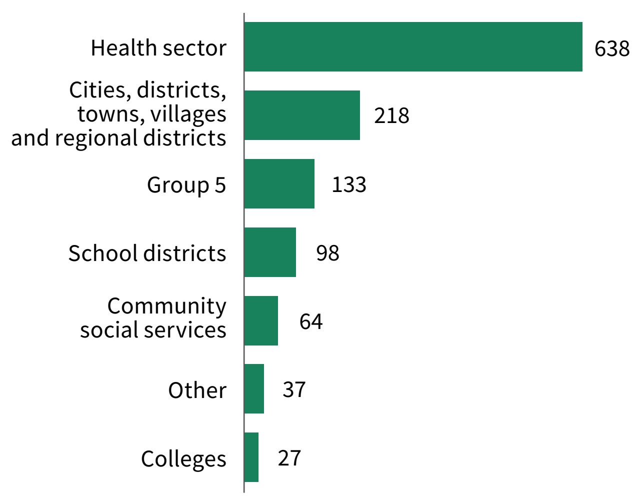
A look at our employers

As at December 31, 2022, there were 971 plan employers.

EMPLOYERS
as at December 31, 2022



TOTAL REGULAR CONTRIBUTIONS BY EMPLOYER SECTOR ($ MILLIONS)
year ended December 31, 2022



Contribution rates

Member contribution rates changed on January 1, 2022.

In 2022, members contributed a flat rate on all salary based on member group:

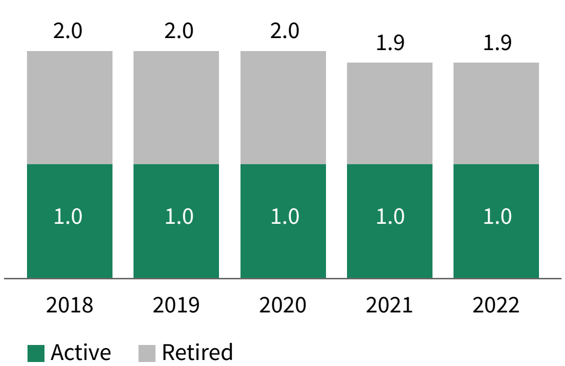
- Group 1 (all plan members who are not police officers or firefighters): 8.61 per cent
- Group 2 (police officers and firefighters not in group 5): 8.92 per cent
- Group 5 (police officers and firefighters not in group 2): 11.12 per cent

Member demographics

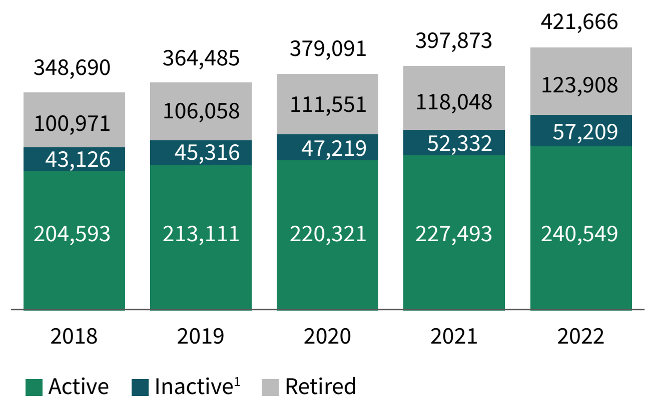
Understanding the demographics of the plan's membership is important to ensure we are meeting the needs of people at every stage of their careers and in retirement.

For example, the ratio of active to retired members is slowly getting smaller. This is the result of an aging membership—the retired population is growing faster than the plan's number of active members. The actuary considers this as part of the plan's valuation.

RATIO OF ACTIVE TO RETIRED MEMBERS
as at December 31



NUMBER OF MEMBERS
as at December 31



1 Vested members are included within the inactive member category.

Lifetime pension

A member's lifetime pension is based on the years of pensionable service they have earned in the plan and their highest average salary (HAS). HAS is determined by calculating the member's average salary during their highest-paid 60 months as an active plan member. This period is not necessarily the last 60 months they worked before retirement. For plan members employed in public safety after December 31, 2021, HAS is determined by calculating the member's average salary during their highest-paid 48 months as an active plan member.

The lifetime pension excludes the bridge benefit and temporary annuities, if those apply.

The plan also provides survivor pensions and disability benefits.

Retired member Linda Leeson

Pensions in pay

As at December 31, 2022, the average annual pension in pay was $18,815 and the median annual pension in pay was $13,315.

PENSIONS IN PAY 2018–2022
for the year ended December 31

	Total new pensions	Terminations	Pensions in pay	Basic pension payments ($ millions)	Cost-of-living adjustment payments ($ millions)	Total pension payments ($ millions)
2022	7,915	2,055	**123,908**	$1,969	$314	**$2,283**
2021	8,277	1,780	**118,048**	1,827	283	**2,110**
2020	7,136	1,643	**111,551**	1,714	285	**1,999**
2019	6,855	1,768	**106,058**	1,614	261	**1,875**
2018	7,036	1,355	**100,971**	1,517	234	**1,751**

NEW PENSIONS 2018–2022
for the year ended December 31

	Regular	Post-retirement limited member	Pre-retirement limited member	Disability	Survivor	Deferred	LTD[1] to pension	Total
2022	5,991	27	88	2	157	1,094	556	**7,915**
2021	6,461	30	89	1	111	990	595	**8,277**
2020	5,371	29	68	1	85	1,074	508	**7,136**
2019	5,222	16	98	3	95	925	496	**6,855**
2018	5,370	29	86	2	78	963	508	**7,036**

1 Long-term disability

NEW PENSION PROFILE
for the year ended December 31, 2022

Service range	< 55	55 < 60	60 <65	≥ 65	Total	Average salary	Average annual pension[1]	Median annual pension[1]	Average present value of pensions	Total present value of all new pensions ($ millions)
	All new pensions by age of retirement									
< 10 years	49	608	795	750	2,202	$61,800	$ 6,600	$ 5,200	$ 89,000	$ 196.0
10 < 15	17	373	548	583	1,521	63,500	13,900	12,200	205,000	311.8
15 < 20	16	302	480	463	1,261	70,500	21,300	19,500	328,000	413.6
20 < 25	23	254	430	311	1,018	76,300	30,500	28,300	481,000	489.7
25 < 30	78	357	337	194	966	85,300	44,000	40,200	742,000	716.8
30 < 35	25	341	215	174	755	86,700	51,500	45,900	847,000	639.5
≥ 35 years		33	92	67	192	83,700	49,500	45,400	786,000	150.9
Total	**208**	**2,268**	**2,897**	**2,542**	**7,915**	**$71,300**	**$23,300**	**$16,700**	**$373,000**	**$2,918.3**
Average service	20	18	17	16	17					
Average age					62					

1 Values for average and median pensions include bridge benefits and temporary annuities.

Retired member Kin Cheng

Cost-of-living adjustments

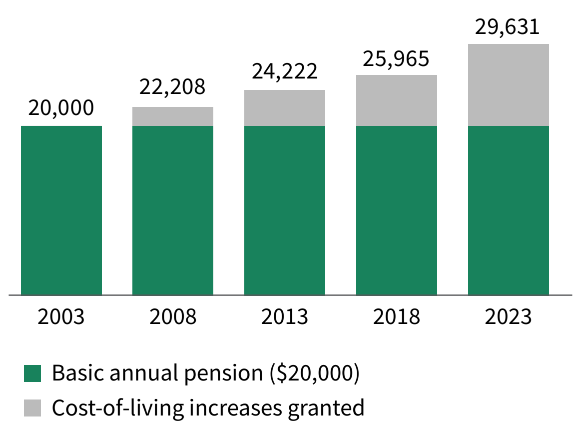
Cost-of-living adjustments (COLAs) are supplements to a member's lifetime pension to help keep pace with inflation. Every year, the board considers a variety of factors to determine if a COLA will be provided, including the Canadian consumer price index (CPI) from September to September, whether there is a COLA cap in place and the funds available in the plan's inflation adjustment account (IAA).

The IAA holds a portion of employer and member contributions, and it earns investment income. The account may also grow through future surpluses according to guidelines in the plan's Joint Trust Agreement.

If the board decides to grant a COLA, it will take effect in January. Adjustments cannot exceed the amount of money in the IAA. A COLA cap may limit the amount the board can grant in a year. A sustainable COLA is closely tied to actual inflation levels and actual investment returns. For this reason, the board reviews the level of a sustainable COLA every three years as part of the actuarial valuation.

Because of the financial strength of both the plan's basic account and IAA, the board decided to remove the COLA cap for the next three years (2023–2025). Although there is no COLA cap during this time, trustees still have the option of providing a COLA less than the increase in the CPI from September to September, based on the health of the plan.

BASIC PENSIONS PLUS COST-OF-LIVING GRANTED ($)



Health care coverage for retirees

Retired members and beneficiaries who receive a pension have access to subsidized premiums for group coverage for extended health care. Non-subsidized group dental plans are also available. These group benefit subsidies are not funded by member contributions and are not guaranteed.

The Municipal Retiree Benefit Trust now manages extended health and dental plans. This trust provides more flexibility to fund retiree group benefits and makes the program more sustainable. In 2022, at the request of the plan partners, the board transferred additional seed funding to the trust. The additional $20 million in 2022 funding came from employer contributions that would otherwise go into the IAA. Additional funds—up to a total of $50 million—will be transferred in 2023 and, if necessary, 2024.

Ongoing employer contributions will accumulate and earn investment income over time, and retired member premiums will also continue to fund retiree group health benefits.

The Municipal Retiree Benefit Trust now manages extended health and dental plans. This trust provides more flexibility to fund retiree group benefits and makes the program more sustainable.

Retired member Larry McHale

Actuarial valuation results

Under the rules of BC's *Pension Benefits Standards Act* and the Joint Trust Agreement, the board must appoint an independent actuary to do a valuation of the plan's funded position every three years. The actuary compares current assets, future contributions and investment returns against the money to be paid out in the future for pension benefits.

Once the review is complete, the actuary presents the findings to the board in a valuation report. If the plan's assets are the same as or more than its liabilities, the plan is fully funded. If there is a shortfall in assets, the plan has an unfunded liability. The board must address an unfunded liability by adjusting contribution rates for members and employers.

Completed in 2022, the 2021 valuation report determined the plan is fully funded with a funding ratio of 105.3 per cent and a surplus of $3.76 billion.

Of the $3.76 billion surplus, about $2.47 billion was kept in the basic account as a contribution cushion. Another $277 million was used to maintain the current contribution rates. The remaining $1.02 billion was divided between the IAA and the rate stabilization account (RSA).

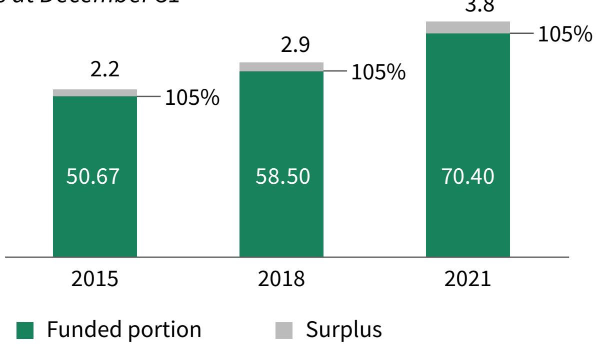
In addition, the RSA, which was set up to help offset potential future contributions rate increases, had a balance of about $3.19 billion at the time of the valuation.

The next valuation will be done no later than as at December 31, 2024. The report will be available by fall 2025.

Completed in 2022, the 2021 valuation report determined the plan is fully funded with a funding ratio of

105.3%

FUNDING OF TOTAL BASIC BENEFIT LIABILITY [1]
($ BILLIONS)
as at December 31



1 Assuming contribution rates in effect at the valuation date.

Plan rules and policy changes

Changes to pre-retirement death benefits

Plan rule amendment no. 59 was approved on June 23, 2022, and became effective June 23, 2022.

› Amended the plan rules so that pre-retirement death benefits are calculated consistently for all beneficiaries.

Municipal Retiree Benefit Trust

Plan rule amendment no. 60 was approved on November 16, 2022, and became effective November 17, 2022.

› The Municipal Pension Plan partners approved an amendment to the Joint Trust Agreement, which directed the board to provide $70 million of additional funding to the Municipal Retiree Benefit Trust (MRBT) in up to three transfers by December 31, 2024. The MRBT is the fund that provides plan retirees with group health and dental benefits. This additional funding will be taken from current employer contributions that would otherwise go into the inflation adjustment account. Group benefits are funded differently from your pension and are not guaranteed; however, these additional funds will help address cost pressures and contribute to the sustainability of the fund.

Employment Standards Act sick leave

Effective January 1, 2022 (and as amended March 31, 2022), the BC government amended illness and injury leave under the *Employment Standards Act* (ESA) to provide all employees covered by the ESA with up to five days of paid sick leave per year. This is in addition to the three days of unpaid leave already provided by the ESA.

Canada Labour Code sick leave

There is a change to the *Canada Labour Code* that provides workers in federally regulated industries with up to 10 days of paid sick leave per year. (There are only a handful of members and employers that fall under the *Canada Labour Code*.)

While away from work during the paid components of the above sick leaves, members continue to accrue service in the plan and, along with their employer, will continue making pension contributions.

Who we are

Your 2022 trustees and alternate trustees

BC's Municipal Pension Board of Trustees is responsible for administering the pension plan and managing the pension fund, including the investment of assets. The board's vision is to have secure and sustainable pensions for current and future beneficiaries of the plan.

The Municipal Pension Plan is a joint trusteeship. Representatives of both plan members and plan employers share management of the pension plan through appointment to the board. The board appoints a chair and vice-chair.

Board membership includes trustees who served during 2022; committee appointments are as of December 31, 2022.

Hilary Brown, Chair
Appointed by: British Columbia Public School Employers' Association
Committees: Board chair, appeals panel (chair), governance, valuation, Interplan Executive Forum
Board term: January 1, 2012–present

Gary Yee, Vice-chair (alternate)
Appointed by: Municipal Employees' Pension Committee
Committees: Board vice-chair, appeals panel, governance, valuation, Interplan Executive Forum
Additional board appointments: BC Pension Corporation board of directors
Board term: January 1, 2014–present

Donisa Bernardo
Appointed by: Municipal Employees' Pension Committee
Committees: Benefits (chair), appeals panel, governance, interplan trustee education
Board term: May 1, 2001–present

Lucas Corwin
Appointed by: Government of British Columbia
Committees: Communications and advocacy
Additional board appointments: BC Pension Corporation board of directors
Board term: September 25, 2008–present

Carol Delveris
Appointed by: Hospital Employees' Union
Committees: Interplan audit
Board term: March 28, 2022–present

Chris Finding
Appointed by: Hospital Employees' Union
Committees: N/A
Board term: January 1, 2015–March 3, 2022

Lyn Kocher
Appointed by: Health Employers Association of British Columbia
Committees: Governance (alternate chair), valuation, interplan trustee education
Board term: April 5, 2001–present

Donna Lommer
Appointed by: Health Employers Association of British Columbia
Committees: Communications and advocacy (alternate chair)
Additional board appointments: BCI board of directors
Board term: March 8, 2017–March 7, 2018 (rescinded by plan employer partners) and March 7, 2018–present (HEABC)

Claire Moglove
Appointed by: Union of British Columbia Municipalities
Committees: Investment
Board term: January 1, 2022–present

Chris Rathbone
Appointed by: Government of British Columbia
Committees: Investment
Board term: January 1, 2019–present

Al Richmond
Appointed by: Union of British Columbia Municipalities
Committees: Governance, investment (alternate chair)
Board term: January 1, 2017–December 31, 2022

Josef Rieder
Appointed by: Health Sciences Association of British Columbia
Committees: Communications and advocacy, investment
Board term: October 4, 2016–present

Harpinder Sandhu
Appointed by: Canadian Union of Public Employees, British Columbia
Committees: Investment (chair), governance
Board term: July 19, 2019–present

Nicholas Schnee
Appointed by: Plan employer partner—excluded member
Committees: Communications and advocacy
Board term: January 1, 2020–December 31, 2022

Michelle Sordal
Appointed by: British Columbia Nurses' Union
Committees: Investment
Board term: September 10, 2020–present

Angie Sorrell
Appointed by: Government of British Columbia
Committees: N/A
Board term: February 12, 2008–February 24, 2022

Don Sutton
Appointed by: Member partner—retired member
Committees: Benefits (alternate chair), communications and advocacy
Board term: January 1, 2018–present

Robert Weeks
Appointed by: British Columbia Professional Fire Fighters Association and the British Columbia Police Association
Committees: Valuation (chair), governance
Board term: January 1, 2016–present

Thom Yachnin
Appointed by: Council of Joint Organizations and Unions
Committees: Benefits, investment
Board term: May 26, 2021–present

Alternate trustees

Ron Amos

Appointed by: British Columbia Public School Employers' Association
Committees: Benefits, interplan audit
Board term: February 5, 2014–December 31, 2022

Glen Brown

Appointed by: Plan employer partner—excluded member
Committees: Valuation (alternate chair)
Board term: January 1, 2020–present

Lorne Burkart

Appointed by: British Columbia Nurses' Union
Committees: Benefits, governance, valuation
Board term: April 28, 2018–January 25, 2019 and April 16, 2019–present

Shireen Clark

Appointed by: Canadian Union of Public Employees
Committees: N/A
Board term: January 1, 2021–May 10, 2022

Talitha Dekker

Appointed by: Hospital Employees' Union
Committees: Communications and advocacy
Board term: December 20, 2018–present

Brian Frenkel

Appointed by: Union of British Columbia Municipalities
Committees: Benefits, communications and advocacy
Board term: January 1, 2020–present

Terri Griffin

Appointed by: Member partner—retired member
Committees: Benefits
Board term: January 1, 2021–present

Dean Levangie
Appointed by: Health Employers Association of British Columbia
Committees: Benefits, appeals panel, governance
Board term: January 1, 2019–present

Michael Lord
Appointed by: Health Employers Association of British Columbia
Committees: N/A
Board term: November 29, 2022–present

Gary MacIsaac
Appointed by: Union of British Columbia Municipalities
Committees: Benefits, valuation
Board term: January 1, 2014–present

Sara Manchester
Appointed by: Canadian Union of Public Employees
Committees: N/A
Board term: July 13, 2022–present

Janice Morrison
Appointed by: Health Sciences Association of British Columbia
Committees: Valuation
Board term: January 1, 2022–present

Samuel Myers
Appointed by: Government of British Columbia
Committees: Investment, valuation
Board term: February 25, 2022–present

Brian Northam
Appointed by: Council of Joint Organizations and Unions
Committees: Appeals panel, valuation
Board term: April 5, 2001–present

Megan Pratt
Appointed by: Government of British Columbia
Committees: N/A
Board term: February 4, 2022–January 13, 2023

Tom Stamatakis
Appointed by: British Columbia Professional Fire Fighters Association and the British Columbia Police Association
Committees: Communications and advocacy (chair), governance (chair)
Board term: March 27, 2018–present

David Williams
Appointed by: Health Employers Association of British Columbia
Committees: N/A
Board term: January 1, 2019–June 20, 2022

TRUSTEE REMUNERATION

For the year ended December 31, 2022

Name[1]	Meetings attended/ scheduled[2]	Additional meetings attended	Total remuneration paid ($)[3]	Remuneration by payee ($)	Remuneration payee
Brown, Hilary (chair)[4]	16/16	8	$28,424.40	$11,142.07	Board Member
				17,282.33	BCPSEA
Yee, Gary (vice-chair)[4]	15/16	9	31,451.16	31,451.16	CUPE BC
Amos, Ron	9/11		4,803.44	1,602.44	Board member
				3,201.00	School District #69 Qualicum
Bernardo, Donisa	13/16		7,275.00	7,275.00	Board member
Brown, Glen	9/9		6,208.00	6,208.00	Union of BC Municipalities
Burkart, Lorne	10/12	1	8,233.36	1,152.36	Board member
				7,081.00	BC Nurses' Union
Clark, Shireen	2/2		970.00	970.00	CUPE BC
Corwin, Lucas	5/9		1,742.00	1,742.00	Ministry of Finance
Dekker, Talitha	8/9		6,208.00	6,208.00	Hospital Employees' Union
Delveris, Carol	4/5		3,686.00	3,686.00	Hospital Employees' Union
Finding, Chris	3/3	2	2,405.00	2,405.00	Board member
Frenkel, Brian	10/12	1	6,887.00	6,887.00	Board member
Griffin, Terri	8/8		6,790.00	6,790.00	Board member
Kocher, Lyn	10/15		3,492.00	3,492.00	Board member
Levangie, Dean	12/13		5,141.00	5,141.00	Health Employers' Association of BC
Lommer, Donna	8/9		6,887.00	6,887.00	Interior Health Authority
MacIsaac, Gary	11/12		4,850.00	4,850.00	Union of BC Municipalities
Manchester, Sara	3/3		2,490.96	2,490.60	Board member
Moglove, Claire	8/9		9,936.68	9,936.68	Board member
Morrison, Janice	3/7		4,268.00	4,268.00	Board member
Myers, Sam	9/9	1	6,285.60	6,285.60	Minister of Finance
Northam, Brian	9/11		0	0	
Pratt, Megan	4/5	2	4,465.88	4,465.88	Minister of Finance
Rathbone, Chris	6/9		5,323.00	5,323.00	Ministry of Jobs, Economic Recovery & Innovation
Richmond, Al	12/12		15,184.48	15,184.48	Board member
Rieder, Josef	11/13		7,841.00	7,841.00	Health Sciences Association of BC
Sandhu, Harpinder	10/12		11,581.20	2,320.00	Board member
				9,261.20	CUPE BC
Schnee, Nicholas	7/9		4,850.00	4,850.00	Provincial Health Services Authority

Trustee remuneration continued

Name[1]	Meetings attended/ scheduled[2]	Additional meetings attended	Total remuneration paid ($)[3]	Remuneration by payee ($)	Remuneration payee
Sordal, Michelle	7/9		6,111.00	1,649.00	Board member
				4,462.00	BC Nurses' Union
Sorrell, Angie	1/2		768.00	380.00	Public Sector Employers' Council Secretariat
				388.00	Ministry of Finance
Stamatakis, Tom	12/12		10,282.00	6,208.00	Vancouver Police Union
				4,074.00	British Columbia Police Association
Sutton, Donald	12/12		9,463.32	9,463.32	Board member
Taylor, Richard			570.00	570.00	Board member
Weeks, Robert	8/12		8,860.52	8,472.52	Board member
				388.00	BC Professional Fire Fighters' Association
Williams, David	2/4		0	0	
Yachnin, Thom	9/9		7,178.00	7,178.00	BCGEU
Total				**$250,913.00**	

1 Additional information on trustees is available on pages 26–31.

2 Comparison of the number of meetings attended vs. the number of meetings scheduled. The number of meetings scheduled varies by trustee due to committee membership.

3 Total remuneration paid includes attendance at board and committee meetings, educational events, conferences, and preparation and travel time for these meetings/events.

4 Includes board chair annual stipend of $7,760 and vice-chair annual stipend of $5,820.

Agents and service providers

British Columbia Investment Management Corporation (BCI)

BCI is a leading provider of investment management services to British Columbia's public sector and one of the largest asset managers in Canada, with $211.1 billion in managed assets as at March 31, 2022.

With its global outlook, BCI seeks investment opportunities that convert savings into capital that will meet clients' risk and return requirements over time. BCI offers investment options across a range of asset classes: fixed income, mortgages, public and private equity, real estate, and infrastructure and renewable resources.

BC Pension Corporation

BC Pension Corporation is one of the largest professional pension services providers in Canada. It serves over 685,000 active and retired plan members and more than 1,000 employers. Each month, BC Pension pays out $500 million in benefits ($5.5 billion each year) to more than 224,000 retirees.

As the administrative agent working on behalf of the board, it provides pension administration services to the plan. These services include providing plan information to members and employers; managing contributions and member records; paying pension benefits; and providing policy, financial and communication services.

Eckler Ltd.

Eckler is a Canada-based actuarial and consulting firm specializing in financial services, pensions and benefits, and global consulting solutions.

As the plan's independent actuary, Eckler does an actuarial valuation on the plan's funding every three years and supports the board in its decision making, as appropriate.

Hatch Law

Shawn Hatch is a legal advisor who serves as legal counsel for the plan.

KPMG LLP

KPMG provides external audit services for the plan.

Financial statements

BC PENSION
CORPORATION

June 22, 2023

Re: Municipal Pension Plan

Administrative agent's responsibility for financial reporting

The financial statements of the Municipal Pension Plan were prepared by British Columbia Pension Corporation, the administrative agent for the Municipal Pension Board of Trustees in accordance with Canadian accounting standards for pension plans. The Board is responsible for approving the Plan's financial statements. The Board is assisted by the Interplan Audit Committee, which is made up of representatives from the Public Service, Municipal, Teachers' and College pension boards of trustees. As part of its responsibility, the Committee reviews the financial statements, and performs steps and procedures as necessary, prior to recommending them to the Board for approval.

Pension Corporation prepares the financial statements and is responsible for the integrity and fairness of the data presented, including significant accounting judgments and estimates. This responsibility includes selecting appropriate accounting policies consistent with Canadian accounting standards for pension plans. In discharging its responsibility, Pension Corporation maintains a system of internal controls designed to provide reasonable assurance that transactions are properly authorized, reliable financial records are maintained and assets are adequately safeguarded, ensuring the fair presentation of the financial statements. Pension Corporation has assessed that the Plan will continue as a going concern and ensured that other financial information contained in the Municipal Pension Plan *Annual Report* is consistent with these financial statements.

The Board appointed KPMG LLP as the independent auditor to the Plan. The role of the auditor is to perform an independent audit of the financial statements of the Plan in accordance with Canadian generally accepted auditing standards. The resulting audit opinion is set out in the independent auditor's report attached to these financial statements.

Trevor Fedyna, CPA, CGA, C. Dir.
Vice-president, Strategy, Insights
and Chief Financial Officer
British Columbia Pension Corporation

Allan Chen, CPA, CA
Controller, Financial Services
British Columbia Pension Corporation

Executive Offices
Mail: PO Box 9460
Victoria, BC V8W 9V8
Phone: 250 387-8201
Fax: 250 953-0429
bcpensioncorp.ca

KPMG LLP
PO Box 10426 777 Dunsmuir Street
Vancouver BC V7Y 1K3
Canada
Telephone (604) 691-3000
Fax (604) 691-3031

INDEPENDENT AUDITOR'S REPORT

To the Members of the Municipal Pension Plan

Opinion

We have audited the financial statements of the Municipal Pension Plan (the "Plan"), which comprise:

- the statement of financial position as at December 31, 2022
- the statement of changes in net assets available for benefits for the year then ended
- the statement of changes in accrued pension obligations for the year then ended
- and notes to the financial statements, including a summary of significant accounting policies and other explanatory information.

(hereinafter referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Plan as at December 31, 2022, and its changes in net assets available for benefits and its changes in accrued pension obligations for the year then ended in accordance with Canadian accounting standards for pension plans.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the "***Auditor's Responsibilities for the Audit of the Financial Statements***" section of our auditor's report.

We are independent of the Plan in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other Information

Management is responsible for the other information. Other information comprises the information, other than the financial statements and the auditor's report thereon, included in the annual report.

Our opinion on the financial statements does not cover the other information and we do not and will not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit and remain alert for indications that the other information appears to be materially misstated.

We obtained the information, other than the financial statements and the auditor's report thereon, included in the annual report as at the date of this auditor's report. If, based on the work we have performed on this other information, we conclude that there is a material misstatement of this other information, we are required to report that fact in the auditor's report.

We have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian accounting standards for pension plans, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Plan's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Plan or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Plan's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Plan's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Plan to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

KPMG LLP

Chartered Professional Accountants

Vancouver, Canada
June 22, 2023

MUNICIPAL PENSION PLAN

Statement of financial position

($ millions)

As at December 31	Note	2022	2021
Assets			
Investments	3a	$ **71,595**	$ 73,848
Directly held derivatives	3b	**591**	86
Contributions receivable		**98**	97
Interest and dividends receivable		**6**	3
Prepaid expenses		-	8
Tax rebate receivable		-	1
Cash		-	330
Total assets		**72,290**	**74,373**
Liabilities			
Directly held derivatives	3b	**678**	144
Accounts payable and accrued expenses		**41**	45
Taxes payable		**20**	19
Total liabilities		**739**	208
Net assets available for benefits		**$ 71,551**	**$ 74,165**
Accrued pension obligations			
Accrued basic pension obligations	4a	$ **49,682**	$ 46,051
Non-guaranteed pension obligations	4b	**13,126**	13,017
Retirement annuity account	4c	**369**	396
Accrued pension obligations		**63,177**	59,464
Surplus			
Accessible actuarial excess	5a	**1,877**	-
Funding surplus	5a	-	4,266
Measurement differences between funding and accounting positions	5a	**6,497**	10,435
Surplus		**8,374**	14,701
Accrued pension obligations and surplus		**$ 71,551**	**$ 74,165**

The accompanying notes are an integral part of the financial statements including:

Commitments (note 14)

Approved by the Municipal Pension Board of Trustees:

Carol Delveris, CPA, CA, Trustee
Municipal Pension Board of Trustees

Michael Lord, CPA, Trustee
Municipal Pension Board of Trustees

MUNICIPAL PENSION PLAN

Statement of changes in net assets available for benefits

($ millions)

For the year ended December 31	Note	Basic account	Inflation adjustment account	Retirement annuity account	Supplemental benefits account	Totals 2022	Totals 2021
Increase in assets							
Investment income (loss)	8	$ (2,047)	$ (300)	$ 35	$ -	**$ (2,312)**	$ 7,789
Contributions							
Members	9	1,017	181	2	4	**1,204**	1,169
Employers	9	1,042	166	2	115	**1,325**	1,342
		2,059	347	4	119	**2,529**	2,511
Transfers from other plans		61	10	-	-	**71**	21
Total increase in assets		73	57	39	119	**288**	10,321
Decrease in assets							
Benefits	10	2,389	134	26	16	**2,565**	2,342
Transfers to other plans		15	9	-	-	**24**	19
Retired member group benefits	11	-	-	-	102	**102**	143
Investment and administration costs	12	181	29	-	1	**211**	132
Total decrease in assets		2,585	172	26	119	**2,902**	2,636
Increase (decrease) in net assets before transfers		(2,512)	(115)	13	-	**(2,614)**	7,685
Account transfers	13	(184)	224	(40)	-	**-**	-
Increase (decrease) in net assets		**(2,696)**	**109**	**(27)**	**-**	**(2,614)**	**7,685**
Net assets available for benefits at beginning of year		60,752	13,017	396	-	**74,165**	**66,480**
Net assets available for benefits at end of year		**$ 58,056**	**$ 13,126**	**$ 369**	**$ -**	**$ 71,551**	**$ 74,165**

The accompanying notes are an integral part of the financial statements.

MUNICIPAL PENSION PLAN

Statement of changes in accrued pension obligations

($ millions)

For the year ended December 31	Note	2022	2021
Increase in accrued pension obligations			
Interest on accrued pension obligations		$ **2,815**	$ 2,721
Benefits accrued		**2,366**	1,847
Change in actuarial assumptions	4a	**727**	-
Account transfers		**473**	124
Total increase in accrued pension obligations		**6,381**	4,692
Decrease in accrued pension obligations			
Benefits paid		**2,475**	2,272
Experience gains	4a	**275**	-
Total decrease in accrued pension obligations		**2,750**	2,272
Net increase in accrued pension obligations		**3,631**	2,420
Accrued basic pension obligations at beginning of year		**46,051**	43,631
Accrued basic pension obligations at end of year	4a	**49,682**	46,051
Non-guaranteed pension obligations			
Increase in non-guaranteed pension obligations	4b	**109**	2,060
Non-guaranteed pension obligations at beginning of year		**13,017**	10,957
Non-guaranteed pension obligations at end of year	4b	**13,126**	13,017
Retirement annuity account			
Decrease in retirement annuity account	4c	**(27)**	(6)
Retirement annuity account at beginning of year		**396**	402
Retirement annuity account at end of year	4c	**369**	396
Total accrued pension obligations		**$ 63,177**	**$ 59,464**

The accompanying notes are an integral part of the financial statements.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

1. DESCRIPTION OF THE MUNICIPAL PENSION PLAN

The following description of the Municipal Pension Plan (Plan) is a summary provided for general information only. For more information, please refer to the Joint Trust Agreement (Agreement) and the Municipal Pension Plan Rules (pension plan rules).

a) General

The Plan is a jointly trusteed pension plan continued in agreement with the *Public Sector Pension Plans Act*, SBC 1999, s.44 (Act). The Act enabled the establishment of the Agreement. Joint trusteeship was established on April 5, 2001. The partners to the Agreement are the Municipal Employees' Pension Committee, as the member partner, and the Provincial Government of British Columbia and the Union of British Columbia Municipalities, as the employer partners (Partners). The Agreement describes the composition, appointment, powers, functions and duties of the Municipal Pension Board of Trustees (Board) and provides the authority for the Board to make the pension plan rules.

The Agreement was amended effective February 8, 2021. The amendment addressed contribution rates and future uses of actuarial surplus in the light of the revised benefits agreed to by the Partners effective January 1, 2022.

The Plan is registered with the Superintendent of Pensions, who administers and enforces the *Pension Benefits Standards Act* (PBSA). The PBSA governs employment pension plans registered in British Columbia that have active, inactive and retired members.

Membership in the Plan is open to all eligible employees of a municipality, school district, college, health service organization, police and fire fighters, and many other eligible employers as designated by the Board.

b) Roles and responsibilities

Partners

The Partners and appointing authorities representing the Plan members and employers are responsible for appointing 16 trustees and 16 alternate trustees. The Partners have responsibility for resolving trustee disputes and, if certain conditions are met, may direct amendments to the pension plan rules.

Board

The Board is responsible for the management of the Plan, including investment of assets and administration of the Plan. The Chair and Vice-chair are appointed by the trustees. The Board may amend the pension plan rules as long as changes can be funded by the Plan's surpluses or are cost neutral to the Plan (subject to funding provisions in note 5a). Unless required to ensure compliance with regulatory enactments applicable to the Plan, only the Partners can initiate pension plan rule changes that result in contribution rate increases.

British Columbia Pension Corporation (Pension Corporation)

Pension Corporation provides benefit administration services as an agent of the Board. The Board appoints two members to the eight-member board of directors of Pension Corporation.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

1. DESCRIPTION OF THE MUNICIPAL PENSION PLAN (CONTINUED)

b) Roles and responsibilities (continued)

British Columbia Investment Management Corporation (BCI)

BCI provides investment management services, including the valuation of investments, as an agent of the Board. The Board appoints one member to the seven-member board of directors of BCI.

Municipal Retiree Benefit Trust (MRBT)

MRBT manages group benefit services for retired members.

c) Funding

Contributions and investment earnings fund plan benefits. Contributions are made by active members and employers of the Plan. The determination of the value of the benefits and required contributions is based on triennial actuarial valuations for funding purposes.

The Board's funding policy is intended to secure the pension benefit obligation and achieve long-term stability in contribution rates for both employers and members.

d) Contributions

Membership in the Plan is divided into three groups, each with different contribution rates:

- Group 1—General membership, 97% of all members, comprises all members who are not police or firefighters
- Group 2—All police and firefighters who do not participate in group 5
- Group 5—Police and firefighters who, in an agreement with their employers, pay higher contributions than those in group 2 and receive a higher pension benefit

Basic Account

Effective January 1, 2022, a single contribution rate for the Basic Account replaced the two-tiered contribution rates for members and employers. Group 1 members contributed 7.34% of salaries (7.14% for group 2, 9.08 % for group 5). For group 1 members, employers contributed 7.34% of salaries (10.84% for group 2, 12.79% for group 5), less amounts allocated to the Supplemental Benefits Account (SBA).

Prior to January 1, 2022, group 1 and 2 members contributed to the Basic Account 6.97% of salaries up to and including the Canada Pension Plan Year's Maximum Pensionable Earnings (YMPE) (2022: $64,900, 2021: $61,600) and 8.47% of salaries over YMPE, less amounts allocated to the Supplemental Benefits Account (SBA).

Prior to January 1, 2022, group 5 members contributed to the Basic Account 8.49% of salaries up to and including the YMPE and 9.99% of salaries over YMPE, less amounts allocated to the SBA.

Prior to January 1, 2022, employers contributed to the Basic Account at varying rates, depending on the mix of employees in the group rate classifications specified by the Plan, less amounts allocated to the SBA.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

1. DESCRIPTION OF THE MUNICIPAL PENSION PLAN (CONTINUED)

d) Contributions (continued)

Inflation Adjustment Account and Supplemental Benefits Account

Effective January 1, 2022, group 1 members contributed 1.27% of salaries (1.78% for group 2, 2.04% for group 5). For group 1 members, employers contributed 1.37% of salaries (0.98% for group 2, 1.28% for group 5) and employers for all groups contributed 0.60% of salaries to the Municipal Retiree Benefit Trust.

Prior to January 1, 2022, members and employers each contributed 1.53% of salaries (1.95% for group 5) to the Inflation Adjustment Account (IAA), less amounts allocated to the SBA.

Retirement Annuity Account

Some employers have special agreements with members by which additional contributions are made to increase members' pension benefits. These contributions are credited to the Retirement Annuity Account (RAA). Depending on benefit eligibility, the accumulated monies at retirement are used to fund the purchase of additional pension benefits (pre-2007 special agreements only) or are paid out to a locked-in retirement vehicle.

e) Pension benefits

All members are eligible for a pension benefit. In this section, "pensionable earnings" means the member's highest five-year average annual salary (HAS), except for members in group 2 or group 5 that terminate employment on or after January 1, 2022, in which case it means the member's highest four-year average annual salary (and this four-year HAS applies to such members' entire service, including service prior to January 1, 2022).

For service on or after January 1, 2022, members are eligible for unreduced pension benefits

- at age 65 (age 60 for groups 2 and 5);
- at age 60, with at least two years contributory service (age 55 for groups 2 and 5); or
- for groups 2 and 5 only, at age 50 or older with age plus service totalling 80 or more.

Other retiring members have a reduction formula applied to their pensions.

Also for service on or after January 1, 2022, the Plan provides a defined basic plan benefit:

- for group 1, 1.90% of pensionable earnings for each year of pensionable service,
- for group 2, 1.30% of pensionable earnings up to the YMPE and 2.00% of pensionable earnings over the YMPE, for each year of pensionable service, and
- for group 5, 2.12% of pensionable earnings for each year of pensionable service,

to a maximum of 35 years.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

1. DESCRIPTION OF THE MUNICIPAL PENSION PLAN (CONTINUED)

e) Pension benefits (continued)

For service up to December 31, 2021, members are eligible for unreduced pension benefits

- at age 65 (age 60 for groups 2 and 5);
- at age 60, with at least two years contributory service (age 55 for groups 2 and 5); or
- at age 55 or older, with age plus years of service totalling 90 or more (age 50 or older with age plus service totalling 80 or more for groups 2 and 5).

Other retiring members have a reduction formula applied to their pensions.

Also for service up to December 31, 2021, the defined basic plan benefit is integrated with the Canada Pension Plan. The Plan provides an unreduced benefit for groups 1 and 2 of 1.3% of pensionable earnings up to the YMPE and 2.0% of pensionable earnings over the YMPE, for each year of pensionable service (to a maximum of 35 years). For group 5, the plan provides an unreduced benefit of 1.63% of pensionable earnings up to YMPE and 2.33% of pensionable earnings over the YMPE, for each year of pensionable service (to a maximum of 35 years).

The Plan also provides a bridge benefit for service up to December 31, 2021 payable to age 65 (or the date of death, if earlier). The bridge benefit for all groups is 0.7% of the lesser of YMPE or the HAS for each year of pensionable service (to a maximum of 35 years).

For groups 2 and 5 members, the Plan also provides a bridge benefit for service on or after January 1, 2022, to age 65 (or the date of death, if earlier). The bridge benefit is 0.21% for group 5 and 0.70% for group 2, of the lesser of YMPE or the HAS for each year of pensionable service (to a maximum of 35 years).

Future cost-of-living adjustments are not guaranteed. These adjustments are granted at the discretion of the Board and may not exceed the annual increase in the Canada consumer price index as at the previous September 30, subject to the availability of funds in the IAA. Any cost-of-living adjustment the Board grants is applied in January. The Board annually considers relevant factors to determine if an adjustment will be granted.

f) Termination and portability benefits

Terminating members who have not yet reached the earliest retirement age may choose

- a deferred pension, or
- a transfer of the commuted value of the pension benefit (the minimum value is the member's contributions with interest) to a locked-in retirement vehicle or similar tax-sheltered plan.

Terminating members may also choose to leave their benefit on deposit in anticipation of future re-employment with a plan employer.

Where there are portability arrangements between the Plan and other pension plans, members may be able to transfer certain pension rights.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

1. DESCRIPTION OF THE MUNICIPAL PENSION PLAN (CONTINUED)

g) Other benefits

Disability and survivor benefits are also available under the Plan. A disability benefit is available to a member under age 60 (age 55 for certain groups) who has terminated employment, becomes totally and permanently disabled as defined by the Plan, has at least two years of contributory service, is not eligible to receive benefits from an approved long-term group disability plan and meets other eligibility requirements. The disability benefit is calculated using a member's years of pensionable service to the date of termination of employment, HAS and other factors. Disability benefits continue for the member's lifetime unless the member is no longer totally and permanently disabled before age 60 (age 55 for certain groups) or returns to work.

A death benefit may be available to a surviving spouse or designated beneficiary upon the death of an active member. Depending on eligibility requirements, the benefit may be paid in the form of a survivor pension or lump-sum payment.

Supplemental benefits are funded from the SBA.

h) Tax registration

The Plan is a Registered Pension Plan (RPP) as defined in the *Income Tax Act* (Canada) (registration number 0359158), except for any supplemental benefits, which are funded in addition to the RPP. The Plan is not subject to income tax but is subject to indirect taxes, including British Columbia provincial sales tax (PST) and Canadian federal goods and services tax (GST). The Plan receives a 33% rebate of GST paid.

2. SIGNIFICANT ACCOUNTING POLICIES

a) Basis of presentation

These financial statements are prepared on the going-concern basis in accordance with Canadian accounting standards for pension plans, Part IV of the *Chartered Professional Accountants of Canada Handbook* (CPA Canada Handbook), and present the Plan as a separate financial reporting entity, independent of the Plan's contributing employers and members, and independent of any associated retired member group benefit plans.

Accounting standards for private enterprises in Part II of the CPA Canada Handbook have been chosen for accounting policies that do not relate to the Plan's investment portfolio or accrued pension obligations.

b) Investments

Investments are stated at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Investment purchases and sales are recorded on the trade date (the date on which the substantial risks and rewards of ownership have been transferred).

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

c) Accrued pension obligations

Accrued pension obligations are determined based on an actuarial valuation prepared by an independent actuarial consulting firm. The Plan actuary is Eckler Ltd. The valuation of accrued pension obligations is based on data extrapolated to the financial statement date. The valuation uses the projected benefit method pro-rated on service that incorporates the independent actuary's estimate of various economic and demographic assumptions. These assumptions are the same as those used in the determination of the actuarial position of the Plan for funding purposes.

d) Investment income

Income from investments is recorded on the accrual basis and represents pooled investment portfolio income attributable to the Plan as a unit holder and income from directly held investments. The current period change in fair value includes realized and unrealized gains and losses that are included in investment income.

Within the pools, dividends are accrued on the ex-dividend date, and interest is recognized on an accrual basis. Gains and losses on derivative contracts are recognized concurrently with changes in their fair values.

e) Foreign currency translation

Assets and liabilities denominated in foreign currencies are translated into Canadian dollars at the prevailing exchange rates on the year-end date. Income and expenses are translated into Canadian dollars at the prevailing exchange rates on the dates of the transactions. The realized and unrealized gains and losses arising from these translations are included within the current period change in fair value in investment income.

f) Use of estimates

The preparation of financial statements, in conformity with Canadian accounting standards for pension plans, requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of increases and decreases in assets and liabilities during the period. Significant areas requiring the use of management estimates relate to the valuation of investments based on unobservable inputs, as further described in note 7, and the calculation of the accrued pension obligations of the Basic Account for accounting and funding purposes, as further described in notes 4 and 5. Actual results could differ materially from these estimates.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

3. INVESTMENTS

a) Investments

Fair value of investment holdings	2022			2021		
	Basic account	Inflation adjustment account	Total	Basic account	Inflation adjustment account	Total
Short-term	$ 1,471	$ 275	$ 1,746	$ 1,966	$ 365	$ 2,331
Bonds	17,446	3,260	20,706	20,451	3,798	24,249
Repurchase agreements	(6,024)	(1,125)	(7,149)	(6,041)	(1,122)	(7,163)
	11,422	2,135	13,557	14,410	2,676	17,086
Canadian equities	1,788	334	2,122	3,381	628	4,009
Global equities	9,773	1,827	11,600	10,183	1,892	12,075
Emerging markets equities	6,374	1,191	7,565	5,811	1,079	6,890
Mortgages	2,323	434	2,757	1,979	368	2,347
Real estate	11,003	2,056	13,059	10,117	1,879	11,996
Private equity	8,773	1,639	10,412	7,848	1,458	9,306
IRR*	7,395	1,382	8,777	6,585	1,223	7,808
	$ 60,322	$ 11,273	$ 71,595	$ 62,280	$ 11,568	$ 73,848

* Infrastructure and renewable resources

Plan investments consist primarily of direct ownership in units of pooled investment portfolios. Each unit gives its holder a proportionate share in the value of the net assets of the pooled investment fund. The Basic Account and IAA are combined for investment management purposes.

One or more pooled investment portfolios exist for different types of investments, such as short-term investments; bonds; Canadian, global and emerging markets equities; mortgages; real estate; private equity; and infrastructure and renewable resources. While the purpose of each fund is to invest in a particular type of investment, at any time, given the timing of trading activities, the fund may hold a certain amount of cash, short-term investments, accrued interest income and net accounts receivable or payable from outstanding sales and purchases of investments.

Short-term investments consist of Canadian and U.S. money market securities such as treasury bills, with maturities of 15 months or less, and short-term bonds with one-year to five-year terms. Short-term investments are valued using current market yields.

Bonds consist of government bonds, investment grade and non-investment grade corporate bonds, repurchase agreements, and debentures. Bonds are valued based on current market yields and, in some cases, quoted market prices. Bonds include the use of repurchase agreements to borrow money to create leverage to purchase other bonds and enhance yields through a leverage bond fund strategy.

Equities consist primarily of publicly traded shares and are valued based on quoted market prices on the primary exchanges on which they are traded.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

3. INVESTMENTS (CONTINUED)

a) Investments (continued)

Mortgages consist mainly of Canadian construction, commercial and multi-family residential mortgages. The mortgages are secured by real estate and valued using current market yields. Real estate investments consist mainly of diversified Canadian and U.S. income-producing properties. Real estate investments are valued quarterly by external investment managers and, at least once every 10 to 18 months, by accredited independent appraisers to establish current market values.

Private equity consists mainly of equity investments made outside the structure of public markets. Private equity investments are valued either quarterly or annually based on audited financial statements from external investment managers using a market-based approach.

Infrastructure and renewable resources consist of privately owned and managed infrastructure assets, as well as timber, agriculture and other renewable assets. Infrastructure and renewable resources investments are valued annually using a discounted cash flow approach or net asset value method.

b) Derivatives

Derivatives contracts are directly and indirectly held by the Plan. The details of these contracts are as follows:

Fair value of derivative contracts	2022		2021	
	Positive fair value	Negative fair value	Positive fair value	Negative fair value
Directly held				
Foreign currency forwards	$ 591	$ (678)	$ 86	$ (144)
Indirectly held in pooled investment portfolios				
Foreign currency forwards	$ 28	$ (432)	$ 36	$ (68)
Options	-	-	3	(2)
Interest rate swaps	80	(14)	20	(9)
Total return swaps	239	(161)	175	(111)
	$ 938	$ (1,285)	$ 320	$ (334)

Derivatives by investment asset classification	2022 Positive fair value	2022 Negative fair value	2021 Positive fair value	2021 Negative fair value
Bonds	$ 78	$ (405)	$ 41	$ (87)
Canadian equities	6	(7)	24	(22)
Global equities	160	(209)	163	(70)
Emerging markets equities	149	(24)	15	(35)
Mortgages	-	-	2	(19)
Real estate	52	(327)	43	(55)
IRR*	493	(313)	32	(46)
	$ 938	$ (1,285)	$ 320	$ (334)

*Infrastructure and renewable resources

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

3. **INVESTMENTS (CONTINUED)**

b) Derivatives (continued)

Derivative contracts consist of foreign currency forward contracts, options, futures, interest rate swaps, and total return swaps held directly by the Plan or indirectly through various pooled investment portfolios. Directly held and indirectly held derivative contracts are reflected at fair value based on expected settlement amounts at the date of the Statement of Financial Position. Directly held derivatives are disclosed on the face of the Statement of Financial Position while indirectly held derivatives are included in investments.

A foreign currency forward contract is a privately negotiated contractual obligation to exchange one currency for another at a specified price for settlement on a predetermined date in the future. Foreign currency forward contracts are held by the plan to manage exposure to foreign currency risk.

Options are contracts that give the buyer the right, but not the obligation, to buy or sell a certain security or index at an agreed-upon price on or before a specified date. Futures contracts are exchange-traded contractual obligations to take or make delivery of an asset at a predefined price and date in the future. Gains and losses on futures contracts are settled daily. Options and futures are held for synthetic indexing, a modern technique used to replicate the performance of a security or index without directly purchasing or selling the underlying assets and for risk control.

An interest rate swap is an agreement between two counterparties in which one stream of future interest payments is exchanged for another based on a specified principal amount. Interest rate swaps usually involve the exchange of a fixed interest rate for a floating interest rate, or vice versa, to reduce or increase exposure to fluctuations in interest rates or to obtain a marginally better interest rate than would have been possible without the swap.

A total return swap is a swap agreement in which one party makes payments based on a set rate, either fixed or variable, while the other party makes payments based on the return of an underlying asset, including both the income it generates and any capital gains. In total return swaps, the underlying asset (referred to as the reference asset) is usually an equity index or basket of equity securities. Interest rate swaps and total return swaps are held indirectly through various pooled investment portfolios for synthetic indexing purposes.

Derivative transactions are supported with collateral to mitigate counterparty credit risk. A single net fair value amount is used to determine the value of collateral with each counterparty. Collateral approximately equal to the positive fair value of each derivative contract is provided by counterparties, and collateral approximately equal to the negative fair value of each derivative contract is delivered to counterparties. Acceptable forms of collateral are Canadian federal or provincial bonds, and U.S. federal government treasury bills and bonds.

The notional value of derivatives is the total value of a position, how much value a position controls, or an agreed-upon amount in a contract.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

3. INVESTMENTS (CONTINUED)

b) Derivatives (continued)

Notional value of derivatives			2022	2021
Terms to maturity	**Within 1 year**	**1 to 5 years**	**Total**	**Total**
Derivatives by type of contract				
Directly held				
Foreign currency forwards	$ 29,124	$ -	$ 29,124	$ 14,963
Indirectly held in pooled investment portfolios				
Foreign currency forwards	$ 9,899	$ -	$ 9,899	$ 5,465
Options	-	-	-	128
Interest rate swaps	3,935	2,833	6,768	6,454
Total return swaps	13,965	-	13,965	16,608
	$ 56,923	$ 2,833	$ 59,756	$ 43,618
Derivatives by investment asset classification				
Short-term	$ 52	$ -	$ 52	$ -
Bonds	10,221	-	10,221	9,391
Canadian equities	437	108	545	4,053
Global equities	14,263	1,790	16,053	13,176
Emerging markets equities	4,009	935	4,944	4,913
Mortgages	-	-	-	1,266
Real estate	9,425	-	9,425	6,007
IRR*	18,516	-	18,516	4,812
	$ 56,923	$ 2,833	$ 59,756	$ 43,618

* Infrastructure and renewable resources

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

3. INVESTMENTS (CONTINUED)

c) Repurchase agreements

The Plan has indirect exposure to repurchase agreements through its investment in the pooled investment portfolio underwritten on bond securities. Repurchase agreements are short-term agreements to sell securities in order to buy them back at a slightly higher price. The party selling the repurchase agreement is effectively borrowing, and the other party is lending, since the lender is credited the implicit interest in the difference in prices. Securities sold under repurchase agreements are accounted for as collateralized borrowing because they represent the sale of securities with a simultaneous agreement to buy them back at a specified future date. The securities sold under these agreements continue to be recognized on the Statement of Financial Position with any changes in fair value recorded as net gain (loss) on investments and included in investment income. Interest incurred on repurchase agreements is included in borrowing costs within investment-related expenses.

Repurchase agreements are carried at the amount at which the securities were initially acquired or sold, which, together with accrued interest income or expense, approximates fair value due to the short-term nature of these agreements.

4. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR ACCOUNTING PURPOSES

a) Basic Account

In accordance with the Agreement and PBSA, an actuarial valuation is performed at least every three years. Its primary objective is to assess the financial position and adequacy of funding for the Basic Account of the Plan as described in note 5a. As part of the actuarial valuation, the Plan actuary also calculates values, for accounting purposes, of the Basic Account assets as at, and pension liabilities accrued to, the financial statement date. For this purpose, contributions and benefits for future service are not included, in contrast to their inclusion in the valuation for funding purposes as described in note 5a. Also, for accounting purposes, the full impact of investment fair value changes is reflected in the financial statements as at the financial statement date compared with the deferral and amortization of fair value gains or losses in the valuation for funding purposes. The liability for accrued basic pension obligations at the valuation date is determined using the projected benefit method pro-rated on service.

The latest full actuarial valuation for accounting purposes was prepared as at December 31, 2021, by Eckler Ltd. This valuation calculated the liability for accrued basic pension obligations for financial statement purposes to be $46,503 million (2018: $38,642 million).

Between valuations, an estimate of the actuarial position is required. This estimate, an extrapolation, has been made to December 31, 2022, using the following long-term actuarial assumptions:

- Annual investment return 6.00% (2018: 6.25%)
- Annual salary escalation rate 3.25% (2018: 3.50%)

The extrapolation calculated the liability for accrued basic pension obligations to be $49,682 million (2021: $46,051 million).

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

4. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR ACCOUNTING PURPOSES (CONTINUED)

a) Basic Account (continued)

In 2022 the extrapolation reflected assumption changes made during the 2021 valuation that resulted in an increase in the 2021 accrued basic pension obligations of $727 million. The most significant change in the assumptions was a decrease in the discount rate, which increased the accrued basic pension obligations, although this was offset by a reduction in the salary escalation rate. Further, the 2021 valuation accrued basic pension obligations were $275 million lower than anticipated by the 2021 extrapolation, representing the net result of experience gains and losses (e.g. lower than expected salary increase, retirements later than assumed).

Extrapolations may not be reliable indicators of the next valuation results, nor do they necessarily reflect the overall trend of results. Between valuations, actual wage increases, investment earnings, and the incidence of retirements, withdrawals and changes in other factors may vary significantly from the long-term assumptions used in the extrapolation. In the event of a major change to the Plan, a new valuation or review of the assumptions may be required.

The next full actuarial valuation will be carried out as at December 31, 2024, with the results included in the December 31, 2025, financial statements.

Actuarial liabilities are also affected by changes in the assumed investment return. Based on the actuarial valuation completed as at December 31, 2021, a reduction in the investment return assumption from 6.00% to 5.75% would have increased the December 31, 2022, liability for accrued basic obligations of $49,682 million by $1,562 million or 3.14% and the impact of a 1% change would be approximately four times the amount. Changes to assumptions included in the actuarial valuation are interrelated, and the cumulative impact of changed assumptions may be offsetting.

b) Inflation Adjustment Account, non-guaranteed pension obligations

No unfunded liability exists for the IAA since the obligation for future cost-of-living adjustments is limited to the amount of the available assets in the account. There is no minimum level of inflation adjustment required to be paid under the pension plan rules, nor is there any Plan provision to fund the IAA to any minimum level of future potential inflation adjustments (note 5b). The non-guaranteed pension obligation is therefore equal to the net assets available for benefits in the IAA $13,126 million (2021: $13,017 million). The net increase of $109 million (2021: $2,060 million) in the IAA balance consists of employee and employer contributions, investment income and net transfers reduced by payments out of the account (see note 13 for details on amounts transferred).

c) Retirement Annuity Account

The RAA is comprised of additional contributions by employers and members under special agreements. If a member is entitled to, and chooses to, purchase additional pension benefits at retirement, monies are transferred from the RAA to the Basic Account and the IAA to fund the additional benefits. No unfunded liability exists as the obligation to purchase a pension is limited to the amount of the available assets in the account. The pension benefit for the RAA is therefore equal to the net assets available in the RAA, $369 million (2021: $396 million).

The net assets available in the RAA decreased $27 million (2021: $6 million decrease) as employee and employer contributions and earnings on investments were reduced by payments out of the account.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES

a) Basic Account

The Basic Account is the account from which the defined basic benefits of the Plan are paid. In accordance with the Agreement and PBSA, an actuarial valuation of the Plan's assets and pension obligations is performed at least every three years by an independent actuary to determine an appropriate combined employer and member contribution rate to fund the Basic Account. For this purpose, the Plan's actuary values both accrued assets and accrued pension obligations to the financial statement date, and contributions and benefits for future service. The contribution requirements are calculated by the actuary using the entry-age normal cost method (entry-age method).

This method produces the long-term rate of member and employer contributions sufficient to provide benefits for the average future new entrants to the Plan. This rate may be adjusted for the amortization of any actuarial funding surplus, and this rate will be adjusted for the amortization of any unfunded actuarial liability. Contribution rate determination excludes consideration of the assets in the RSA that is held notionally within the Basic Account; if contribution rate increases are considered, funds will be transferred from the RSA to keep the rate at its current level or to minimize the increase.

In 2021, as allowed by the Agreement, a Group Contribution Rate Rebalancing Account (GCRRA) was created that is held notionally within the Basic Account. At each valuation, the actuary calculates adjustments to contribution rates required to ensure that each group is paying a contribution rate that correctly reflects the cost of the benefits for each group. Contribution rate determination will exclude consideration of the assets in the GCRRA. The GCRRA will be used to mitigate the impact of contribution rate increases to group 2 and group 5 arising from the need to rebalance contributions rates between the groups in the plan. Following the December 31, 2021 valuation, the GCRRA is being drawn down to mitigate contribution increases that would otherwise have applied to group 2 and group 5.

The Basic Account is also the account from which any cost-of-living adjustments granted to retired members are paid. Future cost-of-living adjustments are not guaranteed within the Plan provisions and are granted to retired members only to the extent that sufficient assets are available from the IAA to fund those benefits (note 5b). As cost-of-living adjustments are granted, the Basic Account receives from the IAA the present value funding necessary for the cost-of-living adjustments granted. Therefore, accrued basic pension obligations for valuation purposes include the liability for all cost-of-living adjustments granted to the date of the valuation, but not for as-yet-unknown future cost-of-living adjustments.

Actuarial valuation

The latest full actuarial valuation for funding purposes was prepared as at December 31, 2021, by the independent actuary based on the entry-age method; the valuation indicated an actuarial surplus of $3,761 million. As per the agreement, $1,018 million of the December 21 2021 valuation surplus was transferred, $509 million to IAA and $509 million to RSA. The amounts of these transfers as at December 31, 2022 also includes interest.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (CONTINUED)

a) Basic Account (continued)

Following the December 31, 2018 valuation, a new amortization of 0.50% of pay for group 2 and 0.68% of pay for group 5 arising from the plan benefit changes was established effective January 1, 2022, and is due until the end of 2036.

Interest is added to the RSA at the smoothed investment return rate. The initial RSA balance (funded from 2015 valuation surplus) was subject to a maximum of $2,500 million. Effective December 31, 2021 the RSA maximum has been removed. The Agreement required the allocation of portions of the revised 2018 surplus to the RSA and the GCRRA.

An estimate of the actuarial position of the Plan for funding purposes has been made to December 31, 2022, using the following long-term actuarial assumptions:

- Annual investment return 6.00% (2018: 6.25%)
- Annual salary escalation rate 3.25% (2018: 3.50%)

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (CONTINUED)

a) Basic Account (continued)

This estimate, an extrapolation, produced an estimated accessible actuarial excess of $1,877 million as at December 31, 2022 and an estimated funding surplus of $4,499 million (2021: $4,266 million funding surplus), as follows:

Funding extrapolation		2022		2021
Net assets available for basic pension benefits	$	**58,056**	$	60,752
Actuarial asset value adjustment		**3,224**		(4,507)
Smoothed assets for basic pension benefits		**61,280**		56,245
RSA		**(2,755)**		(2,500)
Additional RSA from 2021 valuation surplus		**(561)**		-
Additional RSA from 2018 valuation surplus		**(755)**		(685)
GCRRA		**(44)**		(42)
Smoothed assets excluding rate stabilization account and GCRRA		**57,165**		53,018
Present value of future contributions (entry-age method)		**22,034**		19,803
Present value of future amoritzation for group 2 and 5		**75**		72
Present value of temporary rate reduction below entry-age rate		**(292)**		-
Net actuarial assets for basic pension benefits		**78,982**		72,893
Actuarial liability for accrued and future basic pension benefits		**(74,483)**		(68,627)
Entry-age method actuarial surplus	$	**4,499**	$	**4,266**
PBSA 5% of net liabilities		**(2,622)**		-
Accessible actuarial excess	$	**1,877**	$	-

Changes in the extrapolated entry-age method funded status		2022		2021
Extrapolated entry-age method actuarial surplus, beginning of year	$	**4,266**	$	2,400
Adjustment to reflect the 2021 valuation		**(505)**		-
2021 surplus transfer to RSA, beginning of year		**(509)**		-
2021 surplus transfer to IAA, beginning of year		**(509)**		-
2021 surplus used to maintain the current contribution rate, beginning of year		**(277)**		-
Extrapolated change in actuarial assets for basic pension benefits		**6,147**		6,875
Extrapolated change in actuarial liability for accrued and future basic pension benefits		**(4,114)**		(5,009)
Entry-age method actuarial surplus, end of year	$	**4,499**	$	**4,266**
PBSA 5% of net liabilities		**(2,622)**		-
Accessible actuarial excess	$	**1,877**	$	-

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (CONTINUED)

a) Basic Account (continued)

Based on the funded position at the December 31, 2021 actuarial valuation, the Joint Trust Agreement required that part of the surplus be used to fund a contribution rate reduction below the entry age normal cost. The extrapolation reflects the amount of surplus required for the contribution reduction as well as the 5% of net liabilities (total liabilities less the present value of future contributions at entry-age rate) that needs to be held in the Basic Account when the current contribution rate is below the entry age normal cost.

Extrapolations may not be reliable indicators of the next valuation results, nor do they necessarily reflect the overall trend of results. Between valuations, various factors, including actual wage increases, investment earnings, and the incidence of retirements and withdrawals, may vary significantly from the long-term assumptions used in the extrapolation.

Measurement differences between funding and accounting positions

The primary components of the measurement differences between the extrapolated entry-age method funding surplus and the financial statement accounting surplus are as follows:

Measurement difference between funding and accounting positions	**2022**	**2021**
Entry-age method funding surplus	$ **4,499**	$ 4,266
PBSA 5% of net liabilities	**(2,622)**	-
Accessible actuarial excess	**1,877**	-
Actuarial asset value adjustment	**(3,224)**	4,507
RSA adjustment	**2,755**	2,500
Additional RSA from 2021 surplus	**561**	-
Additional RSA from 2018 surplus	**755**	685
GCRRA	**44**	42
PBSA 5% of net liabilities	**2,622**	-
Difference in actuarial methods – present value of future contributions	**(22,034)**	(19,803)
Difference in actuarial methods – present value of future amortization for group	**(75)**	(72)
Present value of temporary rate reduction below entry-age	**292**	-
Difference in actuarial methods – present value of future liabilities	**24,801**	22,576
Measurement differences between funding and accounting positions	**6,497**	10,435
Surplus for financial statement purposes	$ 8,374	$ **14,701**

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

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5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (CONTINUED)

a) Basic Account (continued)

Actuarial asset value adjustment

To determine the entry-age method surplus for funding purposes, the actuarial value of net assets available for benefits is determined on an adjusted value basis that smooths the difference between the actual investment return and the expected return based on a long-term real return rate over a five-year period.

The funding policy requires that the value of the assets be smoothed within a certain corridor. The corridor required that the smoothed value be no more than 108% and no less than 92% of the market value of the assets. The smoothed value of the assets at December 31, 2022, was 105.6% (2021: 92.6%).

The following schedule indicates the year the components of the actuarial asset value adjustment will be recognized in the entry-age method actuarial surplus. The amounts are based on that proportion of the total fund related to the Basic Account assets.

Actuarial asset value adjustment	2022	2021
2022	-	1,387
2023	**79**	1,674
2024	**(502)**	1,086
2025	**(1,222)**	360
2026	**(1,579)**	-
Total adjustment	**$ (3,224)**	**$ 4,507**

Rate Stabilization Account

The RSA is held notionally within the Basic Account. As per the Agreement, $509 million of the 2021 surplus together with interest of $52 million at the smoothed rate of return was transferred to the RSA in 2022. In addition, Interest of $325 million for the year (2021: 163 million) was transferred from the Basic Account to the RSA based on the 2022 opening balance and a smoothed rate of return of 10.22% (2021: 12.32%).

In Fiscal 2021, the $2,500 million cap on the RSA was removed. Effective December 31, 2021, $522 million of the 2018 surplus together with interest on this amount at the smoothed rate of return from December 31, 2018 to December 31, 2021 of $163 million was transferred to the RSA. Interest on the RSA is determined by applying the smoothed rate of return to the fiscal year-end balance.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (CONTINUED)

a) Basic Account (continued)

Rate Stabilization Account (continued)

Rate stabilization account		2022		2021
Opening balance	$	**3,185**	$	2,500
2021 valuation surplus transfer		**561**		-
2018 valuation surplus transfer		-		522
Interest		**325**		163
Ending balance	$	**4,071**	$	**3,185**

Group Contribution Rate Rebalancing Account

In fiscal 2021, as a result of the amendment to the Agreement, $32 million in assets was transferred to the GCRRA that is held notionally within the Basic Account together with interest of $10 million from December 31, 2018 to December 31, 2021 at the smoothed rate of return. Future Interest on the GCRRA is determined by applying the smoothed rate of return to the fiscal year-end balance. As a result of the 2021 valuation, the rebalancing adjustments for Group 2 (0.10% of salaries) and Group 5 (0.23% of salaries) will be paid from the GCRRA, so that each group is paying a contribution rate that correctly reflects the cost of the benefits for each group. This adjustment was $2 million for 2022.

Group contribution rate rebalancing account		2022		2021
Opening balance	$	**42**	$	-
2018 valuation surplus transfer		-		32
Contribution to the basic account		**(2)**		-
Interest		**4**		10
Ending balance	$	**44**	$	**42**

Difference in actuarial methods

While the accrued pension obligations liability for financial statement purposes uses the projected benefit method pro-rated on service, the pension liability for funding purposes uses an entry-age funding method, where the present value of future normal cost contributions, basic pension benefits for future service and future amortization amounts are included in the determination of the funded status of the Plan.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (CONTINUED)

a) Basic Account (continued)

Funding provisions

The Agreement specifies that actuarial deficits will be amortized over 15 years, and actuarial gains must be used to achieve the following objectives, in order of priority:

1. Eliminating any unfunded liability.
2. Ensuring the plan is funded at the entry-age normal cost if possible.

   If the current contribution rate is less than the EANC, then use actuarial excess to support the lowest possible contribution rate below the EANC that is not less than the current contribution rate.

   If the required contribution rate is higher than the current contribution rate, then draw down funds from the RSA as needed to support the lowest possible contribution rate that is not less than the current contribution rate.
3. Transferring any remaining surplus on an equal (50/50) basis to the IAA and RSA until such time as the Board considers the IAA to be sufficient to provide full indexing and the RSA to have reached a targeted funding level. If either account is fully funded, the surplus will be transferred to the other account until that account is also fully funded. The RSA will be drawn down if required to keep the Basic Account contribution rate unchanged.

The Agreement describes that if, at any time, an actuarial valuation indicates that increased Basic Account contribution rates are required to fully fund the Plan on a going-concern basis, the increase must be shared equally by members and employers.

b) Inflation Adjustment Account

No unfunded liability exists for the IAA since the obligation for future cost-of-living adjustments is limited to the amount of the available assets in the account. As cost-of-living adjustments are granted to retired members, full funding for the granted cost-of-living adjustments, on a net present value basis, is transferred from the IAA to the Basic Account, from which the pensions are paid. There is no minimum level of cost-of-living adjustment required to be paid under the pension plan rules, nor is there any plan provision to fund the IAA to any minimum level of future potential cost-of-living adjustments.

The Board annually considers all relevant factors and its IAA funding policy to determine if a cost-of-living adjustment will be granted on pensions in pay and the amount of the cost-of-living adjustment, if any.

The Board established a cap for cost-of-living adjustments for retired members on January 1, 2014. As a result of the 2018 actuarial valuation, the cap effective January 1, 2020 until January 1, 2022, was set at 2.10%. As a result of the 2021 actuarial valuation, the board has chosen to remove the cap effective January 1, 2023 until January 1, 2025. The cap for sustainable cost-of-living adjustments will be reviewed following each subsequent triennial actuarial valuation.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (CONTINUED)

c) Retirement Annuity Account

No unfunded liability exists for the RAA, since the obligation to purchase a pension is limited to the amount of the available assets in the account. The pension benefit for the RAA is therefore equal to the net assets available in the RAA.

6. FINANCIAL RISK MANAGEMENT

The Board approves the long-term asset mix policy for investment assets through its Statement of Investment Policies and Procedures (SIPP) and oversees the management of these assets through the Board's investment management agent, BCI. The SIPP requires diversification of investments among asset classes, sets guidelines on investment categories and limits the exposure to individual investments and counterparties.

Significant risks are regularly monitored and managed by BCI, and actions are taken when appropriate, according to the Plan's SIPP. In addition, these risks are reviewed periodically with the Board. Such risks include liquidity risk, as well as other financial risks, which comprise currency risk, interest rate risk, other price risk and credit risks.

Financial risks are disclosed on a unit-of-account basis (note 6b), which represents the legal ownership of securities held, and at the underlying securities level (note 6c), which provides additional insight to other risks that may impact the financial instruments of the Plan. Both forms of disclosure provide valuable perspectives into the financial risks that may directly or indirectly impact the financial statements and the funded status of the Plan. These two forms of risk disclosure are not additive to each other.

a) Liquidity risk

Liquidity risk is the risk of not being able to meet the Plan's cash requirements in a timely and cost-effective manner. Expenditures relate primarily to pensions, termination and refund benefits, and investment and administration costs. The Plan's approach to mitigating liquidity risk is to forecast its cash requirements over the near and long term to determine whether sufficient funds are available.

The Plan's primary source of liquidity is income generated from the Plan's investments, and employer and employee contributions. Investments are primarily held in pooled funds, and the securities held are traded in active markets and can be readily sold, and where the pooled fund units can thereby be redeemed to fund cash requirements. Accounts payable of $41 million (2021: $45 million) are generally due within one month. Derivatives payable of $678 million (2021: $144 million) are due within the next fiscal year.

b) Financial risks on a unit-of-account basis

Plan investments consist primarily of direct ownership in units of pooled investment portfolios. Each unit gives its holder a proportionate interest in the value of the net assets of the respective pooled investment fund. The unit-of-account for the majority of the Plan's investments is the units of the pooled investment funds.

Market risk is the risk that the fair values of an investment will fluctuate as a result of changes in market conditions, whether those changes are caused by factors specific to the individual investment or factors affecting all securities traded in the market. Market risk consists of currency risk, interest rate risk, and other price risk.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

6. FINANCIAL RISK MANAGEMENT (CONTINUED)

b) Financial risks on a unit-of-account basis (continued)

Currency risk

Currency risk is the risk that the value of financial instruments denominated in currencies other than the functional currency of the fund will fluctuate due to changes in foreign exchange rates. The Plan holds primarily Canadian dollar–denominated investment pooled fund units and is exposed to currency risk through holdings of small amounts of foreign currency–denominated debt investments (2021: debt investments). See note 6c for currency exposure related to underlying securities.

Foreign denominated investments held as a percentage of investments

		2022	%		2021	%
United States	$	900	1.3	$	442	0.6
Australia		-	0.0		3	0.0
	$	900	1.3	$	445	0.6

As at December 31, 2022, if the Canadian dollar had strengthened or weakened by 10% in relation to all foreign currencies, with all other factors remaining constant, net assets available for benefits would have decreased or increased by approximately $90 million (2021: $45 million).

Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of Plan investments will change as a result of future fluctuations in market interest rates. The majority of the Plan's investment assets are non-interest bearing and not subject to interest rate risk. See note 6c for interest rate risk related to underlying securities.

Other price risk

Other price risk is the risk that the fair value of a financial instrument will fluctuate because of changes in market prices (other than those arising from currency risk or interest rate risk), whether those changes are caused by factors specific to the individual financial instrument or its issuer, or factors affecting all similar financial instruments traded in the market. The Plan's investments are subject to other price risk through its public equity investments and private market investments, including equity in real estate companies, held directly and through pooled investment portfolios. This risk is managed by diversifying investments across asset classes based on criteria established in the SIPP.

As at December 31, 2022, if the pooled investment fund unit and directly held equity prices increased or decreased by 10%, with all other factors remaining constant, net assets available for benefits would have increased or decreased by approximately $7,159 million (2021: $7,384 million).

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

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6. FINANCIAL RISK MANAGEMENT (CONTINUED)

b) Financial risks on a unit-of-account basis (continued)

In February 2022, events concerning Russia and Ukraine have resulted in sanctions being levied against Russian interests by numerous countries. As a result of this ongoing situation, the price and liquidity of securities connected to Russia have declined significantly and were written down to zero. The duration and extent of the impact of this situation on the Plan's other investments remain unclear.

Credit risk

Credit risk is the risk that the counterparty to a financial instrument will fail to discharge an obligation or commitment it has entered into, resulting in a financial loss to the Plan. The majority of the Plan's investments are held in securities that are not subject to credit risk. See note 6c for credit risk related to underlying securities.

Credit exposure exists for members' and employers' contributions receivable directly held by the Plan totalling $98 million (2021: $97 million), for the derivatives $591 million (2021: $86 million) and interest and dividends receivable $6 million (2021: $3 million).

c) Financial risks of underlying securities held through pooled investment funds

Pooled investment funds exist for different types of investments, such as short-term investments; bonds; Canadian, global and emerging market equities; mortgages; real estate; private equity; and infrastructure and renewable resources. Examining the risks of the underlying securities contained in pooled investment funds provides additional disclosure to assess the overall financial risks of the Plan investments. Viewing the financial risks of underlying securities is an alternative way of disclosing financial risks from the unit-of-account basis in note 6b. These risks are not considered additive to the financial risks already disclosed in note 6b.

Market risks are reduced through asset class diversification, diversification within each asset class and credit quality requirements on investments.

Currency risk

Currency exposure also arises from foreign currency–denominated investments held directly and from underlying investments held indirectly in pooled investment funds. BCI has currency exposure management programs under which it enters into economic hedges of foreign currency exposure through the use of forward foreign currency contracts.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

6. FINANCIAL RISK MANAGEMENT (CONTINUED)

c) Financial risks of underlying securities held through pooled investment funds (continued)

The Plan's total currency exposure, the impact of economic hedging activities, and the Plan's net notional exposure as at December 31 are as follows:

Foreign denominated investment holdings (Cdn dollar equivalent)	Total exposure	Economic hedging	Net exposure	% of total
			2022	
United States	$ 32,557	$ 10,238	$ 22,319	65%
Euro countries	5,531	1,062	4,469	13%
Asia-Pacific, excluding Japan	4,170	-	4,170	12%
United Kingdom	1,953	211	1,742	5%
Other	1,391	2	1,389	4%
Other Europe	431	-	431	1%
Japan	134	-	134	0%
	$ 46,167	$ 11,513	$ 34,654	100%
			2021	
United States	$ 29,974	$ 15,666	$ 14,308	58%
Euro countries	4,718	1,011	3,707	15%
Asia-Pacific, excluding Japan	4,613	896	3,717	15%
Other	1,496	-	1,496	6%
United Kingdom	2,023	1,372	651	3%
Other Europe	597	-	597	3%
Japan	145	60	85	0%
	$ 43,566	$ 19,005	$ 24,561	100%

The net foreign currency exposure of its underlying investments represents 48% (2021: 33%) of the Plan's total investments.

Interest rate risk

The Plan's pooled investment funds hold interest-bearing financial instruments in short-term investments, bonds and mortgages. The risk of adverse changes in interest rates is reduced within the underlying investment pools through management of duration in exposure to fixed income securities, the use of floating rate notes and interest rate swaps, and general diversification by security type and geographic region. The Plan participates in a leveraged bond strategy using repurchase agreements that is included in the terms to maturity table below.

MUNICIPAL PENSION PLAN

Notes to the financial statements for the year ended December 31, 2022

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6. FINANCIAL RISK MANAGEMENT (CONTINUED)

c) Financial risks of underlying securities held through pooled investment funds (continued)

The terms to contractual maturity of interest-bearing financial instruments held directly and through pooled investment portfolios as at December 31, are as follows:

Terms to maturity of interest-bearing financial instruments

	Within 1 year	1 to 5 years	6 to 10 years	Over 10 years	Total	Effective yield to maturity
			2022			
Short-term	$ 1,746	$ -	$ -	$ -	$ 1,746	4.46%
Bonds	3,069	5,971	6,365	5,301	20,706	5.91%
Repurchase agreements	(7,149)	-	-	-	(7,149)	-4.27%
Mortgages*	753	1,956	48	-	2,757	6.99%
Debt**	-	3	3	-	6	4.80%
	$ (1,581)	$ 7,930	$ 6,416	$ 5,301	$ 18,066	
			2021			
Short-term	$ 2,331	$ -	$ -	$ -	$ 2,331	0.27%
Bonds	2,442	6,676	7,682	7,449	24,249	2.68%
Repurchase agreements	(7,163)	-	-	-	(7,163)	-0.21%
Mortgages*	469	1,505	373	-	2,347	4.56%
Debt**	-	-	6	-	6	4.80%
	$ (1,921)	$ 8,181	$ 8,061	$ 7,449	$ 21,770	

* Yield based on mortgages in the fixed term mortage fund. Other mortgage funds contain variable rate mortgages

** Grouped with real estate investment category

As at December 31, 2022, if the prevailing interest rates increased or decreased by 1%, assuming a parallel shift in the yield curve with all other variables remaining constant, the fair value of interest-bearing financial instruments and net assets available for benefits would have decreased or increased by approximately $1,151 million (2021: $1,739 million).

Other price risk

Other price risk associated with the underlying investments held in pooled investment funds is consistent with that described earlier in note 6b, which describes financial risks on a unit-of-account basis.

Credit risk

The Plan's underlying investment assets held in pooled investment funds attract credit risk. This is the risk that a loss may occur from the failure of another party to perform according to the terms of a contract.

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Notes to the financial statements for the year ended December 31, 2022

($ millions except as otherwise noted)

6. FINANCIAL RISK MANAGEMENT (CONTINUED)

c) Financial risks of underlying securities held through pooled investment funds (continued)

It's also the risk of losses when issuers and debtors are downgraded by credit rating agencies, usually leading to a fall in the market value of the debtors' obligations. Credit risk is managed by establishing specific investment criteria, such as minimum credit ratings for investees and counterparties and maximum concentration limits with given counterparties.

Credit risk ratings on financial instruments (short-term investments, bonds, mortgages and debt) held directly and through pooled investment portfolios are as follows:

Credit rating of financial instruments	2022		2021	
AAA/AA	$ **5,715**	**31%**	$ 7,430	34%
A	**2,161**	**12%**	4,076	19%
BBB	**1,030**	**6%**	2,233	10%
Non-investment grade	**2,384**	**13%**	2,590	12%
	11,290	**62%**	16,329	75%
Unrated	**6,776**	**38%**	5,441	25%
	$ **18,066**	**100%**	$ **21,770**	**100%**

The ratings used are defined by Standard & Poor's rating agency. Obligations rated AAA/AA have the highest rating assigned. The lender's capacity to meet its financial commitment on the obligation is very strong. Bonds rated A, BBB or non-investment grade are weaker, with the BBB rating denoting an obligation with adequate protection parameters and a non-investment grade rating denoting major ongoing uncertainties or exposure to adverse business, financial or economic conditions that could lead to the debtor's inadequate capacity to meet its financial commitment on the obligation. Unrated financial instruments consist mainly of mortgages secured by real estate, debt and corporate bonds.

7. FAIR VALUE OF FINANCIAL INSTRUMENTS

a) Fair value hierarchy

Fair value measurements of the investment assets and liabilities are based on inputs from one or more levels of a fair value hierarchy. Each level is based on the transparency of the inputs used to measure the fair values of assets and liabilities. The three levels of the fair value hierarchy are as follows:

Level 1

Inputs that are unadjusted quoted prices in active markets for identical assets or liabilities

Level 2

Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly

Level 3

Inputs that are not based on observable market data

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7. FAIR VALUE OF FINANCIAL INSTRUMENTS (CONTINUED)

a) Fair value hierarchy (continued)

Plan investments are carried at fair value in the financial statements. The following table details the classification of the Plan's investments based on the fair value hierarchy as at December 31:

Fair value hierarchy	Level 1	Level 2	Level 3	Total
		2022		
Pooled fund units	$ 1,746	$ 36,645	$ 33,198	$ 71,589
Direct debt*	-	-	6	6
Investments	$ 1,746	$ 36,645	$ 33,204	$ 71,595
Derivatives	$ -	$ (87)	$ -	$ (87)
		2021		
Pooled fund units	$ 2,332	$ 44,131	$ 27,379	$ 73,842
Direct debt*	-	-	6	6
Investments	$ 2,332	$ 44,131	$ 27,385	$ 73,848
Derivatives	$ -	$ (58)	$ -	$ (58)

* Grouped with real estate investment category

During 2022 and 2021, there were no significant transfers of investments between levels.

The following table reconciles the Plan's level 3 fair value measurements:

Level 3 fair value hierarchy	Pooled fund units	Direct equity	Direct debt	Total
		2022		
Balance, beginning of year	$ 27,379	$ -	$ 6	$ 27,385
Gains (losses) included in investment income	(626)	-	-	(626)
Purchases	19,921	-	-	19,921
Sales	(13,476)	-	-	(13,476)
Balance, end of year	$ 33,198	$ -	$ 6	$ 33,204
Unrealized (loss) gain in investment income	$ (1,422)	$ -	$ -	$ (1,422)
		2021		
Balance, beginning of year	$ 22,221	$ 595	$ 282	$ 23,098
Gains (losses) included in investment income	2,975	11	(1)	2,985
Purchases	13,834	343	-	14,177
Sales	(11,651)	(949)	(275)	(12,875)
Balance, end of year	$ 27,379	$ -	$ 6	$ 27,385
Unrealized (loss) gain in investment income	$ 683	$ (235)	$ (3)	$ 445

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Notes to the financial statements for the year ended December 31, 2022

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7. FAIR VALUE OF FINANCIAL INSTRUMENTS (CONTINUED)

b) Valuation models

The objective of valuation techniques is to arrive at a fair value measurement that reflects the price that would be received to sell the asset or paid to transfer the liability in an orderly transaction between market participants at the measurement date.

BCI uses widely recognized valuation methods for determining the fair value of common and less complex financial instruments such as investments in pooled funds, where fair value is based on the underlying net asset value of the respective pooled fund as determined by the underlying fund manager. Observable prices and model inputs are usually available in the market for listed equity and debt securities, simple derivatives such as forward or future currency contracts and pooled funds.

The availability of observable market prices and model inputs reduces the need for management judgment and estimation, and reduces the uncertainty associated with the determination of fair values. The availability of observable market prices and inputs varies depending on the financial instrument and is subject to change based on specific events and general conditions in the financial markets.

For more complex financial instruments, such as direct private debt investments held by the Plan, BCI uses proprietary valuation models, which are usually developed from recognized valuation models. Some or all of the significant inputs into these models may not be observable in the market, and are derived from market prices or rates, or estimated based on assumptions. Valuation models that employ significant unobservable inputs require a higher degree of judgment and estimation in the determination of fair value. BCI’s judgment and estimation are usually required for the selection of the appropriate valuation model to be used, determination of expected future cash flows of the financial instrument being valued, determination of the probability of counterparty default and prepayments, and selection of appropriate discount rates.

Fair value estimates obtained from models are adjusted for any other factors, such as liquidity risk or model uncertainties, to the extent that BCI believes that a third-party market participant would take them into account in pricing a transaction. Fair values reflect the credit risk of the instrument and include adjustments to take account of the credit risk of the Plan and the counterparties where appropriate.

c) Valuation framework

BCI has an established framework for the measurement of fair values of financial instruments. Where possible, for direct private equity investments held by the Plan, external, independent valuation specialists are engaged annually to assist in the determination of fair value. In those circumstances where BCI relies on the third-party manager for the determination of fair value, BCI reviews the appropriateness of such valuations using audited financial statements of the underlying investments, where available, and other information from the underlying third-party manager or other sources.

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7. FAIR VALUE OF FINANCIAL INSTRUMENTS (CONTINUED)

c) Valuation framework (continued)

In addition, BCI applies the following specific controls in relation to the determination of fair values:

- Verification of observable pricing inputs
- Appraisal of domestic real estate properties once every 10 to 18 months by accredited independent appraisers
- Analysis and investigation of significant valuation movements
- Review of unobservable inputs and valuation adjustments

When third-party information such as broker quotes or pricing services is used to measure fair value, BCI assesses and documents the evidence obtained from the third parties to support the conclusion that such valuations are appropriate. This includes:

- Verifying that the broker or pricing service is approved by BCI for use in pricing the relevant type of financial instrument
- Understanding how the fair value has been arrived at and the extent to which it represents actual market transactions
- Understanding how the fair value has been determined when a number of quotes for similar financial instruments have been obtained
- Understanding how prices for similar financial instruments used to measure fair value have been adjusted to reflect the characteristics of the financial instrument subject to measurement

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Notes to the financial statements for the year ended December 31, 2022

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7. FAIR VALUE OF FINANCIAL INSTRUMENTS (CONTINUED)

d) Significant unobservable inputs used in measuring fair value

The following table sets out information about significant unobservable inputs used at year-end in measuring financial instruments categorized as level 3 in the fair value hierarchy.

Significant unobservable inputs used in measuring fair value

Description	Fair value	Valuation technique	Unobservable input	Amount/ range	Sensitivity to change in significant unobservable input
			2022		
					The estimated fair value would increase if:
Pooled fund units	**$ 33,198**	**Net asset value**	**Net asset value**	**$ 33,198**	**The net asset value increased**
Direct debt	**$ 6**	**Discounted cash flow**	**Discount rate**	**4.8%**	**The discount rate decreased**
			2021		
					The estimated fair value would increase if:
Pooled fund units	$ 27,379	Net asset value	Net asset value	$ 27,379	The net asset value increased
Direct debt	$ 6	Discounted cash flow	Discount rate	4.8%	The discount rate decreased

Net asset value

Net asset value is determined by BCI based on the fair value of assets less liabilities. Such investments are closed funds with significant restrictions on redemptions and, accordingly, BCI is unable to dispose of the pooled fund investment until the maturity or wind-up and liquidation of the respective pooled fund. In such cases, it is the Plan’s policy to categorize the pooled fund investment as level 3 within the fair value hierarchy.

Discount rate

This represents the discount rate applied to the expected future cash flows of the direct debt investments. For the discount rates used, the underlying investment manager assesses both the risk premium and the appropriate risk-free rate based on the economic environment in which the investee entity operates. The discount rate is adjusted for such matters as liquidity differences, credit and market factors. The estimated future cash flows are then discounted using the discount rate determined. Cash flows used in the discounted cash flow model are based on projected cash flows or earnings of the respective investee entity.

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7. FAIR VALUE OF FINANCIAL INSTRUMENTS (CONTINUED)

e) Effects of unobservable input on fair value measurement

The use of different methodologies or assumptions could lead to different measurements of fair value. For fair value measurements in level 3, changing one or more of the assumptions used for a reasonable alternative assumption could have the following effects on net assets attributable to holders of redeemable units.

The pooled fund units and direct debt investments were valued based on information received from BCI, the manager of the respective investments. The fair value of these investments fluctuates in response to changes to specific assumptions for these particular investments, as determined by BCI. The favourable and unfavourable effects of reasonable alternative assumptions for the valuation of pooled fund units and direct debt investments have been calculated by adjusting the respective underlying net asset value by 10%.

Effects of unobservable input on level 3 fair value measurement

	2022		2021	
	Favourable	Unfavourable	Favourable	Unfavourable
Pooled fund units	$ 3,320	$ (3,320)	$ 2,738	$ (2,738)
Direct debt	1	(1)	1	(1)
	$ 3,321	$ (3,321)	$ 2,739	$ (2,739)

f) Financial instruments not measured at fair value

The carrying value of contributions receivable, receivable from sale of investments, interest and dividends receivable, accounts payable and accrued expenses and payable for purchase of investments approximate their fair value given their short-term nature. These financial instruments are classified as level 2 in the fair value hierarchy because, while prices are available, there is no active market for these instruments.

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8. INVESTMENT INCOME (LOSS)

	2022			2021		
	Income allocation	Change in fair value	Total	Income allocation	Change in fair value	Total
Short-term	$ 31	$ 29	$ 60	$ 4	$ (16)	$ (12)
Bonds	603	(3,070)	(2,467)	495	(604)	(109)
Canadian equities	75	(323)	(248)	99	788	887
Global equities	218	(1,780)	(1,562)	188	1,901	2,089
Emerging markets equities	200	(990)	(790)	157	(198)	(41)
Mortgages	234	(27)	207	64	44	108
Real estate	1,386	(293)	1,093	233	1,254	1,487
Private equity	1,004	(543)	461	1,568	796	2,364
IRR*	767	291	1,058	961	(143)	818
	4,518	(6,706)	(2,188)	3,769	3,822	7,591
Directly held derivatives	-	(124)	(124)	-	198	198
	$ 4,518	$ (6,830)	$ (2,312)	$ 3,769	$ 4,020	$ 7,789

* Infrastructure and renewable resources

Investment income represents realized and unrealized pooled investment portfolio income attributable to the Plan, as a unit holder, and income from directly held investments. Income allocation is composed of interest, dividends and other investment payments. Change in fair value is composed of realized gains and losses on the disposal of investments and derivatives, and unrealized gains and losses on investments and derivatives held at year-end. All income earned within a pooled investment portfolio is reinvested within the portfolio. The RAA was allocated a share of Basic Account investment income based on the five-year annualized rate of return of the Basic Account under the pension plan rules.

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9. CONTRIBUTIONS

	Basic account	Inflation adjustment account	Retirement annuity account	Supplemental benefits account	Total
			2022		
Members' contributions					
Regular	$ 1,010	$ 180	$ -	$ 4	$ 1,194
Special agreements	-	-	2	-	2
Past service purchases	7	1	-	-	8
	1,017	181	2	4	1,204
Employers' contributions					
Regular	1,037	165	-	13	1,215
Special agreements	-	-	2	-	2
Past service purchases	5	1	-	-	6
Retired member group benefits	-	-	-	102	102
	1,042	166	2	115	1,325
	$ 2,059	$ 347	$ 4	$ 119	$ 2,529
			2021		
Members' contributions					
Regular	$ 948	$ 202	$ -	$ 6	$ 1,156
Special agreements	-	-	2	-	2
Past service purchases	9	2	-	-	11
	957	204	2	6	1,169
Employers' contributions					
Regular	1,119	58	-	10	1,187
Special agreements	-	-	2	-	2
Past service purchases	8	2	-	-	10
Retired member group benefits	-	-	-	143	143
	1,127	60	2	153	1,342
	$ 2,084	$ 264	$ 4	$ 159	$ 2,511

Member and employer contributions are defined under the pension plan rules. Members’ past service purchases are voluntary contributions.

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10. BENEFITS

	Basic account	Inflation adjustment account	Retirement annuity account	Supplemental benefits account	Total
			2022		
Regular pension benefits	$ 1,954	$ -	$ -	$ 14	$ 1,968
Indexing – regular pension benefits	312	-	-	2	314
Termination and refund benefits	93	111	26	-	230
Death benefit payments	29	23	-	-	52
Disability benefit	1	-	-	-	1
	$ 2,389	$ 134	$ 26	$ 16	$ 2,565
			2021		
Regular pension benefits	$ 1,813	$ -	$ -	$ 13	$ 1,826
Indexing – regular pension benefits	281	-	-	2	283
Termination and refund benefits	63	99	13	1	176
Death benefit payments	33	23	-	-	56
Disability benefit	1	-	-	-	1
	$ 2,191	$ 122	$ 13	$ 16	$ 2,342

11. SUPPLEMENTAL BENEFITS ACCOUNT

The SBA funds certain supplemental benefits; for example, pension benefits that exceed *Income Tax Act* limits for registered pension plans and contributions to MRBT are paid through this account.

In fiscal 2022, as per the Agreement, $20 million (2021: $100 million) of employer contributions that would otherwise have been IAA contributions was transferred to MRBT for future health benefit payments and is included in retirement benefit costs.

Effective January 1, 2022, retirement health coverage is provided through the MRBT. The MRBT is an independent benefits trust managed by a board of eight trustees appointed by the Partners. The MRBT is funded from contributions that would otherwise be employer inflation contributions and is equal to 0.6% of pensionable salaries (2022: $82 million based on 0.6% plus $20 million equals $102 million). The availability, type and level of retired member group benefit coverage are contingent on the availability of funding for such benefits.

Prior to January 1, 2022, certain group benefit coverage was provided for retired members through this account. To the extent extended health benefits were funded through the SBA (2021: $43 million), they were funded from contributions that would otherwise have been employer inflation contributions. The amount of funding that could be used for extended health benefits was limited to 0.8% of pensionable salaries. For 2021, this funding totalled 0.3% of pensionable salaries.

Retired member group benefits costs for fiscal 2021(shown on the Statement of Changes in Net Assets Available for Benefits) represent group benefit costs paid by the Plan less any premiums paid by retired members.

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12. INVESTMENT AND ADMINISTRATION COSTS

		2022		2021
Investment management	$	**156.3**	$	74.1
Benefit administration		**51.6**		54.0
Other professional services		**1.2**		1.6
Board office costs		**1.2**		1.3
Board remuneration and expenses		**0.4**		0.3
Actuarial		**0.5**		0.1
Audit		**0.1**		0.1
	$	**211.3**	$	**131.5**

BCI and Pension Corporation are related parties to the Plan. The Board appoints members to each of the respective corporate boards. Investment management and benefit administration costs are approved by the Board.

Investment management costs represent amounts charged to recover internal and external management costs incurred by BCI, except those external management fees related to investments managed by an underlying external manager, where management fees are embedded in the net assets of the respective investment. Underlying external investment management fees of $148.3 million (2021: $102.5 million) were netted against investment income.

Benefit administration costs represent amounts charged to recover benefit administration costs incurred by Pension Corporation. These transactions are in the normal course of operations and are measured at the exchange amount of consideration established and agreed to by the related parties.

Board office costs represent amounts directly incurred by the Board for costs associated with supporting the Board.

Other professional services costs include insurance and legal fees incurred directly by the Plan.

Board remuneration and expenses represent amounts for trustee compensation and direct expenses.

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13. ACCOUNT TRANSFERS

	2022			2021		
	Basic account	Inflation adjustment account	Retirement annuity account	Basic account	Inflation adjustment account	Retirement annuity account
Cost-of-living adjustment	$ 436	$ (436)	$ -	$ 98	$ (98)	$ -
Indexing of deferred pensions	9	(9)	-	10	(10)	-
Pensions purchased from retirement annuity account	28	12	(40)	16	7	(23)
2021 Valuation surplus transfer	(492)	492	-	-	-	-
Excess investment return	(165)	165	-	(735)	735	-
	$ (184)	$ 224	$ (40)	$ (611)	$ 634	$ (23)

The IAA is a separate account maintained for funding current and future cost-of-living adjustments. The IAA is funded through a portion of ongoing contributions from employers and members, investment income earned and excess investment return earned in the Basic Account.

Cost-of-living adjusted pension payments are made from the Basic Account. Each year, if members' pension payments are adjusted for the current cost-of-living adjustment, monies are transferred from the IAA to the Basic Account to cover the present value of all future payments arising from the current cost-of-living adjustment. The Board annually considers all relevant factors and its IAA funding policy to determine if a cost-of-living adjustment will be granted on pensions in pay and the amount of the cost-of-living adjustment, if any. As at January 2022, retired members received a cost-of-living adjustment of 2.1% (2021: 0.5%) and indexing supplements were transferred.

When a deferred pension commences, the present value of the cost-of-living adjustments during the deferral period is transferred from the IAA to the Basic Account. Approximately $183 million (2021: $153 million) of the current IAA balance is for cost-of-living adjustments already granted for deferred pensions but not yet transferred to the Basic Account.

As per the Agreement, $509 million of the 2021 surplus together with interest of ($17) million at the annual rate of return of -3.35% was transferred to the RSA.

When investment earnings in the Basic Account are in excess of the actuarial assumption regarding investment rates of return, the excess investment returns are transferred from the Basic Account to the IAA. Excess investment return is based on investment income earned on those assets in the Basic Account required for pensions currently being paid: approximately $24 billion of assets for 2022 (2021: $21 billion). The excess investment return rate is determined by taking the difference between the actual five-year annualized market rate of return (6.70%) and the rate of return used by the actuary (6.00%) in valuing the Plan's liabilities. The calculated excess investment return rate for 2022 was 0.70% (2021: 3.45%), resulting in an excess investment return amount of $165 million transferred to the IAA (2021: $735 million).

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13. ACCOUNT TRANSFERS (CONTINUED)

Should the excess investment return calculation ever result in a negative balance, it will be carried forward cumulatively with interest and offset against future excess interest. The cumulative negative excess investment interest is an amount determined by applying the five-year annualized market rate of return to the fiscal year opening balance. This component of the calculation is the opportunity cost related to the opening cumulative return deficit.

A separate RAA is maintained to record additional contributions by employers and members under special agreements. If a member is entitled to, and chooses to, purchase additional pension benefits at retirement, monies are transferred from the RAA to the Basic Account and the IAA to fund the additional benefits.

14. COMMITMENTS

The Plan participates in private equity, international real estate, mortgage and infrastructure, and renewable resource pools. As at December 31, 2022, the Plan’s share of commitments for future investment contracts in these pools over the next several years is approximately $14,210 million.

In November 2022, the Board approved additional funding transfer of $50 million of contributions that would otherwise be employer IAA contributions, to MRBT to occur by December 31, 2024.

15. CAPITAL DISCLOSURES

Capital is defined as the funded status (surplus or deficit) of the Plan as determined by the actuary. The Plan’s objective for managing capital is to ensure that the assets of the Plan are invested prudently and effectively, and with contributions adequate to meet the obligations of the Plan. Management of the Plan’s funded status is achieved by adjusting member and employer contribution rates; through implementation of the SIPP, which affects the earnings of the Plan; and, in the case of the IAA, by changing the benefits paid. The Board has a funding policy that outlines the principles that provide guidance in managing this process. The investment performance of the Plan’s assets is regularly reviewed by the Board and compared to relevant industry benchmarks. Benefit entitlement is based on the provisions of the Agreement and the pension plan rules. Funding deficits must be funded over a period not to exceed 15 years.

An actuarial valuation must be prepared at least once every three years. The latest actuarial valuation for funding purposes was prepared as at December 31, 2021, and has three components: the Basic Account non-indexed benefits and, by considering the valuation of the entire Plan, the non-guaranteed IAA benefits and the RAA (note 1d). The next full actuarial valuation will be carried out as at December 31, 2024, with the results included in the December 31, 2025, financial statements.

The Act and the Board’s funding policy require that contribution rates comply with the going concern requirements of PBSA.

16. PRIOR YEAR COMPARATIVES

The prior year comparatives have been reclassified to conform to the current year presentation.

Appendix: Climate-related disclosures

The board has stated that climate change is an investment opportunity and a long-term risk to the plan. Investors of all types are exposed to these risks and opportunities, including the physical risks of a changing climate and the transition risks of moving to a low-carbon economy. Climate change is especially relevant for long-term investors like the Municipal Pension Plan, as it will continue to take place over time and across all industries. For these reasons, climate change has the potential to impact the financial objectives of the plan and current and future beneficiaries.

Investors also play a critical role in financing the low-carbon economy transition. As a result, we continue to be dedicated to action on climate change through investor stewardship, asset selection, education and public policy advocacy, and we have created a specific plan that charts our course to achieve net zero by 2050.

Visit mpp.pensionsbc.ca *to read the document*

The Task Force on Climate-related Financial Disclosures (TCFD) issued its first set of recommendations in 2017; it is increasingly being chosen as the primary framework for climate risk disclosure, seeing a fivefold increase since adoption. As of March 2023, nearly 4,000 organizations representing over $26 trillion of market capitalization have formally supported the recommendations. This year marks the plan's fourth year of providing climate-related disclosures that align with TCFD recommendations.

The board's approach to climate-related disclosures

Managing climate-related risk and opportunities is a strategic priority for the board. The board continues to support climate-related disclosures and, specifically, the recommendations of TCFD because it believes that better access to climate-related data improves how climate-related risks are assessed, priced and managed.

The board's Statement of Investment Policies and Procedures (SIPP) outlines our investment beliefs, goals, strategic asset allocation, approach to responsible investment generally, and climate change and its related risks specifically.

Our TCFD-aligned disclosure is one way the board reports on climate-related risks and opportunities. Other information about the plan's responsible investing approach, investment oversight and advocacy activities is available on the plan website. Additional information on BCI's approach can be found in its ESG Annual Report, Climate Action Plan and TCFD disclosure.

TCFD framework:

TCFD update for 2022

The following is an update to the TCFD disclosures shared in our *2021 Annual Report*.

In 2022, the board published its plan for achieving net zero. Recent progress on the initiatives is discussed below, organized using the four thematic areas of the TCFD recommendations.

Governance

THE PLAN'S GOVERNANCE ON CLIMATE-RELATED RISKS AND OPPORTUNITIES

TCFD recommendation:

Describe the board's oversight of climate-related risks and opportunities.

Structure of the board

Under the authority of the Joint Trust Agreement, the plan is governed by a board of trustees that includes member and employer appointees. The board has a duty to manage the plan fund in the best financial interests of its beneficiaries and is responsible for administering the pension plan and managing the pension fund, including the investment of assets. The board delegates investment management and stewardship to BCI, who then invests in a manner consistent with the board's policies.

Several committees make recommendations to the board on issues that affect the plan. The investment committee monitors the plan's investments and BCI's investment management and stewardship services on behalf of the plan, including oversight of climate-related risks and opportunities.

Climate-related investment beliefs

A set of investment beliefs define how the board seeks to create investment value, and help to make practical decisions about diversification, asset allocation, performance objectives and investment activities. Environmental, social and governance (ESG) matters are part of the board's investment beliefs within the SIPP, along with a section on responsible investing and stewardship. One of the board's beliefs is specific to climate change: that climate change is an investment opportunity and a long-term risk to the plan.

Board strategic plan

The strategic plan for 2020–2023 committed the plan to "address climate risk in the investment portfolio" and explore investing in a manner compatible with the Paris Agreement. Our net-zero goal is an outcome of this strategic work.

Agent oversight and BCI's Climate Action Plan

In addition to monitoring the fund's performance, the board monitors BCI's progress in implementing its Climate Action Plan. In 2022, the investment committee and the board supported BCI in reviewing its approach to climate action. BCI released an updated Climate Action Plan in November 2022 and continues to release an annual ESG Report.

Governance-related peer initiatives

The board encourages peer interaction for learning and collaboration on climate change governance and strategy. In addition to participating in events organized by the UN Principles for Responsible Investment (PRI), this entails continuing trustee activities such as plan board representation on the PRI Western North America advisory committee. BCI continues to actively participate in Climate Action 100+ (CA100+), the largest investor-led engagement initiative on climate change, of which the board is a supporting signatory.

Trustee education

The board has a duty to understand ESG issues, and trustees continue to participate in educational sessions on climate change concepts and associated investment risks and opportunities.

The 2022 climate-related education highlights include:

- The board developed a climate change orientation package for new trustees in collaboration with ESG subject matter experts, including its investment agent BCI.
- Education was made available to trustees through PRI Academy, which provides online courses and climate change education for all trustees. The courses provide practical, applied training in responsible investment and key ESG concepts. Outcomes from the courses support trustees in developing and implementing a responsible investment strategy that matches overall objectives.

Strategy

THE ACTUAL AND POTENTIAL IMPACTS OF CLIMATE-RELATED RISKS AND OPPORTUNITIES ON THE PLAN'S OPERATIONS, STRATEGY AND FINANCIAL PLANNING

TCFD recommendation:

Describe the climate-related opportunities and risks over the short, medium and long term.

The board considers climate-related systemic risks and opportunities across short-, medium- and long-term horizons, including those associated with physical and transition risks.

An understanding of key systemic risks and opportunities across all time frames helps to inform the board's asset allocation decisions, guide the plan's strategic policy advocacy efforts and support the board in oversight of BCI's performance, including implementation of its Climate Action Plan, and engagement and proxy voting priorities.

	TRANSITION RISKS AND OPPORTUNITIES	PHYSICAL RISKS
Short term	Climate policy stalled to some degree in 2022, and energy markets were disrupted due to the war in Ukraine. The conflict has created uncertainty across jurisdictions as governments increase climate policy ambition but remain committed to delivering low-cost fossil energy in the short term. There are signals that the climate commitment from some governments, especially in the U.S. and the EU, are increasing in ambition and are being translated into specific policy (e.g., *Inflation Reduction Act* in the U.S.). This shift in policy is creating short-term investment opportunities in sectors that will benefit from these incentives. The board's policy advocacy in the short term will continue to promote regulatory and policy ambition and certainty.	Physical risks to the plan's investments are expected to materialize in isolated incidents across the portfolio. These short-term physical risks are actively evaluated and considered across all investments. Due diligence is conducted where material physical risks are identified. Mitigation measures are included where appropriate, such as purchasing adequate insurance and creating climate change adaptation plans.
Medium term	Transition opportunities and risks are expected to increase in importance for pricing assets across all markets but will vary by region. The transition opportunities will crystalize for some industries and sectors. We see capital-intensive sectors needing the most policy support to create the right market conditions to scale clean technologies. Enablers of low-carbon electricity grids, alternative green energy sources and the decarbonization of industrials will present transition opportunities for investors.	Physical risks from climate change increase in likelihood and severity under all climate change scenarios and have the potential to impact real assets and supply chains. To manage this risk, BCI uses specialized physical risk tools and data to evaluate such damages across all time frames.
Long term	An orderly transition to a low-carbon economy that is aligned with a net-zero (1.5 °C) scenario will ultimately benefit the plan. However, we do not see an indication that current global government commitments will meet that goal. The board's strategic advocacy will continue to focus on supporting public policies and regulations that enable an orderly and predictable transition. In addition, the board will continue to support BCI's use of influence as a large institutional investor to help avoid the negative long-term economic outcomes that may result from climate change, which is important in meeting long-term return objectives.	We understand there will be long-term physical impacts as a result of climate change. Ongoing action will influence the timing and severity of the effects. While a high warming scenario is expected to negatively impact the portfolio performance over the long term, there may be opportunities for investors to anticipate the physical risks and find opportunities to adjust their portfolios accordingly.

TCFD recommendation:

Describe the impact of climate-related opportunities and risks on operations, strategy and financial planning.

The board has implemented several actions that will enable a successful path toward the interim target and net zero by 2050. Key actions include:

› Continue to engage with our investment agent, BCI, on implementing its Climate Action Plan, including risk management, proxy voting, policy advocacy and shareholder engagement.
› Consider systemic climate change as part of the triennial asset-liability reviews.
› Review climate scenario analyses.
› Oversee and monitor our investments and performance.
› Monitor total portfolio climate-related metrics, including climate stress test results, climate opportunity exposure, portfolio carbon footprint.
› Within public equities, we also monitor the weighted average carbon intensity (WACI) to understand the portfolio's exposure to carbon-intensive companies, expressed in tons $CO2e$/$M revenue.

Risk management

PROCESS FOR IDENTIFYING, ASSESSING AND MANAGING CLIMATE-RELATED RISKS

TCFD recommendation:

Describe the process for identifying and assessing climate-related risks.

Oversight of climate-related risk

As part of the board's oversight of BCI's investment risk activities, it receives regular reporting on climate risk from BCI and has access to BCI's ESG Risk and Opportunity Framework, which provides total portfolio climate change stress test results.

BCI climate-related risk management

Scenario analysis and risk measurement

In alignment with TCFD recommendations, BCI uses climate change scenario analysis to identify how climate-related risks and opportunities may affect portfolio performance. The results of this analysis are used for detailed assessments and to prioritize existing and new investments. Climate risks are assessed during due diligence and throughout the investment life cycle. This ensures climate change is an ongoing consideration in investment decisions, asset management and stewardship activities. BCI provides the board with models showing potential impacts to the portfolio under several climate change scenarios. These portfolio climate stress tests help the board understand how the plan's resilience to climate risks changes over time. Descriptions of the scenarios employed for this modelling can be found in BCI's TCFD report.

TCFD recommendation:

Describe the organization's process for managing climate-related risks.

Actions to mitigate climate-related risks

Investor stewardship is central to the plan's management of climate-related risks. The plan practises this stewardship in many ways, including through its participation as a CA100+ supporter signatory. BCI also continues its engagement and advocacy efforts by leading and co-leading engagements with companies through CA100+.

Metrics and targets

THE METRICS AND TARGETS USED TO ASSESS AND MANAGE RELEVANT CLIMATE-RELATED RISKS AND OPPORTUNITIES

TCFD recommendation:

Disclose the level of greenhouse gas (GHG) emissions and related risks.

Portfolio carbon footprint

The plan's carbon footprint includes all asset classes in the portfolio.

BCI calculates the carbon footprint adjusted by the enterprise value of the portfolio, expressed in tonnes of CO2 e/$M invested.[1]

The plan-specific footprint calculations for 2022[2] are provided below:

- We measured our public equities[3] carbon footprint as 59 tonnes of CO2e per million invested as at December 31, 2022, compared to the benchmark[4] intensity of 79 tCO2e per million invested.
- We measured our corporate fixed income[5] carbon footprint as 30 tonnes of CO2e per million invested as at December 31, 2022, compared to the benchmark intensity of 60 tCO2e per million invested.
- We measured our real estate[6] carbon footprint as 7 tonnes of CO2e per million invested as at December 31, 2022.
- We measured our private market[7] carbon footprint as 91 tonnes of CO2e per million invested as at December 31, 2022.
- We measured our sovereign bond carbon[8] footprint as 319 tonnes CO2e per million invested.

We also measure the weighted average carbon intensity (WACI) of the public equities portfolio. For 2022, this was measured at 124 tCO2e per million revenue. This helps us track the public equities exposure to carbon-intensive companies based on the carbon intensity of their sales.

1 The absolute greenhouse gas emissions associated with a portfolio, expressed in CO2 e per million.
2 The 2022 metrics have been derived from 2021 emissions data.
3 The public equities footprint has been calculated based on updated carbon and portfolio financial data compared to last year. The methodology continues to be refined, and additional coverage will be added in future years.
4 The benchmark is a weighted combination of multiple indices selected to measure performance that is appropriate for the portfolio.
5 The corporate fixed income carbon footprint includes public corporate bond exposures but excludes private debt, money market and segregated assets.
6 QuadReal emissions reflect the location-based domestic real estate emissions. Renewable energy credits and verified emission reductions were acquired in the portfolio and will be disclosed in QuadReal reporting but are not included in this reported carbon footprint. Emissions data is estimated based on roughly 80 per cent data completeness. By the fourth quarter, QuadReal will publish final carbon emissions numbers with higher data completeness, quality control and external assurance.
7 Private market footprints are calculated using a combination of estimation methodologies most appropriate for the asset types and data availability. The approach is consistent with TCFD recommendations and current industry best practices but is limited in accuracy due to data gaps and methodology limitations. BCI is working to improve private market quantification techniques, and we expect these results will change over time.
8 The sovereign bond carbon footprint is reported separately from the overall portfolio carbon footprint, as recommended by PCAF, and provides a directional understanding of the emissions trends within the regions issuing the debt.

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