

**PENSION & BENEFITS COMMITTEE**

FRIDAY, 19 May 2023

9:30 a.m.-12:00 p.m. EST

NH 3318

[Governing Documents and Resources](#)

TIMING	AGENDA ITEM	PAGE	ACTION
	<b>OPEN SESSION</b>		
9:30 a.m. (5 mins)	1. Report from Pension Investment Committee [Basdeo]	3	Information
9:35 a.m. (10 mins)	2. Committee Orientation [Fortney]	Oral	Information
9:45 a.m. (5 mins)	3. Minutes of the 10 March 2023 Meeting (Open Session) and Business Arising	4	Decision
	a. Update on SIPP/FIP/RIP	Oral	Information
	b. Update on Terms of Reference	Oral	Information
9:50 a.m. (5 mins)	4. Execution Against Work Plan	7	Information
9:55 a.m. (20 mins)	5. Annual Audit of the Pension Plan Fund Financial Statements		Decision
	a. Financial Statements [Hadley]	9	Information
	b. Previous Years' Fees and Expenses [Hadley]	26	Information
	c. Audit Results [EY]	27	Information
10:15 a.m. (20 mins)	6. Human Resource Update [Reitsma, Hornberger, & McGrath]	34	Information
	a. GSC	38	Information
	b. Family Planning Benefit	39	Information
	c. Compounding Medications	40	Decision
	d. Flonase	41	Decision
10:35 a.m. (20 mins)	7. UPP Review – Funding Structure and Plan Design [Shapira]	43	Information
10:55 a.m. (5 mins)	8. Pension Risk Management Dashboard, Q1 2023 [Byron]	55	Information
11:00 a.m. (5 mins)	9. Pension Plan Investments Update, Q1 2023 [Reitsma]	73	Information
11:05 a.m. (10 mins)	10. Carbon Disclosure Report [Wendland]	83	Information
11:15 a.m. (10 mins)	11. Actuarial Valuation – 1 January 2023 [Shapira & Byron]	98	Recommendation to Board of Governors

 If you require assistance or need to convey regrets, please contact the Secretariat at [board@uwaterloo.ca](mailto:board@uwaterloo.ca).

TIMING	AGENDA ITEM	PAGE	ACTION
11:20 a.m. (10 mins)	12. University of Waterloo Pension Plan for Faculty and Staff, Draft Amendment No. 9 [Shapira & Byron]	100	Recommendation to Board of Governors
11:35 a.m. (10 mins)	13. Board-approved 2023-24 Operating Budget Overview [Rush]	Oral	Information
11:45 a.m. (5 mins)	14. Other Business <ul style="list-style-type: none"> <li>a. 16 June 2023 Meeting</li> <li>b. Future Education Sessions: Pension COLA</li> </ul>	Oral Oral Oral	Input Decision Information
	<b>CONFIDENTIAL SESSION</b>		
11:50 p.m.	15. Minutes of the 10 March 2023 Meeting (Confidential Session)** and Business Arising	Oral	Input
	16. Other Business	Oral	Input
	17. Adjournment	Oral	Input
	*to be distributed.    **distributed separately.		

12 May 2023

Tim Weber-Kraljevski  
Governance Officer

UPCOMING COMMITTEE MEETINGS	
<b>7 June 2023</b>	Pension Investment Committee
<b>16 June 2023</b>	Pension & Benefits Committee
<b>14 September 2023</b>	Pension Investment Committee
<b>15 September 2023</b>	Pension & Benefits Committee
<b>13 October 2023</b>	Pension & Benefits Committee
<b>8 November 2023</b>	Pension Investment Committee
<b>17 November 2023</b>	Pension & Benefits Committee
<b>8 December 2023</b>	Pension & Benefits Committee

If you require assistance or need to convey regrets, please contact the Secretariat at [board@uwaterloo.ca](mailto:board@uwaterloo.ca).

## **Report to the Pension & Benefits Committee**

### **Pension Investment Committee**

**18 May 2023**

The Pension Investment Committee (PIC) met on 7 March 2023 and agreed to forward the following items to the Committee for information or approval as noted below.

#### **FOR INFORMATION**

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##### **Investment Reporting**

PIC reviewed the total fund and investment manager performance for the fourth quarter of 2022. The fund returned 4.63% (gross of fees) for the quarter, which trailed the asset benchmark by 1.01%. The fund was behind the asset benchmark for the one, four, and ten year periods, and while trailing the investment return target (CPI + 3.5%) for the one and four year periods, the fund exceeded the investment return target for the ten year period.

PIC also met with the fund's investment manager, TDAM, who manages active and passive fixed income mandates as well as passive equity mandates for the fund. The focus of the discussion was on the fixed income mandates where TDAM performance has been in line with the benchmark for all recent periods. For the one-year period, TDAM returned -11.68% for the Universe Bond Index (benchmark of -11.69%) and -4.31% (benchmark of -4.42) for the Active Short-Term Corporate mandate. PIC also met with IFM, the fund's recently approved global infrastructure fund manager. The Board of Governors has approved an \$82 million IMF commitment, but the fund has not yet received a capital call. A capital call is expected later in 2023, or early 2024. Beyond performance, the committee reviewed material events at the firms; investment processes; drivers of performance; portfolio turnover; change of personnel, impact of and responses to inflationary pressures, other macro events affecting market risk and outlook ; and policies and processes related to ESG, climate risk and transition.

Aubrey Basdeo  
Chair, Pension Investment Committee

**University of Waterloo**  
**Board of Governors**  
**PENSION & BENEFITS COMMITTEE**  
**Minutes of the 10 March 2023 Meeting**  
**[in agenda order]**

**Present:** Peter Barr (chair), Sara Cressman, Melissa Graham, Michelle Hollis, Lily Hua, Ranjini Jha, Jacinda Reitsma, James Rush, David Saunders, David Taylor, Tim Weber-Kraljevski (secretary)

**Regrets:** Mary Hardy

**Resources/Guests:** Anata Alphonso, Linda Byron, Teresa Fortney, Sarah Hadley, Patti Hancock, Lee Hornberger, Allan Shapira, Michelle St-Amour, Tyler Wendland

**Organization of Meeting:** Peter Barr took the chair, and Tim Weber-Kraljevski acted as secretary. The secretary advised that a quorum was present. The agenda was accepted as distributed.

**OPEN SESSION**

**1. REPORT FROM PENSION INVESTMENT COMMITTEE**

**Terms of Reference:** Sherly Kennedy provided an overview of the proposed amendments to the Pension Investment Committee's (PIC) Terms of References, highlighting that PIC voted in favour of recommending that the Pension & Benefits Committee recommend to the Governance Committee to recommend that the Board of Governors approve amendments with the revision to keep the voting provision and add language on fiduciary responsibility, the exact wording pending legal review.

**Statement of Investment Policies & Procedures (SIPP), Fund Implementation Procedures (FIPP) and Responsible Investment Policy (RIP):** Kennedy spoke to the recommendation in the report, highlighting: the significant amendments made last year to the SIPP and the FIP, and the creation of the RIP; and the proposed amendments. Members discussed the addition of the Plan's Funding Policy & Guideline under item 1d. of the SIPP. There was a motion to recommend Senate approve the amendments to the SIPP, FIP, RIP, as presented. Jha and Hollis. Carried with one opposed.

**Update on committee activities:** Kennedy spoke to the report, highlighting the process to review the RPP's fixed income allocation and the impact of recent changes to the U.S. Withholding Tax. Kennedy also informed members of PIC meeting with the investment managers from TDAM and IMF, and that her term as Chair is ending April 31, 2023 along with external members Julie Cays and Steve Elgee. There was a motion to recommend to Governance Council to reappoint to PIC Julie Cays for a two-year term and Steve Elgee for a standard three-year term. Jha and Saunders. Carried. Members thanked Kennedy for her service as Chair of PIC and highlighted PICs accomplishments under her leadership.

**2. APPROVAL OF THE 17 FEBRUARY 2023 MINUTES (OPEN SESSION) AND BUSINESS ARISING**

The following revisions were requested for the minutes: correcting of GCS with GSC under item 1; removal of the word "with" in "concerns around with compounding coverage" under item 1; to replace April 2023, with May 2023 in the In-Vitro Fertilization Coverage section of item 1; and correcting "going concern decreased" with "going-concern deficit decreased" under item 3. There was a motion to approve the minutes with the requested revisions. Saunders and Reitsma. Carried.

**GSC Update.** Reitsma introduced the material provided and members were supportive of the suggestion to keep an update from Human Resources as a standing item as long as required.

Hornberger spoke to the report, highlighting: a summary of the differences identified between the existing plan design and GSC's standard continues to be under development and will be brought to the June 2023 Pension &

Benefits Committee meeting; GSC is working on a new product for In-vitro Fertilization (IVF) in response to the December 2022 legislation change and their target is to have information available after the first quarter of 2023; an update on registration for the GSC everywhere online portal; statistics for the GSC Contact Centre; and an update on communications to support the change to GSC. Hornberger also provided an update on GSC's Flonase coverage which members expressed concerns with. Reitsma and Hornberger will investigate GSC's Flonase coverage further and will come back to the May P&B meeting with more information and a recommendation for the Committee.

**Compound Coverage:** Hornberger provided an overview of the report provided, highlighting: the list of those consulted and involved in preparing the report; Model Standards for compounding drugs in Ontario; GSC's compound drug coverage; the number of inquiries made to HR and GSC from employees and retirees concerning the change in coverage; and Aon's advice that maintaining GSC's compound policy is a reasonable approach from a plan management perspective. Discussion included: options for those with allergies to specific additives, how GSC handles supply chain issues for fillers, and the lack of coverage for raw powders.

### **3. EXECUTION AGAINST THE WORK PLAN**

This item was received for information.

**UPP Update:** Shapira gave an overview of the UPP information sessions and proposed an approach for the Committee to review the UPP with session presented by Aon over the next four meetings. Members were supportive of the proposal as an exercise of due diligence.

**Committee Priorities:** Members discussed Committee priorities for the coming year, identifying: finishing the implementation of the transition to Green Shield Canada (GSC) as benefits provider for Extended Health and Dental (EHD); maintaining a watching brief on In-Vitro Fertilization (IVF) coverage; conducting a detailed review of the UPP; and as part of the review of the UPP, conducting a review of resources currently dedicated to the administration of the UW pension plan.

### **4. ACTUARIAL VALUATIONS (RPP AND PPP) AND REVIEW OF CAPS**

Byron presented the material provided, highlighting: an overview of the actuarial process; the return to the January 1<sup>st</sup> timing of the valuation; the increase of members; an overview of the actuarial assumptions for going concern valuation; the unfunded liability of \$124 million which puts the going concern funded ratio at 94.5% with the PfAD; the hard dollar cap for RPP and cap on PPP; contributions for 2023 based on a January 1, 2023 filed valuation; and the solvency and wind up valuation results.

### **5. GROUP BENEFITS PROGRAM – ANNUAL RENEWAL**

Hornberger provided detail on each of the renewal items, and members obtained clarification on technical details. It was noted that there was a typo in the material provided on page 87 of the package: in the sentence "The Unrestricted Deposit Account (UDA) is \$1,120,131 as at April 30, 2021..." April 30, 2021 should be April 30, 2022. A motion was heard to maintain a 10% subsidy for life insurance (option 2 in the report). Taylor and Saunders. Carried. A motion was heard to apply a 1% increase to the maximum insured salary for LTD effective May 1, 2023, as presented. Hua and Hollis. Carried. Members received item 5c for information. A motion was heard to approve the budget rates as presented. Taylor and Saunders. Carried.

### **6. BOARD SELF-ASSESSMENT SURVEY**

The secretary reminded members of the Board Self-Assessment Survey and encouraged them to participate.

### **7. REVISIONS TO FINANCE & INVESTMENT COMMITTEE, PENSION BENEFITS COMMITTEE, AND PENSION INVESTMENT COMMITTEE RESOLUTIONS/TERMS OF REFERENCE**

The chair provided an overview of the proposed amendments and members provided positive feedback. A motion was heard to recommend to Governance Committee to recommend that Board of Governors approve the proposed amendments to Terms of Reference of the Pension & Benefits Committee, as presented. Saunders and Taylor. Carried. A motion was heard to recommend to Governance Committee to recommend that Board of Governors

approve the proposed amendments to Terms of Reference of the Pension Investment Committee, with the revision proposed by PIC to keep the voting provision and add language on fiduciary responsibility. Jha and Saunders. Carried.

**8. OTHER BUSINESS**

Members thanked the chair for his service and leadership to the Committee.

With no further business in the open session, the committee moved into the confidential session.

**NEXT MEETING**

The next regular meeting is scheduled for Friday, 19 May 2023, 9:30 a.m. – 12:00 noon.

2 May 2023

Tim Weber-Kraljevski  
Governance Officer

## Execution against Work Plan

### Pension & Benefits Committee, Board of Governors, University of Waterloo

The below represents the annual responsibilities of the P&B Committee and has been prepared as an aid to planning only. The committee's activities are much broader, however, and include: legislative changes, plan changes and improvements; selection of managers and service providers; and requests from the UW community regarding pension and benefits plans.

Task	Frequency (Target month)	20 May 2022	24 June 2022	16 Sep 2022	07 Oct 2022	18 Nov 2022	9 Dec 2022	20 Jan 2023	17 Feb 2023	10 Mar 2023	19 May 2023
Approval of Actuarial Valuation Assumptions	Annual (Jan)							✓			
Investment Status of PPP	Annual (Feb)								✓		
Cost-of-living Increase for Pensioners	Annual (Feb)								✓		
Pensions for Deferred Members	Annual (Feb)								✓		
Salaries for Pension Purposes for Individuals on Long-term Disability	Annual (Feb)								✓		
Actuarial Valuations (RPP and PPP), with posting to website once approved	Annual (Mar)									✓	
Review of Contribution and Protocol Caps (RPP and PPP)	Annual (Mar)									✓	
Monitor sharing of current service cost between employee and university contributions	Annual (Mar)										
Benefits Plan Premium Renewals	Annual (Mar)									✓	
Indexing of Long-term Disability Plan Benefits and Maxima	Annual (Mar)									✓	
Annual Committee Self-Assessment	Annual (Mar)									✓	
Budget Overview	Annual (May)	✓									✓
Previous Years' Fees and Expenses	Annual (May)	✓									✓
Annual Audit of the Pension Plan Fund Financial Statements	Annual (May)	✓									✓

Task	Frequency	20 May 2022	24 June 2022	16 Sept 2022	07 Oct 2022	18 Nov 2022	9 Dec 2022	20 Jan 2023	17 Feb 2023	10 Mar 2023	19 May 2023
Benefits Utilization Report	Annual (June)		✓								
Annual review re: benefits added/removed from insured plans in the market	Annual (June)		D	D	✓						
Review of Committee Terms of Reference	Annual (June)		✓								
Review of Administrative Staffing Support for the Plan (first iteration to occur in 2023)	Annual (Oct)										
Indexing of Plan Maxima – Health, Dental, Retiree Life Insurance	Annual (Nov)					✓					
Employee and Family Assistance Program – report on utilization	Annual (Nov)					✓					
Maximum pension limits and caps adjustments, based on average industrial wage increase (AIW)	Annual (Dec)						✓				
Total Fund Overview	Quarterly			✓		✓			✓		✓
Investment Manager Review	Semi-annually					✓					
Approval of the Statement of Investment Policies and Procedures (SIPP)	Annual						D	D	D	✓	
Annual Report to the Community	Annual								✓		
Actuarial Filing - Minimum every three years  Secretariat to advise Aon and HR upon approval by BOG, to commence filing  Most recent filings: 2017, 2018, 2020, 2021, 2022											



# University of Waterloo Pension Plan for Faculty and Staff

[Ontario Registration Number 0310565]

**Financial statements**

**December 31, 2022**

DRAFT

## Independent auditors' report

To the Pension and Benefits Committee of the  
**University of Waterloo**

### Opinion

We have audited the accompanying financial statements of the **University of Waterloo Pension Plan for Faculty and Staff** [the "Plan"] [Ontario Registration Number 0310565], which comprise the statement of net assets available for benefits as at December 31, 2022, and the statement of changes in net assets available for benefits for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the net assets available for benefits of the Plan as at December 31, 2022, and the changes in its net assets available for benefits for the year then ended in accordance with the financial reporting provisions of Regulation 909, Section 76 of the *Pension Benefits Act* (Ontario).

### 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 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.

### Emphasis of matter – Basis of accounting and restriction on use

We draw attention to note 1 to the financial statements, which describes the basis of accounting. The financial statements are prepared to assist the Pension and Benefits Committee to meet the requirements of the Financial Services Regulatory Authority of Ontario. As a result, the financial statements may not be suitable for another purpose.

Our opinion is not modified in respect of this matter. Our report is intended solely for the Pension and Benefits Committee and the Financial Services Regulatory Authority of Ontario and should not be used by parties other than the Pension and Benefits Committee or the Financial Services Regulatory Authority of Ontario.

### Management's responsibility for the financial statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the financial reporting provisions of Regulation 909, Section 76 of the *Pension Benefits Act* (Ontario), 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 relating 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 these 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.

We 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.

Waterloo, Canada  
May 19, 2023

## University of Waterloo Pension Plan for Faculty and Staff

[Ontario Registration Number 0310565]

### Statement of net assets available for benefits

As at December 31

	2022	2021
	\$	\$
<b>Assets</b>		
Investment income receivable	3,508,335	2,824,588
Investments, at fair value [note 4[a]]	2,125,986,368	2,384,828,746
<b>Total assets</b>	<b>2,129,494,703</b>	<b>2,387,653,334</b>
<b>Liabilities</b>		
Benefits payable		
Retirement	—	1,084,816
Termination	—	21,172
Management and administrative fees payable [note 7[b]]	1,168,219	1,653,125
<b>Total liabilities</b>	<b>1,168,219</b>	<b>2,759,113</b>
<b>Net assets available for benefits</b>	<b>2,128,326,484</b>	<b>2,384,894,221</b>

See accompanying notes

## University of Waterloo Pension Plan for Faculty and Staff

### Statement of changes in net assets available for benefits

Year ended December 31

	2022 \$	2021 \$
<b>Increase in net assets</b>		
Employee contributions		
Required	45,420,847	42,617,608
Employer contributions		
Current service	51,629,000	53,992,000
Special	12,519,337	9,250,696
Transfers from other plans <i>[note 8]</i>	1,722,392	858,662
Interest income <i>[note 4[d]]</i>	20,383,044	19,933,940
Dividend income <i>[note 4[d]]</i>	31,241,465	27,922,074
Realized gains on investments	67,470,457	58,901,427
Unrealized gains on investments	—	157,806,597
Unrealized gains on foreign exchange	517	—
<b>Total increase in net assets</b>	<b>230,387,059</b>	<b>371,283,004</b>
<b>Decrease in net assets</b>		
Benefit expenses		
Retirement benefits	78,395,277	71,730,066
Terminations benefits	14,977,084	10,249,594
Death benefits	6,201,022	4,629,190
Unrealized losses on investments	381,823,335	—
Unrealized losses on foreign exchange	—	7,351
Management and administrative expenses <i>[note 7[a]]</i>	5,558,078	5,252,055
<b>Total decrease in net assets</b>	<b>486,954,796</b>	<b>91,868,256</b>
<b>Net increase in net assets for the year</b>	<b>(256,567,737)</b>	279,414,748
Net assets available for benefits, beginning of year	2,384,894,221	2,105,479,473
<b>Net assets available for benefits, end of year</b>	<b>2,128,326,484</b>	2,384,894,221

See accompanying notes

# University of Waterloo Pension Plan for Faculty and Staff

## Notes to financial statements

December 31, 2022

### 1. Basis of presentation

These financial statements of the University of Waterloo Pension Plan for Faculty and Staff [the “Plan”] have been prepared on a going concern basis and in accordance with the significant accounting policies set out below that comply with the financial reporting provisions of the Financial Services Regulatory Authority of Ontario for financial statements under Regulation 909, Section 76 of the *Pension Benefits Act* (Ontario). The basis of accounting used in these financial statements materially differs from Canadian accounting standards for pension plans in Section 4600, *Pension Plans*, in Part IV of the *CPA Canada Handbook* in part because it excludes the Plan’s pension obligations and related disclosures. Consequently, these pension fund financial statements do not purport to show the adequacy of the Plan’s assets to meet its pension obligations. These financial statements present the information of the Plan as a separate reporting entity independent of the Sponsor and Plan participants.

In accordance with Section 4600, Canadian accounting standards for private enterprises in Part II of the *CPA Canada Handbook* have been adopted for policies that do not relate to the Plan’s investment portfolio to the extent that those standards do not conflict with the requirements of Section 4600.

### 2. Description of the plan

The Plan is a contributory defined benefit pension plan covering employees of the University of Waterloo [the “University” or the “Sponsor”]. The Board of Governors of the University is the administrator of the Plan [the “Administrator”]. The University’s Pension and Benefits Committee has been appointed by the Board of Governors to administer the Plan. CIBC Mellon Trust Company is the custodian and trustee of the Plan. The assets of the Plan are held “in trust” within CIBC Mellon Trust Company. Aon has served as the actuary of the Plan during 2022. The Plan is registered under the *Pension Benefits Act* (Ontario) under Registration Number 0310565.

#### Funding policy

The Plan’s Funding Policy & Guideline provides the formal framework to achieve the Plan’s funding requirements, subject to the provisions of the Plan Text and Applicable Laws. The Plan is open to all full-time and part-time salaried employees who meet certain eligibility requirements. Under the terms of the Plan, the employees are required to contribute 7.80% of base earnings up to the Canada Pension Plan’s Yearly Maximum Pensionable Earnings [“YMPE”] limit plus 11.20% of base earnings exceeding the YMPE [refer to the chart below for historical increases in employee contribution rates]. The University contributes the balance of the cost required to fund the Plan, as determined by an actuarial valuation of the Plan.

Changes to employee contribution rates were approved, effective May 1, 2020, and were phased in through May 1, 2022.

Portion of salary	May 1, 2019	May 1, 2020	May 1, 2021	May 1, 2022
Less than 1x YMPE	6.25%	6.95%	7.40%	7.80%
Between 1x and 2x YMPE	8.95%	9.95%	10.60%	11.20%
Greater than 2x YMPE	9.95%	9.95%	10.60%	11.20%

# University of Waterloo Pension Plan for Faculty and Staff

## Notes to financial statements

December 31, 2022

### Funding valuation

The most recent actuarial valuation, filed with the Financial Services Regulatory Authority of Ontario, was as of December 31, 2021 and was prepared by Aon. The rate of compensation increase used was 3.0% per year for two years; 4% per year thereafter and the discount rate was 5.50%. The next required actuarial valuation is due no later than December 31, 2024.

### Benefits

On the normal retirement date, a member is entitled to an annual pension equal to 1.4% of his or her Final Average Earnings ["FAE"] up to the YMPE average, plus 2.0% of his or her FAE in excess of the YMPE average multiplied by his or her years of credited service. FAE is the member's average annual base earnings during the averaging period's continuous months of highest earnings during the member's last 10 years of employment at the University. The averaging period for FAE is a 60-month averaging period. The YMPE average is determined by averaging the YMPE in the year of retirement plus the YMPE in the four preceding years. Benefits are limited to the lesser of the maximum benefits allowable under the *Income Tax Act* or a hard dollar cap [\$4,000 per year of service as at January 1, 2023].

Effective May 1, 2014, the Plan adjusted its guaranteed indexation related to post-retirement cost of living adjustments. Any pension benefits earned as at December 31, 2013 will be indexed at 100% of the Consumer Price Index ["CPI"] subject to the condition that if CPI exceeds 5%, the indexation adjustment may be limited to an amount not lower than 5%. Any pension benefit earned as of an employee's date of retirement less the pension benefit earned as at December 31, 2013 will be indexed at 75% of CPI, subject to the condition that if CPI exceeds 5%, the indexation adjustment may be limited to an amount not lower than 3.75%. Note that in any year where the cost-of-living adjustment is less than 100% or 75% of CPI as applicable, the difference will be carried forward and a catch-up will be given in a future year when Plan resources permit.

Vested retirement benefits of the Plan are payable upon satisfaction of early retirement eligibility requirements [as early as age 55] and prior to the member's normal retirement date [age 65]. Vested retirement benefits are also payable in the case of termination of employment prior to retirement. A death benefit is payable to the beneficiary of a member as designated.

### Income taxes

The Plan is a Registered Pension Trust as defined in the *Income Tax Act* (Canada) and, as such, is not subject to income taxes.

## 3. Summary of significant accounting policies

### Recognition of contributions and benefits

All contributions from the Sponsor and the Plan participants are reflected in the year of the related participant's earnings.

Contributions and benefits payable are recognized on the accrual basis of accounting. Termination benefits payable consist of amounts owing but not yet paid to employees who were terminated from the Plan before the year end. Retirement benefits payable consist of amounts owing but not yet paid to employees who retired before the year-end.

Lump-sum payments or transfers out of the Plan are accounted for in the period in which the election to affect such payment or transfer is made.

## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

#### Investments

Investments are recorded at fair market value on the statement of net assets available for benefits.

Fair value is the amount of consideration that would be agreed upon in an arm's length transaction between knowledgeable, willing parties who are under no compulsion to act. The fair value of investment assets is determined as follows:

- [a] Cash and short-term deposits are valued at amortized cost which approximates fair value;
- [b] Bonds, debentures, equities, preferred shares and derivative financial instruments are valued by reference to quoted market prices;
- [c] Investments in pooled funds are valued based on fair value information provided by the fund managers.

Investment liabilities are stated at fair value and represent liabilities that are incurred by the Plan in investment related activities. These may include, but are not limited to, derivatives in a liability position, repurchase agreements, financial instruments sold but not yet purchased, and cash collateral received from counterparties.

Net realized gains or losses on disposal and unrealized changes in fair value for the year are recognized in the statement of changes in net assets available for benefits. Interest earned on investments is recorded on an accrual basis. Dividend income is recorded on the ex-dividend date. Transaction costs are expensed as incurred.

#### Foreign currency translation

Investments denominated in foreign currencies are translated into Canadian dollars at rates of exchange as at the year-end date. Transactions of investments denominated in foreign currencies are translated into Canadian dollars at rates of exchange applicable on the transaction dates.

#### Use of estimates

The preparation of financial statements requires the Plan's Administrator to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets and liabilities and disclosure of contingencies as at the date of the financial statements, and the reported amounts of increases and decreases in net assets available for benefits during the reporting period. Actual results could differ from those estimates.



## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

#### 4. Investments

##### [a] Summary of investments

Investments are comprised of the following:

	2022		2021	
	Fair value \$	Cost \$	Fair value \$	Cost \$
Equities				
Canadian equities	177,882,342	149,229,208	221,273,085	98,250,707
Canadian equity pooled funds	209,582,858	119,114,869	129,417,083	114,659,985
Foreign equity pooled funds	1,010,016,361	938,655,672	1,258,044,072	891,827,982
	<b>1,397,481,561</b>	<b>1,206,999,749</b>	1,608,734,240	1,104,738,674
Bonds, cash and short-term deposits				
Canadian fixed-term bonds	354,490,998	371,237,131	365,551,258	365,333,983
Bond pooled funds	315,199,202	350,279,203	356,953,976	340,687,805
Cash and short-term deposits	58,814,607	58,814,606	53,589,272	53,589,272
	<b>728,504,807</b>	<b>780,330,940</b>	776,094,506	759,611,060
	<b>2,125,986,368</b>	<b>1,987,330,689</b>	2,384,828,746	1,864,349,734

## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

#### [b] Investment managers

The investments are managed by the following investment managers:

	2022		2021	
	Fair value \$	Cost \$	Fair value \$	Cost \$
<b>TD Asset Management</b>				
Bonds				
Canadian fixed-term bonds	354,490,998	371,237,131	365,551,258	365,333,983
Bond pooled funds	315,199,202	350,279,203	356,953,976	340,687,805
Canadian equity pooled funds	121,888,419	119,114,869	129,417,083	114,659,985
Foreign equity pooled funds	521,322,644	458,475,355	584,173,115	446,955,586
Cash and short-term deposits	968,535	968,535	4,941,601	4,941,601
	<b>1,313,869,798</b>	<b>1,300,075,093</b>	1,441,037,033	1,272,578,960
<b>University of Waterloo Managed Fund</b>				
Equities				
Canadian equities [infrastructure and real estate]	177,882,343	149,229,208	221,273,085	98,250,707
Cash and short-term deposits	38,057,540	38,057,540	27,446,146	27,446,146
	<b>215,939,883</b>	<b>187,286,748</b>	248,719,231	125,696,853
<b>PH&amp;N</b>				
Equities				
Foreign equity pooled funds	84,582,092	101,877,462	104,806,364	100,875,854
<b>Fiera</b>				
Equities				
Foreign equity pooled funds	87,694,439	102,370,522	104,507,934	101,154,560
<b>Walter Scott &amp; Partners</b>				
Equities				
Foreign equity pooled funds	404,111,624	275,932,332	464,556,658	242,841,981
<b>Operating fund at CIBC Mellon Trust Company</b>				
Cash and short-term deposits	19,788,532	19,788,532	21,201,526	21,201,526
<b>Total investments</b>	<b>2,125,986,368</b>	<b>1,987,330,689</b>	2,384,828,746	1,864,349,734

## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

#### [c] Significant investments

The Plan contains the following individual investments, which exceed 1% of the cost or market value of the total investments as at December 31, 2022:

	Fair value \$	Cost \$
<b>Short-term deposits</b>		
CIBC Mellon Short-Term Deposit 0.01%/YR	30,848,804	30,848,804
Royal Bank BA 0.21% due January 20, 2022	36,549,356	36,549,356
<b>Pooled funds</b>		
Walter Scott NCS Global Equity Fund	404,111,624	275,932,332
TD Emerald Pooled US Equity Index Fund	338,213,588	275,840,586
TD Emerald Canadian Bond Index Fund	315,199,202	350,279,203
TD Emerald International Equity Index Fund	183,109,056	182,634,769
TD Emerald Canadian Equity Index Fund	121,888,419	119,114,869
Fiera Mirova Global Sustainable Equity Fund	87,694,439	102,370,522
PH&N RBC Global Equity Focus Fund	84,582,092	101,877,462
<b>Canadian equities</b>		
Brookfield Infrastructure Partners	69,122,363	22,543,179
Ishares S&P/TSX Capped REIT	61,649,790	63,350,557
Brookfield Renewable Partners	47,110,147	63,335,429

#### [d] Investment income by type

	2022 \$	2021 \$
Dividend income		
Canadian equities	11,811,217	11,881,548
Foreign pooled funds	19,430,248	16,040,526
	<b>31,241,465</b>	<b>27,922,074</b>
Interest income		
Bonds, cash and short-term deposits	815,772	594,628
Canadian fixed-term bonds	9,975,725	9,826,719
Pooled funds	9,591,547	9,512,593
	<b>20,383,044</b>	<b>19,933,940</b>

#### [e] Forward foreign exchange contracts

There were no forward foreign exchange contracts as at December 31, 2022 or December 31, 2021.

## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

#### 5. Fair value measurements

Canadian accounting standards for pension plans require disclosure of a three-level hierarchy for fair value measurements based on the transparency of inputs to the valuation of an asset or liability as at the financial statement date. The three levels are defined as follows:

Level 1: Fair value is based on quoted market prices in active markets for identical assets or liabilities. Level 1 assets and liabilities generally include equity securities traded in an active exchange market.

Level 2: Fair value is based on observable inputs other than Level 1 prices, such as quoted market prices for similar [but not identical] assets or liabilities in active markets, quoted market prices for identical assets or liabilities in markets that are not active, and other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Level 2 assets and liabilities include debt securities with quoted prices that are traded less frequently than exchange-traded instruments and derivative contracts whose value is determined using a pricing model with inputs that are observable in the market or can be derived principally from or corroborated by observable market data. This category generally includes pooled funds, hedge funds, Government of Canada, provincial and other government bonds, Canadian corporate bonds, and certain derivative contracts.

Level 3: Fair value is based on non-observable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. This category generally includes private equity investments and securities that have liquidity restrictions.

	2022			
	Level 1	Level 2	Level 3	Total
	\$	\$	\$	\$
<b>Assets</b>				
Cash and short-term deposits	—	58,814,607	—	58,814,607
Equities	177,882,342	—	—	177,882,342
Pooled funds	—	1,534,798,421	—	1,534,798,421
Bonds	—	354,490,998	—	354,490,998
	<b>177,882,342</b>	<b>1,948,104,026</b>	<b>—</b>	<b>2,125,986,368</b>
	2021			
	Level 1	Level 2	Level 3	Total
	\$	\$	\$	\$
<b>Assets</b>				
Cash and short-term deposits	—	53,589,272	—	53,589,272
Equities	221,273,085	—	—	221,273,085
Pooled funds	—	1,744,415,131	—	1,744,415,131
Bonds	—	365,551,258	—	365,551,258
	<b>221,273,085</b>	<b>2,163,555,661</b>	<b>—</b>	<b>2,384,828,746</b>

## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

#### 6. Financial instruments and risk management

The Plan's investment performance is subject to financial risks as a result of its investing activities. These financial risks could impact net assets available for benefits. These financial risks include credit risk, liquidity risk, interest rate risk, other price risk and foreign exchange risk. The Administrator manages these risks in accordance with the Statement of Investment Policies and Procedures [the "SIPP"]. The SIPP includes aggregate investment limits by asset class in order to achieve the Plan's investment objectives at an acceptable level of risk. In addition, the SIPP outlines individual investment limits and diversification objectives within different asset classes and permitted investment categories within the asset classes. The Administrator monitors adherence to the policy and the performance of investment managers relative to the applicable benchmarks and action is taken as deemed necessary.

##### Credit risk

Credit risk relates to the potential exposure that the other party to a financial instrument will fail to discharge an obligation and cause the Plan to incur a financial loss. Concentration of credit risk exists when a significant proportion of the portfolio is invested in securities with similar characteristics or subject to similar economic, political or other conditions.

The SIPP restrictions require Canadian bonds or debentures to be rated a minimum of BBB or equivalent, establishes a cap of US denominated fixed income securities, which the plan may only invest in if issued by the US government, and does not allow the purchase of other foreign currency fixed income securities. In addition, the SIPP states that no single investment holding shall represent more than 10% of the market value of the Plan's assets.

All of the Plan's fixed-term investments are invested in Canadian short-term bonds. The credit risk of the Canadian short-term bonds are detailed in the following chart:

Credit ratings	AAA	AA	A	BBB	Total
As at December 31 2022	0.7%	10.3%	59.9%	29.2%	100%
As at December 31 2021	2.9%	9.0%	47.8%	40.3%	100%

##### Liquidity risk

Liquidity risk is the risk that the Plan may be unable to meet pension payment obligations as they come due. The SIPP requires that all investments should be reasonably liquid so that they can be converted into cash on short notice. As such, the Plan's exposure to liquidity risk is considered negligible.

## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

The following is a maturity analysis of the fixed-term bonds held by the plan:

	2022	2021
	\$	\$
Less than 1 year	—	—
1 – 5 years	308,547,727	297,147,583
5 – 10 years	45,943,271	68,403,675
Greater than 10 years	—	—
Total	<b>354,490,998</b>	<b>365,551,258</b>

#### Interest rate risk

Interest rate risk refers to the adverse consequences of interest rate changes on the Plan's net assets available for benefits and changes in net assets available for benefits. This risk arises as changes in market interest rates affect the fair market value of the Plan's assets as well as the returns that the plan can earn. The SIPP outlines a range of 20% – 35% for fixed income securities. The Administrator adjusts the investment mix in the portfolio in response to changes in market interest rates.

The following analysis summarizes the impact on the Plan's net assets available for benefits, following reasonably possible changes in interest rates to each bond category to which the Plan has a significant exposure:

	Impact of change in interest rates	
	-1%	+1%
Canadian fixed-term bonds	9,854,850	(9,854,850)
Bond pooled funds	23,513,860	(23,513,860)
	<b>33,368,710</b>	<b>(33,368,710)</b>

#### Other price risk

Other price risk is the risk that the value of the investments will fluctuate as a result of changes in market prices. Significant global economic uncertainty and volatility continues to have widespread impact on financial markets. As the Plan records all investments at fair value, investment values reflected in the statement of net assets available for benefits represent the maximum exposure to market risk. The SIPP outlines a range of 40% – 60% for equities and 10% - 30% for real assets. The Administrator adjusts the investment mix in the portfolio in response to changes in market conditions.

#### Foreign exchange risk

The Plan is exposed to foreign currency fluctuations to the extent that its foreign investments are denominated in foreign currencies. Fluctuations in the value of the Canadian dollar against foreign currencies can have an impact on the fair value of foreign investments. The SIPP allows for hedging of portfolio assets denominated in foreign currencies into Canadian dollars as a strategy to mitigate foreign exchange risk.

The following sensitivity analysis summarizes the impact on the Plan's net assets available for benefits, following reasonably possible changes in foreign currency exchange rates, for each currency to which the Plan has a significant exposure.

## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

	Impact of change in exchange rates	
	+5%	-5%
United States Dollar [\$]	34,412,037	(34,412,037)
Euro [€]	5,784,209	(5,784,209)
Japanese Yen [¥]	3,512,395	(3,512,395)
British Pound Sterling [£]	2,931,760	(2,931,760)
Swiss Francs [F]	2,175,581	(2,175,581)
Danish Krone [Øre]	1,578,016	(1,578,016)
Australian Dollar [\$]	1,160,351	(1,160,351)
Hong Kong Dollar [\$]	1,080,744	(1,080,744)

#### Market risk for equity investments

The table below demonstrates the sensitivity of the fair value of the Plan's investments in equities to a possible change of 10% in the relevant equity indices. The beta of each equity mandate, a measure of volatility, has been applied in estimating this sensitivity.

	Fluctuation of	Impact of % change in fair value on net assets	
		Sensitivity	
		\$	
Equities			
Canadian	Stock market indices	+10%	12,813,885
		-10%	(12,813,885)
Pooled funds	Stock market indices	+10%	120,785,231
		-10%	(120,785,231)

## 7. Management and administrative expenses

### [a] Management and administrative expenses

Management and administrative expenses consist of the following:

	2022	2021
	\$	\$
Investment management	<b>3,583,907</b>	3,502,282
Custodial	<b>221,795</b>	257,447
Actuarial	<b>302,986</b>	329,267
Audit	<b>19,340</b>	18,900
Administration	<b>841,583</b>	726,971
Harmonized Sales Tax	<b>588,467</b>	417,188
	<b>5,558,078</b>	5,252,055

## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

#### [b] Management and administrative fees payable

Management and administrative fees payable consist of the following:

	2022	2021
	\$	\$
Investment management	894,243	1,185,340
Custodial	47,830	21,987
Actuarial	63,810	78,032
Audit	19,000	19,100
Administration	69,145	248,506
HST	74,191	100,160
	<u>1,168,219</u>	<u>1,653,125</u>

#### [c] Contributions

There were no required contributions past due at December 31, 2022.

#### 8. Transfers from other plans

Transfers from other plans represent transfers into the Plan from external pension plans of Plan Participants' previous employers.

#### 9. Capital management

The capital of the Plan is represented by the net assets available for benefits. The Plan's objectives when managing its capital are to: [i] safeguard its ability to continue as a going concern including compliance with regulatory requirements under the *Pension Benefits Act* (Ontario), and [ii] satisfy its obligations to pay benefits to the Plan participants. In meeting these objectives, the Sponsor periodically reviews the funding and investment policies of the Plan, the results of the actuarial funding valuation and the level of benefits provided to participants.

The Administrator has adopted a SIPP which states investment objectives, guidelines and benchmarks used in investing the capital of the Plan, permitted categories of investments, asset mix diversification and rate of return expectations. The SIPP was last updated effective April 4, 2023. The amendments to the SIPP add reference to the Funding Policy & Guideline, allow more flexibility for active and passive investment strategy under the SIPP and incorporate minor text amendments to align and clarify language.

The portfolio return objectives in the SIPP are: a) to earn a rate of return, after investment expenses of CPI + 3.5% over four year moving periods and b) to achieve a minimum absolute rate of return, after investment expenses, which exceeds the benchmark return by 0.25% over four-year moving periods. These objectives were not achieved for the four-year period ended as at December 31, 2022.

The SIPP prescribes asset categories that the Plan can invest in along with a targeted asset allocation for each of these categories. The following table presents the asset categories, the permitted asset mix allocation, and the asset mix allocation as at December 31, 2022.



## University of Waterloo Pension Plan for Faculty and Staff

### Notes to financial statements

December 31, 2022

<b>Asset categories</b>	<b>Asset mix allocation</b>	<b>Asset mix allocation as at December 31, 2022</b>
Cash	0-5%	2.77%
Fixed income	20-35%	31.50%
<b>Total fixed income</b>	<b>20-40%</b>	<b>34.27%</b>
Canadian equity	0-10%	5.73%
Global equity	40-55%	51.63%
<b>Total equity</b>	<b>40-60%</b>	<b>57.36%</b>
Infrastructure	5-15%	5.47%
Real estate	5-15%	2.90%
<b>Total real assets</b>	<b>10-30%</b>	<b>8.37%</b>
		<b>100.00%</b>

The investments fell within the targeted asset mix ranges as specified in the SIPP at December 31, 2022, with the exception of the real estate asset class. A commitment for an allocation to a real estate investment manager was approved in February 2023; deployment of funds into this investment will be subject to the timeline of the investment manager's queue for capital calls.

**Pension Plan Management and Administrative Fees Incurred in 2022<sup>1</sup>**  
**with 4 prior years of comparative information**

<b>Expense Category</b>	<b>2022 ('000s)</b>	<b>2021 ('000s)</b>	<b>2020 ('000s)</b>	<b>2019 ('000s)</b>	<b>2018 ('000s)</b>
<b>Investment Management Fees</b>					
TD Asset Management	594	618	559	500	598
Walter Scott and Partners Ltd.	2,100	2,219	1,843	1,648	1,555
Fiera Capital Corporation <sup>2</sup>	475	231	-	-	-
RBC Global Asset Management (PH&N Institutional) <sup>2</sup>	415	201	-	-	-
Sionna Investment Managers <sup>3</sup>	-	233	317	270	216
Oldfield <sup>4</sup>	-	-	933	1,315	1,157
Trilogy Global Advisors <sup>5</sup>	-	-	(160)	-	672
<b>Total Investment Management Fees</b>	<b>\$3,584</b>	<b>\$3,502</b>	<b>\$3,492</b>	<b>\$3,733</b>	<b>\$4,198</b>
<b>Custodian Fees</b>	222	258	239	222	273
<b>Aon</b>	303	329	307	307	235
<b>Administration Fees</b>	842	727	643	722	692
<b>Ernst &amp; Young - Audit Fees</b>	19	19	19	19	19
<b>Total Pre-Tax Management and Administrative Fees</b>	<b>\$4,970</b>	<b>\$4,835</b>	<b>\$4,700</b>	<b>\$5,003</b>	<b>\$5,417</b>
<b>HST<sup>6</sup></b>	<b>588</b>	<b>417</b>	<b>494</b>	<b>259</b>	<b>696</b>
<b>Total Management and Administrative Fees</b>	<b>\$5,558</b>	<b>\$5,252</b>	<b>\$5,194</b>	<b>\$5,262</b>	<b>\$6,113</b>

1 Amounts from the audited annual financial statements

2 Initial investments of \$100 million each in August 2021.

3 Sionna investment was liquidated in July 2021 and proceeds reinvested in Fiera, RBC GAM and TDAM mandates.

4 Oldfield investment liquidated August 2020 and proceeds reinvested in TDAM mandates. Fees include monthly management fees and termination fees.

5 Trilogy investment liquidated August 2018 and proceeds reinvested in TDAM mandates. 2020 reversal of fees amount is an accounting correction that should have been recorded in 2019 upon conclusion of the Trilogy relationship.

6 UW recovers HST paid by the pension fund where possible through HST rebates. HST recoveries are recorded when the returns are filed.

# The University of Waterloo Pension Plan for Faculty and Staff

December 31, 2022





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Members of the Pension & Benefits Committee of  
The University of Waterloo Pension Plan for Faculty and Staff

May 5, 2023

We are pleased to provide the required communications related to our audit of the pension plan of the University of Waterloo Pension Plan for Faculty and Staff (the Plan).

Our audit was designed to express an opinion on the statement of net assets available for benefits and the statement of changes in net assets available for benefits as at December 31, 2022 and for the year then ended. We received the full support and assistance of your personnel in conducting our audit. Open and candid dialogue with you is a critical step in the audit process and in the overall governance process and we appreciate this opportunity to share the insights from our audit with you.

This report is intended solely for the information and use of the Pension & Benefit Committee and management. It is not intended to be, and should not be, used by anyone other than these specified parties. We disclaim any responsibility to any third party who may rely on it. Further, this report is a by-product of our audit and indicates matters identified during the course of our audit. Our audit did not necessarily identify all matters that may be of interest to the Pension & Benefits Committee in fulfilling its responsibilities.

If you have any questions or comments, please do not hesitate to contact us.

Sincerely

Chartered Professional Accountants  
Licensed Public Accountants

Blaine Hertzberger, CPA, CA, LPA  
Partner  
519 571 3339

Carson Brett, CPA, CA  
Senior Manager  
519 571 3313

## **EY services**

Our primary deliverable was to express an opinion on the statement of net assets available for benefits and the statement of changes in net assets available for benefits of the Plan. We have completed substantially all of our audit procedures and expect to issue an unqualified audit opinion upon finalization of the following matters:

- ▶ Receipt of signed letter of representation from management
- ▶ Approval of the financial statements by the Pension & Benefits Committee

## **Auditor's responsibility under Canadian Auditing Standards (CAS)**

The financial statements are the responsibility of management. Our audit is designed in accordance with the CAS to obtain reasonable, rather than absolute, assurance about whether the financial statements are free of material misstatement.

## **Independence**

We confirm our independence to management and the Pension & Benefits Committee pursuant to CAS 260. We are not aware of any relationships that may reasonably be thought to bear on our independence, and we reconfirm our independence up to the date of this report.

## **Summary of the audit approach**

For the purpose of the audit of the financial statements, our audit plan is developed after considering the inherent risks and control risks and the effectiveness of the internal controls related to the Plan. A variety of factors are considered when establishing the audit scope including size, specific risks, the volumes and types of transactions processed, changes in the business environment, and other factors. Our audit strategy focuses on those financial statement items that may be more vulnerable to material misstatement, including the risk of fraud. Our procedures for your Plan were primarily of a substantive nature.

Our principal areas of focus were:

- ▶ Completeness and measurement of pension contributions
- ▶ Measurement and occurrence of benefit payments
- ▶ Completeness and occurrence of investment income, and
- ▶ Valuation of investments

At the conclusion of the audit, we formulate our opinion on the financial statements of the Plan as to their fair presentation in all material respects. Our estimation of materiality requires professional judgment and necessarily considers qualitative as well as quantitative considerations. Materiality for net assets can be set at 1-2%. Materiality for the 2022 audit was set at approximately 2% (2021 – 2%) of net assets, or \$42,000,000 (2021 - \$47,500,000).

## **Critical policies, estimates, areas of audit emphasis, and significant risks**

### **Disclosure requirements**

There were no changes made to the disclosure requirements in fiscal 2022.

### **Auditing the valuation of fixed income investments**

Canadian auditing standards require us to perform additional procedures to audit the valuation of investments with higher valuation risk or measurement uncertainty risk by performing the following:

- ▶ Document an understanding of management's investment strategy
- ▶ Understand how the investment portfolio is priced and which pricing sources are used
- ▶ Understand the types of securities that compose the portfolio and evaluate them to determine the appropriate classification as higher or lower estimation uncertainty, and
- ▶ For securities classified as higher uncertainty estimation, if applicable, perform additional procedures to gain comfort over the appropriateness of the valuations.

EY reviewed the individual fixed income securities held in the plans for any that may be considered to have higher estimation uncertainty and performed additional procedures where necessary. Based on procedures performed in 2022, there were no fixed income investments identified that exhibited higher estimation uncertainty. The bonds and short-term investments held by the Plan are valued based on quoted bids from recognized investment dealers and therefore, are classified as level 2. We did not identify any issues with the valuation of fixed income investments.

### **Auditing the valuation of equity investments**

We updated our understanding of how the fair values of the Plan's investments have been determined. As part of this update of our understanding we obtained the CIBC Mellon and BNY Mellon Service Organization Control reports. We confirmed all investments held at year-end with the custodian (CIBC Mellon) and respective investment managers.

On a sample basis, we tested the market values of equity investments held by the Plan. EY noted no issues with the investment valuation when compared to independent market information. The equity investments held by the Plan are lower estimation uncertainty since they are exchange traded or there is daily pricing and therefore, they are classified as level 1 in the fair value hierarchy disclosure. All pooled fund investments held by the Plan are valued based on inputs that have observable market data and are classified as Level 2. We obtain fund manager statements to support the market value of the pooled funds. As a result of the procedures performed, we did not identify any issues with the valuation of equity or pooled fund investments.

### **Employer contributions**

We updated our understanding of the employer contributions process. With reference to the latest actuarial funding valuation report as of December 31, 2021 we verified that the employer contributions made by the Plan were in accordance with the recommendations of the actuary.

We tested and recalculated on a sample basis the employee and employer contributions. No issues were noted.

### **Benefit payments**

We confirmed our understanding of the benefit payments process and examined, on a test basis, benefit payments to verify they were accurately processed. We performed an analytical review of benefit payments and investigated variances from the prior year. In addition, we confirmed that members who withdrew from the pension plan in the current year but had not yet received payment were properly accrued for at year-end. No issues were noted.

### **Accounting estimates**

There are no significant judgments or estimates required to prepare the financial statements where actual amounts are likely to be significantly different from the estimates.

### **Fraud considerations and the risk of management override**

We are responsible for planning and performing our audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether caused by error or by fraud (CAS 240, *The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements*).

Our audit procedures encompassed the requirements of CAS 240: brainstorming, gathering information to facilitate the identification of and response to fraud risks and performing certain procedures to address the risk of management override, including examining journal entries, reviewing accounting estimates and evaluating the business rationale of significant unusual transactions.

We are not aware of any fraud or non-compliance with laws and regulations involving senior management or any fraud or non-compliance with laws and regulations that could cause a material misstatement of the financial statements.

### **Summary of audit differences (SAD)**

During the course of our audit, we accumulate differences between amounts and disclosures recorded by the Plan and amounts and disclosures that we believe are required to be recorded under Canadian accounting standards for pension plans. In fiscal 2022, no audit adjustments were identified during the audit.

### **Summary of significant disclosure deficiencies**

During the course of our audit, we identify those significant disclosures required in the financial statements of the Plan, that we believe were not adequately reflected. We did not identify any significant disclosure deficiencies.

## Other required communications

- ▶ There were no major issues discussed with the Pension & Benefits Committee or those charged with governance in connection with our initial or recurring retention as the auditors, including, among other matters, any discussions regarding the application of accounting principles and auditing standards, the scope of the audit, financial statement disclosures and the wording of the auditors' report.
- ▶ There were no disagreements with management about matters that individually or in the aggregate could be significant to the Plan's financial statements or the auditors' report.
- ▶ We are not aware of any instances where management consulted with other accountants about auditing or accounting matters.
- ▶ There were no serious difficulties encountered in dealing with management related to the performance of the audit.
- ▶ We are not aware of any significant unusual transactions recorded by the Fund or of any significant accounting policies used by the Plan related to controversial or emerging areas for which there is a lack of authoritative guidance.
- ▶ We are not aware of any related party transactions that are not in the normal course of operations and that involve significant judgments made by management concerning measurement or disclosure.
- ▶ There were no material alternative accounting treatments that have been discussed with management during the current audit period.
- ▶ There were no significant matters arising during the audit in connection with the Plan's related parties.
- ▶ There are no other findings or issues arising from the audit that are, in our judgment, significant and relevant to those charged with governance regarding the oversight of the financial reporting process.
- ▶ Based on our inquiries of management and those charged with governance, we are not aware of any subsequent events which might affect the financial statements.



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## **Employee & Family Assistance Program (EFAP)**

### *Procurement Process for Provider Contract Effective September 1, 2023*

The University of Waterloo (UW) implemented an Employee & Family Assistance Program (EFAP) with Homewood Health effective September 1, 2016. Approximately 5,000 employees are eligible for the EFAP along with their eligible family members. Eligibility extends to the employees of the Affiliated and Federated Institutes of Waterloo (AFIW) with the exception of St. Jerome's University College. The current cost associated with the benefit is \$2.50 per employee per month (approximately \$150,000 per year) for regular EFAP services; the cost is fully employer paid through the Human Resources budget (participating AFIW receive separate invoices for their headcount). Other services (e.g. Crisis Management Services) are invoiced separately on a fee for services basis.

The initial contract with Homewood Health was for a 3-year period, which was renewed for 2 additional years (i.e. September 1, 2016 to August 31, 2021) with no change to cost. Due to the pandemic and the level of satisfaction with existing arrangements, the contract was extended on an exceptional basis for an additional two-year period (i.e. until August 31, 2023) with no change to cost. A competitive bidding process is required in order to enter into a new contract. Understanding that the process can be lengthy, and if a provider change is required, an implementation project would need to be timed carefully to enable change and project management activities to enable a successful implementation, Homewood Health was asked to confirm availability to support after August 31, 2023 and until the potentially new vendor is implemented. Homewood Health confirmed willingness to extend the existing arrangements for up to an additional year at a rate of \$3.00 per employee per month (approximately \$180,000 per year) plus fee for service elements.

A Request for Proposal (RFP) process to support a new EFAP contract commenced in early 2023; activities to date include the following:

- Early January 2023 – Project team with leadership from Procurement (Christine Henderson) formed, comprised of fourteen (14) evaluators and advisors:
  - UW: Cheri Bilitz (CS), Michelle Hollis (HR), Lee Hornberger (HR-TR), Karen Parkinson (OH), Melanie Will (HR-OHD), Andriana Vanezi (IST)
  - AFIW: Paul Penner, Melanie McKellar, Mike Steinmann
  - CUPE Local 793: Tuesdae Stone
  - Faculty Association: Katie Damphouse, David Mather
  - Staff Association: Renate Donovan, Ashley McKnight
- Mid January to early February – RFP document developed (requirements based on maintaining existing level of services)
- February 15 – RFP advertised on Merx for vendors' submission consideration
- March 14 – five (5) proposals available to project team through Bonfire
- March 30 – preliminary evaluations and three shortlist vendors identified
- April 19-21 – presentations by three (3) shortlisted vendors
- April 24 – project team regroup to discuss presentations and discuss next steps
- Mid-May – target timing for evaluation of all submissions through Bonfire

The recommended provider for a new EFAP contract will be brought to the June 2023 Pension & Benefits Committee for review and approval (pending budget confirmation).

**Action Required: None (information purposes only)**

## myPENSIONinfo – Proposed Disclaimers

### *Commuted Values and Pension Projections*

At the June 2022 Pension & Benefits Committee meeting, members confirmed the details of their earlier decision that the online pension portal (myPENSIONinfo, accessed through the Human Resources website) requires an update to display the Commuted Value (CV) of the pension accrual; specifically that the CV be determined as of a current date (i.e. the date the employee logs into the portal), for all members (i.e. not restricted to members under the age of 55). The decision to display the CV with a current date is aligned with the information provided by Human Resources manually to requesting employees, since the revised portal was implemented in December 2016 in conjunction with the Ariel pension administration system implementation. (Note: prior to December 2016, the previous portal displayed the CV and was supported by a different pension administration system). Further, members decided that although participants age 55 older are not eligible to withdraw a CV at the end of their employment, they will not be blocked from accessing the information.

It was previously noted by the Committee, that the portal should include clear caveats about the CV and members indicated interest in reviewing such wording prior to launching the new functionality. Human Resources has worked with LifeWorks on developing this new functionality and the portal will be able to include this new information in the coming months. In addition to caveat wording for the CV, we would like to take this opportunity to propose an update to the disclaimer for pension projections to address the recent experience of interest rate volatility. The following sets of proposed disclaimers were drafted by Human Resources and have been reviewed and revised by Aon.

#### **a. Commuted Values – New Disclaimer**

The commuted value of your pension accrual as of **Month ##, ####**, is estimated to be **\$####,###**. This is based on your age, interest rates, and other actuarial assumptions, in effect on **Month ##, ####**. This estimate is based on the data shown in Human Resources' records and the assumption that your employment terminates on **Month ##, ####**. This estimate is provided for information purposes only, does not convey any actual entitlement to benefits, and is not binding on the University of Waterloo.

The commuted value represents an amount at a point in time that if invested to the member's assumed retirement age is expected to produce a pension similar to that earned in the University of Waterloo (UW) Pension Plan. The commuted value is volatile as your age and the prevailing interest rates in effect at the date of the calculation are both variable. The prevailing interest rates for use in the calculation of commuted values are determined by the Canadian Institute of Actuaries and vary from month to month, reflecting changes in economic conditions. When interest rates rise, commuted values fall and when interest rates fall, commuted values rise (all else being equal). This means, a higher commuted value needs to be invested when interest rates are low in order to provide for the same expected pension income, and when interest rates are higher, a lower commuted value needs to be invested in order to provide for the same expected pension income. Note that interest rates in Canada increased substantially during the 2022 calendar year which resulted in commuted values being significantly smaller at the end of 2022 than they were at the start of 2022. In summary, commuted values vary from month to month and can go down as well as up.

The commuted value of your pension as set out above cannot be used in a marriage breakdown situation if you and your former spouse agree to divide your UW pension (i.e. you agree to pay your spouse an equalization payment from the UW pension plan). In this scenario, please contact Human Resources' Pension Services team for a Family Law Value calculation as defined in the Ontario Pension Benefits Act.

At the time of your actual employment termination, Human Resources will calculate your pension entitlement based on your employment records and provide you with your available options. If you are under age 55, the withdrawal of a commuted value will be an option available to you. Canada Revenue Agency limits the value that may be transferred from a Registered Pension Plan to a tax-sheltered vehicle; the value of your pension in excess of the maximum prescribed transfer value will be paid as a cash lump sum benefit subject to withholding tax. If you are age 55 or older at the time of your employment termination, you are considered a retiree and withdrawing the commuted value of your pension entitlement is no longer an available option.

***b. Pension Projections – Revised Disclaimer (underlined text is new)***

The amounts calculated by the Pension Projection tool are only estimates. If any of your plan membership or personal information in the pension database is incorrect, or if the actual experience differs from the assumptions used, the amount estimated could be different from the amount of pension benefits that you actually receive.

In particular, the Pension Projection tool may not provide you with a reasonable pension estimate and the results may be incorrect if:

- You are a casual or sessional employee, and the accumulation of service fluctuates.
- You are on a leave of absence now or in the future and do not make contributions to the plan during the leave.
- Your pension is subject to division following a marriage breakdown or end of spousal relationship now or in the future.
- You have reached the *Income Tax Act* limit for making contributions while on a leave of absence now or in the future and you take a leave of absence in excess of that limit.

Every effort has been made to ensure that the information presented in this tool is accurate and complete; however, neither the University of Waterloo nor the developers of the Pension Projection tool warrant that the estimates are error-free. The estimates provided by the Pension Projection tool do not convey any actual entitlement to benefits and are not binding on the University of Waterloo. Actual entitlement will be calculated by Human Resources (HR) based on your actual information that you provide to HR and the data in HR's records, and will be paid in accordance with the official terms of the University of Waterloo Pension Plan and applicable legislation in effect on the date of final calculation. If there are any discrepancies between the information found on the Web site and the official Plan documents, the official Plan documents will prevail at all times.

It is not intended that the Pension Projection tool be used to make final retirement decisions, but is intended to assist you in retirement planning. Before making your final selection regarding the form of pension you wish to receive, a member of the pension team in Human Resources will provide the final

calculation of your pension options and meet with you to finalize your choice and assist you with completing the necessary form. Note that the final pension options provided to you may differ from those that you have previously seen on the Pension Projection tool. The optional forms of pension benefit available to you are typically set so as they have equal value. As changes in the economic environment occur (such as increases or decreases in interest rates), your pension options will change to ensure that they remain of equal value. Differences between the pension option amounts shown on the Pension Projection Tool and the final pension option amounts provided by Human Resources are usually very small. However, the differences can be significant when there are rapid changes in the economic environment, such as in 2022 when interest rates increased significantly in a short period of time.

To help ensure the security of your personal information this site will automatically sign off your account after 20 minutes of inactivity. Your browser window may maintain a memory of the information you view during this session. We suggest you clear your browser's cache and close all current internet sessions when you are finished using this site. This is particularly important where computers are shared.

**When printing your personal pension estimate, it is highly recommended you pick up your print job immediately due to the confidential nature of the information it contains.**

If you have any questions, please contact the pension team in Human Resources by email at [pensions@uwaterloo.ca](mailto:pensions@uwaterloo.ca) or by calling (519) 888-4567, extension 42785.

I understand and agree with the terms of the disclaimer.

**Action Required:** *Discussion*

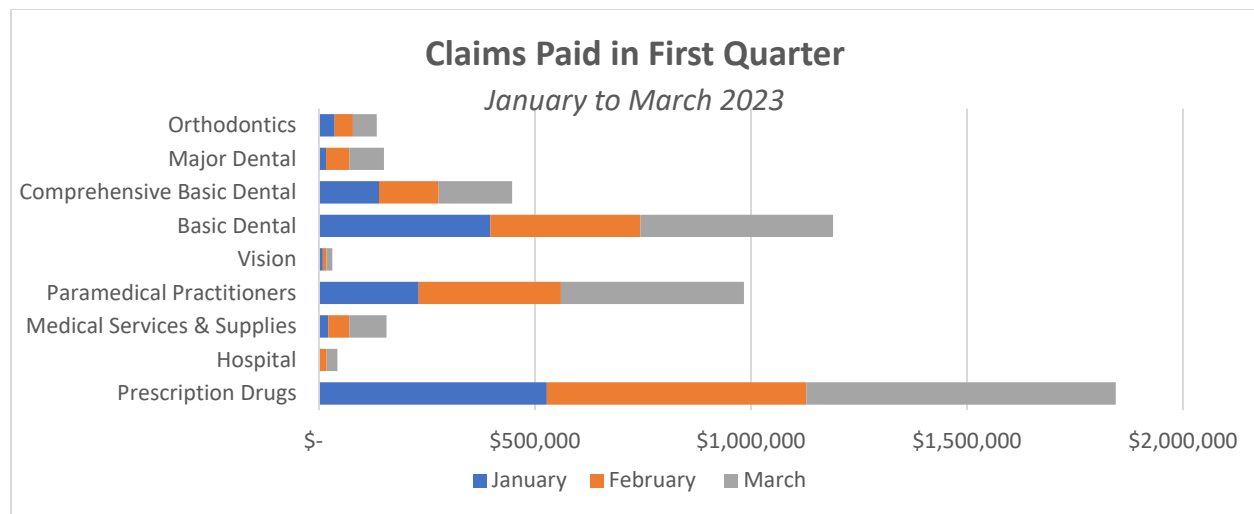
## GreenShield Post-Implementation Update

*New Extended Health and Dental (EHD) benefits provider effective January 1, 2023*

The University of Waterloo's extended health and dental (EHD) benefits provider is GreenShield (formerly Green Shield Canada), providing coverage for approximately 18,000 individuals (employees, retirees, spouses, dependent children) and their eligible expenses incurred on or after January 1, 2023. A claims run off period with Canada Life was arranged for eligible expenses incurred prior to 2023.

### Claims Experience

In the first quarter of 2023, GreenShield provided expense reimbursement in the amount of \$4,979,848; 9,420 claimants were reimbursed for 57,502 extended health expenses and 5,096 claimants were reimbursed for 23,844 dental expenses.



### GSCeverywhere

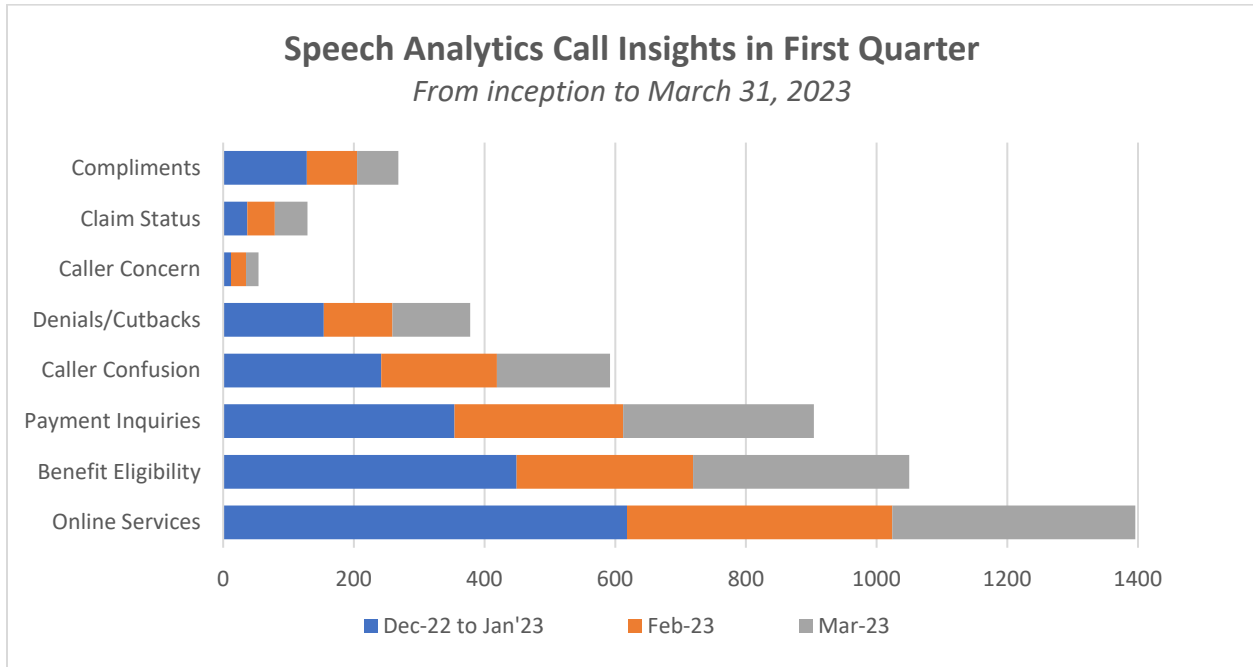
GSCeverywhere is an online portal that can be used to check benefits coverage, submit claims, and review claims status/history. As of May 1, 2023, 7,974 employees/retirees have benefits (extended health and dental, or extended health only) with GreenShield. Of these, 4,981 (62.5%) have registered for the online portal and of these, 86.2% have registered for direct deposit. The target is to achieve a registration level of 70% which would align with registration for the previous provider's online portal (Canada Life's GroupNet).

### Contact Centre

In the first quarter of 2023, GreenShield supported 3,315 calls from university individuals with an average 342 seconds of talk time (does not include wait time for an agent to answer). 342 seconds is approximately one minute longer than GreenShield's book of business which is expected for a new client due to setting up online services accounts or providing an understanding about how policies and guidelines work.

**Pension & Benefits Committee**  
**May 19, 2023**

Voice analytics are used to track metrics associated with the calls; most frequent support required for online services and benefit eligibility.



*Note: GreenShield agents commenced supporting inquiries through their contact center following the release of welcome kits in December 2022*

### Travel Assistance Partner

GreenShield uses a third-party partner for the out-of-province/country travel products and services associated with the benefits. For many years, GreenShield’s partner for these products and services has been Allianz Global Assistance (Allianz). In 2022, Allianz made a decision to transition out of the group travel assistance business which necessitated GreenShield to conduct an assessment of the travel assistance marketplace. GreenShield selected CanAssistance based on a variety of factors including experience providing medical and general assistance for travelers over the past 30 years and an extensive network of international partners. CanAssistance is a not-for-profit organization and delivers all call center services from within Canada.

GreenShield is working through the necessary steps to ensure a smooth transition effective June 1, 2023. There is no impact to any GreenShield travel plan coverage as a result of this transition and communication with members is not required since the corresponding phone and member ID numbers are unchanged. In February 2023, this information was communicated by GreenShield to members who have signed up for their communications.

### Family Planning Benefit

In response to the new legislation that came into effect in December 2022, GreenShield has been working on the development of a new benefit that would provide coverage to surrogates for In Vitro

Fertilization (IVF) to support members of the plan with family planning. As previously communicated to the Pension & Benefits Committee, the target date for having a product available was the end of the first quarter of 2023. GreenShield has provided the following update:

*Our rules-based adjudication system currently allows us to reimburse claims for eligible fertility-related expenses and has for many years now – including in vitro fertilization (IVF), intrauterine insemination (IUI), artificial insemination (AI), sperm wash, and eligible prescription drugs.*

*As we progressed to the stage of adding our Family Planning product to our benefit offering, we made the decision to engage in a formal consulting relationship with Conceivable Dreams which is a patient group that advocates for more accessible and more affordable family creation.*

*Conceivable Dreams has been advising our Product Team on the development of our Family Planning Product, ensuring that we go forward with an inclusive product that best meets the unique needs of your plan members who are experiencing fertility issues.*

*As you know, our goal was to have the Family Planning product ready to launch by the end of the first quarter in 2023. Our engagement with Conceivable Dreams did provide an additional patient perspective that required us to reconsider factors of our plan design.*

*Our Product Team is now taking forward the concluding recommendations from Conceivable Dreams to our Claim Optimization Team (responsible for plan design implementation) and our Enterprise Pricing team for final design and costing.*

*We appreciate your patience as we work through the process for this very important benefit plan enhancement. The launch of this DE&I initiative is a top priority for GreenShield, but we cannot commit to firm timing on the launch date.*

## **Compound Medications**

In October 2022, the Pension & Benefits Committee decided to implement GreenShield's Compound Policy effective January 1, 2023, in conjunction with the implementation of the new provider for the extended health and dental benefits, allowing a one-time claims exception until April 30, 2023, to support the transition to the new policy. Due to the impact on members, GreenShield issued letters to more than 300 individuals to communicate the decision and inform them of the one-time claims exception process to enable transition to another medication.

Since January 1st, several individuals have inquired – with GreenShield, with Human Resources, with members of the Pension & Benefits Committee – about the decision to implement GreenShield's Compound Policy and the corresponding out-of-pocket expense associated for those where coverage is no longer supported. This feedback prompted the formation of a working group – comprised of representatives with pharmaceutical expertise within GreenShield, Aon, and the University – to review the compound drug policy and deliver a report to the Pension & Benefits Committee. This report was delivered at the March 2023 Pension & Benefits Committee meeting and the findings were supportive of maintaining the GreenShield Compound Policy.

As of March 31, 2023, there are 27 members who continue to be impacted by the Compound Policy with a total of 116 denied claims, representing a cost of \$15,754. Based on claims for the first three months of 2023, the annual impact would be approximately \$65,000.

**Pension & Benefits Committee  
May 19, 2023**



**Recommendation:**

***The University recommends the continuation of benefits coverage for compound medications prescribed prior to January 1, 2023, and covered by the previous provider, Canada Life.***

If approved, members who had a compound medication paid prior to the implementation with GreenShield, and on file with Canada Life, will continue to have their compound medication eligible for benefits coverage. GreenShield has provided recommended communication to those impacted by this change.

**Flonase (and its generic equivalent)**

In September 2022, the Pension & Benefits Committee decided to implement GreenShield’s standard provision of excluding coverage for Flonase (and its generic equivalent) for adults (age 18 and older) since the medication is available on an Over the Counter (OTC) basis effective January 1, 2023, in conjunction with the implementation of the new provider for the extended health and dental benefits. Due to the corresponding member impact (i.e. loss of benefits coverage), GreenShield issued letters to 77 individuals to communicate the decision.

Since January 1st, several individuals have inquired – with GreenShield, with Human Resources, with members of the Pension & Benefits Committee – about the decision to implement GreenShield’s standard provision to exclude coverage for Flonase (and its generic equivalent) for adults and the corresponding out-of-pocket expense associated for those where coverage is no longer supported. GreenShield was engaged to provide more clarity on the rationale for their standard provision.

Flonase (and its generic equivalent) is a nasal spray used to treat allergic rhinitis (nasal congestion). At present, the specific medications associated with the two versions of Flonase (and its generic equivalent), are as follows:

- Available OTC (without a prescription): (i) Flonase Allergy Relief; (ii) 24-hour Nasal Allergy Relief; (iii) Nasacort Allergy 24-hour nasal spray (for ages 12 to 64)
- Prescription required: (i) Apo-Fluticasone 50 mcg Nasal Spray (for ages 4 to 17); (ii) Teva-Fluticasone (for ages 4 to 17); (iii) Nasacort AQ hour nasal spray (for ages 4 to 12)

Health Canada has approved the use of Apo-Fluticasone and Teva-Fluticasone for the treatment of allergic rhinitis for patients 4 to 17 years of age only and Nasacort AQ hour nasal spray for the treatment of allergic rhinitis for ages 4 to 12 only. When these medications are prescribed by physicians for adults, National Association of Pharmacy Regulatory Authorities (NAPRA) classifies them as “off label” use. GreenShield’s standard is to align coverage with Health Canada approved indication (i.e., excludes off label usage).

**Recommendation:**

***The University recommends continuation of benefits coverage for Flonase (and its generic equivalent) for adults for prescriptions obtained prior to January 1, 2023, and covered by the previous provider, Canada Life.***

**Pension & Benefits Committee  
May 19, 2023**

GreenShield sent 77 letters to members identifying claim was no longer eligible. The total 6-month claim cost for these 77 members was \$2,990. The annual impact is expected to be approximately \$6,000.

If approved, GreenShield will add a participant exception to the 77 impacted members (as identified through the transition analyses). Pharmacy rules will be in place allowing impacted members to have claims processed electronically directly from the pharmacy. Upon receiving directions to proceed, GreenShield will send letters to impacted members requesting that they resubmit outstanding claims incurred as of January 1, 2023.

## **Ongoing Communications Support**

The GreenShield Implementation Project website was decommissioned at the beginning of April 2023 and pertinent information was moved to the HR website. HR continues to monitor the content and will apply changes for clarity as opportunities are identified.

A request for a post-implementation information session from GreenShield has been received from the Staff Association, with the following topics:

- Supporting documentation required for medical services and supplies claims processing
- Eligible provider network and GreenShield's process for expansion/updates
- Coverage for compound medications
- Reasonable and customary limits applied to eligible prescription/services expenses

HR and GreenShield are currently reviewing experience since January 1 to determine whether additional topics might be helpful. The timing for the information session has not yet been confirmed; however, as the content is being developed by GreenShield to address the areas of interest, further suggestions for inclusion are welcome.

**Actions Required: *Decisions regarding Compound Policy and Flonase (and its generic equivalent)***



# Review of University Pension Plan Ontario (UPP) – Funding Structure and Plan Design

## University of Waterloo Pension & Benefits Committee

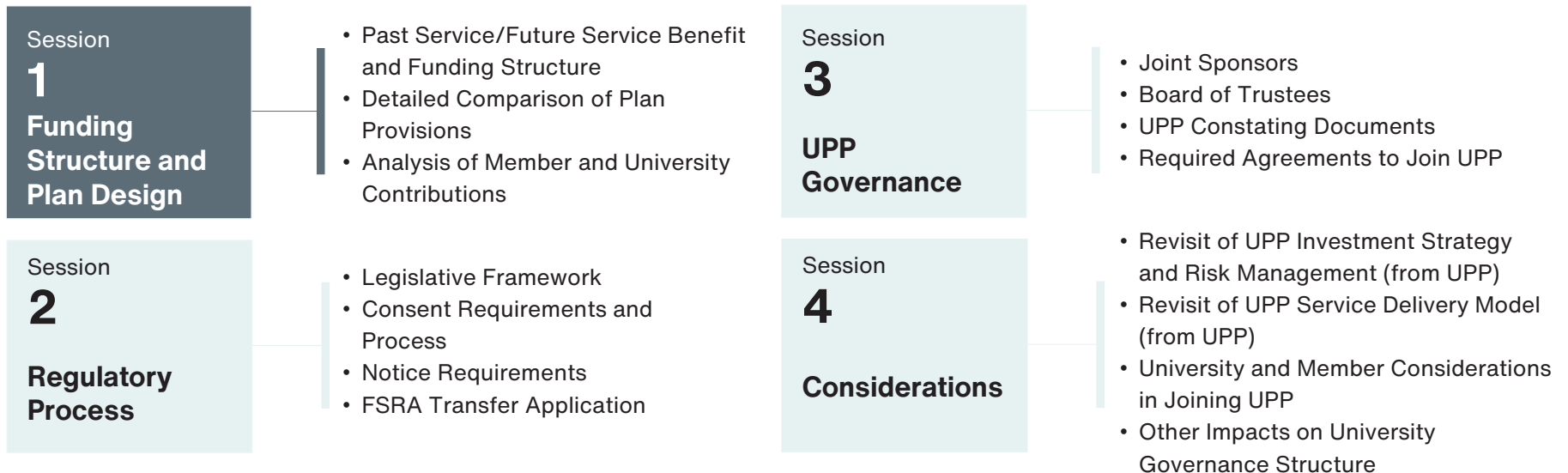
Meeting on May 19, 2023

Proprietary and Confidential



# Approach for Reviewing the UPP

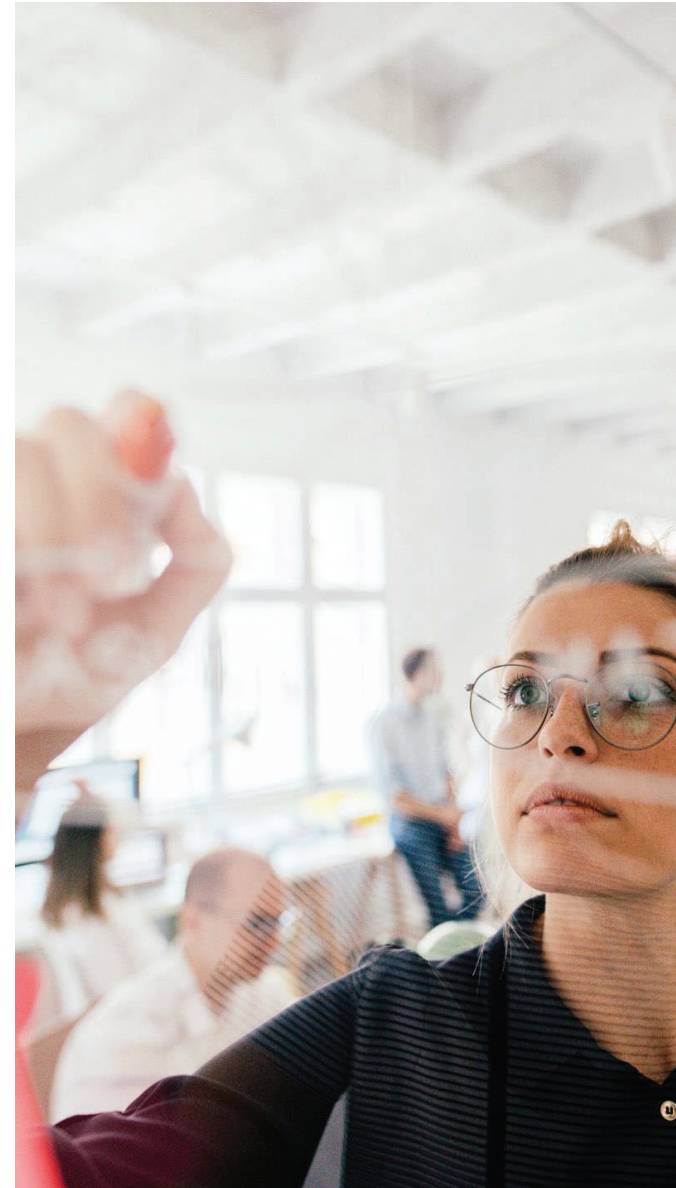
As agreed to at March 10, 2023 meeting of P&B Committee:





# UPP Benefit Structure

Pension Benefits From UPP	
Pre-Conversion Date Pensionable Service	Post-Conversion Date Pensionable Service
Prior university plan provisions for pre-Conversion Date Pensionable Service will be replicated under UPP	UPP provisions apply as of Conversion Date forward
Each participating university will have different benefit provisions for pre-Conversion Date Pensionable Service	Common benefit provisions for all participating universities and employees



# UPP Funding Structure

UPP Pension Fund Invested as One Fund	
Assets and Liabilities for Pension Benefits Transferred Into UPP (Pre-Conversion Service)	Assets and Liabilities for Pension Benefits Earned From Conversion Date (Post-Conversion Service)
Assets and liabilities from prior university plans transferred into UPP	One joint cost- and risk-sharing arrangement across all participating universities and employees
Each participating university responsible for its own funded status on Conversion Date and for any losses/gains on pre-Conversion Date assets and liabilities for first 10 years from Conversion Date, followed by 10-year transition to 50/50	Contributions are shared 50/50 between universities and employees including sharing of any losses/gains that arise for UPP service



# Comparison of Plan Provisions

Provisions	UW Pension Plan	UPP
<b>Eligibility</b>	<p>Employees employed on a full-time or part-time basis (with at least one-third annual commitment) eligible to join on first day of any month coincident with or next following date of employment; mandatory enrollment on first day of month coincident with or next following date of employment if age 35 or over on date of employment, or first day of calendar year coincident with or next following attainment of age 35 if under age 35 at date of employment</p> <p>Full-time or part-time definite-term lecturers who have attained age 35 required to join on first day of month coincident with or next following earlier of promotion to a higher rank or completion of 5 years of service</p> <p>Employees employed at less than one-third annual commitment eligible to join on first day of any month coincident with or next following two immediately preceding calendar years of either earnings of at least 35% of YMPE or hours of work of at least 700</p>	<p><b>Full-Time Employees:</b> Mandatory enrollment on the first day of the month coincident with or next following date of employment</p> <p><b>Other Than Continuous Full-Time Employees:</b> Optional enrollment on first day of any month if either earnings* of at least 35% of YMPE or 700 hours* of work, in each of two consecutive calendar years immediately prior to applying for membership <i>*from an eligible class of employment</i></p> <p><b>Transition:</b> All members of the university plan on the Conversion Date become members of the UPP</p>

# Comparison of Plan Provisions

Provisions	UW Pension Plan	UPP
<b>Retirement Dates</b>		
Normal Retirement Date	First day of month coincident with or next following attainment of age 65	Last day of month coincident with or in which member reaches age 65 (but no later than normal retirement date under university plan)
Early Retirement Date	Within 10 years of normal retirement date	Last day of month coincident with or in which member attains age 55
Postponed Retirement Date	First day of any month following normal retirement date, subject to pension commencing no later than December 1 of calendar year in which member attains age 71	Last day of any month in which member retires following normal retirement date, subject to no later than November 30 of calendar year in which member attains age 71
Pension Commencement Date	Same date as above for normal, early or postponed retirement	First day of month following normal, early or postponed retirement date



# Comparison of Plan Provisions

Provisions	UW Pension Plan	UPP
<b>Benefit Formula</b>		
Average Earnings	Best 60 consecutive months of pensionable earnings	Best 48 non-consecutive months of pensionable earnings (definition of pensionable earnings that applied under university plan continues under UPP)
Average Year's Maximum Pensionable Earnings (YMPE)	Last 5 years	Last 48 consecutive months; Year's Additional Maximum Pensionable Earnings (YAMPE = 1.14 × YMPE) to be used as breakpoint starting in 2025
Benefit Rate Per Year of Pensionable Service	1.4% / 2.0%	1.6% / 2.0%
Maximum Benefit	Income Tax Act maximum pension, subject to cap of \$4,000 per year of pensionable service effective January 1, 2023, increased thereafter each calendar year starting in 2024 by one-third of percentage increase in Average Industrial Wage	Income Tax Act maximum pension; automatically increased with percentage increase in Average Industrial Wage

# Comparison of Plan Provisions

Provisions	UW Pension Plan	UPP
<b>Normal Form of Payment</b>		
Without Spouse	Lifetime pension with 10-year guarantee period	Lifetime pension with 10-year guarantee period
With Spouse	Lifetime pension with 10-year guarantee period (LG10); statutory 60% survivor pension actuarially reduced from LG10 pension	Lifetime pension with 50% survivor pension; statutory 60% survivor pension actuarially reduced from 50% survivor pension
<b>Unreduced Early Retirement</b>		
	Age 62	Age 60 and 80 age-plus-service points (e.g., age 60 and 20 years of service; age 62 and 18 years of service); only applies to pension benefit earned for UPP service but pre-Conversion Date service counts for eligibility
<b>Reduced Early Retirement</b>		
	Accrued pension reduced 6% per year from age 62	Accrued pension reduced 5% per year from age 65
<b>Reduction for Early Commencement of Deferred Pension</b>		
	3% per year from ages 65 to 60, plus 6% per year from ages 60 to 55	Actuarial reduction from age 65

# Comparison of Plan Provisions

Provisions	UW Pension Plan	UPP
<b>Cost-of-Living Adjustments (Indexation)</b>		
Pensions in Payment	<p>For pension benefits accrued on and after January 1, 2014: Guaranteed indexation at 75% of increase in Consumer Price Index (CPI), up to a maximum adjustment of 3.75%; any indexation over 3.75% determined by P&amp;B Committee based on financial health of plan</p> <p>For pension benefits accrued prior to January 1, 2014: Guaranteed indexation at 100% of increase in CPI, up to a maximum adjustment of 5.00%; any indexation over 5.00% determined by P&amp;B Committee based on financial health of plan</p>	<p>Funded conditional indexation at 75% of increase in CPI</p> <p>Indexation at 75% of CPI included in contribution rates based on long-term actuarial assumptions and granted each year subject to funding policy under which Joint Sponsors can decide to reduce future indexation adjustments below 75% of CPI level given financial health of plan</p>
Deferral Period	<p>No indexation provided on pension benefit for post-January 1, 2008 Pensionable Service unless member has 20 or more years of service or is within 10 years of normal retirement date at termination of employment</p> <p>Indexation amount for eligible pension benefit determined annually by P&amp;B Committee</p>	No indexation provided

# Comparison of Plan Provisions

Provisions	UW Pension Plan	UPP
<b>Disability</b>		
	<p>Members in receipt of income under university LTD plan:</p> <ul style="list-style-type: none"> <li>• Cease to contribute while disabled; and</li> <li>• Continue to accrue pensionable service with pensionable earnings at date of disability increased each year by a percentage determined by P&amp;B Committee</li> </ul>	<p>Members in receipt of income under university LTD plan:</p> <ul style="list-style-type: none"> <li>• Cease to contribute while disabled (university makes both member and university contributions); and</li> <li>• Continue to accrue pensionable service with pensionable earnings at date of disability increased at same rate and at same time as disability income under LTD plan</li> </ul>
<b>Termination of Membership</b>		
	Deferred pension or commuted value prior to eligibility for early retirement	Deferred pension or commuted value prior to eligibility for early retirement
<b>Death in Service</b>		
	Committed value of accrued pension	Committed value of accrued pension

## Comparison of Plan Provisions

Provisions	UW Pension Plan	UPP
<b>Member Contributions</b>		
	7.80% up to YMPE, plus 11.20% above YMPE, up to maximum salary for contribution purposes (\$222,646 in 2023) Ratio of contribution rate to benefit rate: 5.6	9.20% up to YAMPE, plus 11.50% above YAMPE, up to maximum salary for contribution purposes (\$196,200 in 2023) Ratio of contribution rate to benefit rate: 5.75

## About Aon

Aon plc (NYSE: AON) exists to shape decisions for the better—to protect and enrich the lives of people around the world. Our colleagues provide our clients in over 120 countries with advice and solutions that give them the clarity and confidence to make better decisions to protect and grow their business.

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# Pension Risk Management Dashboard

University of Waterloo

As of March 31, 2023

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# About these Materials

This dashboard was prepared for the University of Waterloo to track changes in funded status of the Pension Plan over successive reporting periods, as well as quantify the amount of risk to which the Pension Plan is exposed. The report presents the funded status and performs the analysis on three bases:

**Risk-Free Benchmark Basis** – This liability is calculated using best estimate assumptions for retirement, termination and other demographic experience, and discount rate and inflation assumptions determined with reference to the risk-free environment. For this report, the liability has been determined using the real return bond yield plus a 40 basis point credit spread to reflect the additional yield that can be achieved with relatively little additional risk. This liability differs from the solvency calculation in that the demographic assumptions are best estimate and statutory “grow-in” provisions are not included.

**Going Concern Basis** – This liability is calculated using the going concern assumptions at the most recent valuation. The analysis is performed using the market value of assets with a Provision for Adverse Deviation, as prescribed by the *Pension Benefits Act* (Ontario).

**Solvency/Hypothetical Wind Up Basis** – This liability is calculated using assumptions determined in accordance with the Canadian Institute of Actuaries Annuity Purchase guidance and Commuted Value standards in effect at each measurement date shown in this report. A summary of these assumptions is included on page 15.

This dashboard also contains a reconciliation that compares the going concern liability with the liability calculated using the risk-free benchmark. The difference between the two liabilities represents the amount of return expected to be provided by taking on risk in the investment portfolio. Over successive quarters the tool helps quantify how that risk changes as the underlying interest rates change.

On both bases the following information is shown:

- Current Funded Status and Historical Asset Liability Performance
  - How well funded is the plan?
  - What has been the return on plan assets and liabilities?
- Detailed Asset and Liability Performance Attribution
  - What factors drove the performance of assets and liabilities over the prior period?
  - What is the relative impact of these factors on the assets and liabilities in isolation and in combination?

For the Risk-Free Benchmark Basis, the following information is also shown:

- Scenario Testing
  - What risk exposures does the plan face?
  - What would be the impact of a downside event for each risk factor?



# Highlights

## Over the quarter:

- The fund had a rate of return after fees of 6.3% which was higher than expected.
- Nominal risk-free rates decreased.
- Inflation expectations implicit in the underlying bond yields decreased.
- The plan provided a higher than expected indexation adjustment at May 1, 2023.
- The January 1, 2023 actuarial valuation was completed with the going concern liabilities reflecting the higher than assumed indexation adjustment granted at May 1, 2023 and a reserve for additional indexation in May 2024. (The risk-free funding position also reflects both the May 2023 and 2024 indexation adjustments.)

## As a result,

- The going concern deficit decreased from \$47.5 million to \$23.8 million over the quarter primarily due to the asset performance being higher than expected, offset by the impact of higher than expected liabilities reflected in the January 1, 2023 funding valuation.
- The risk-free deficit decreased from \$895.6 million to \$840.3 million over the quarter due to strong asset performance and a decrease in inflation expectations implicit in underlying bond yields, partially offset by a decrease in risk free rates (nominal) and the impact of the new January 1, 2023 valuation.
- The solvency surplus decreased from \$238.6 million to \$202.6 million over the quarter primarily due to the decrease in risk-free rates offset partially by the plan's asset performance exceeding expectations.

## Highlights (cont'd)

- The estimated March 31, 2023 liabilities are projected based on the results of the most recent actuarial valuation of the Plan as at January 1, 2023.
- The December 31, 2022 liabilities shown are based on the December 31, 2021 actuarial valuation projected forward and match the values shown in the December 31, 2022 pension risk dashboard
- The impact of the January 1, 2023 valuation, including the higher than expected indexation adjustments are not reflected in the December 31, 2022 liabilities
- The annuity purchase guidance educational note for valuations as of March 31, 2023 and April 1, 2023 (published as of May 1, 2023) has been reflected in the interest rates used to calculate the March 31, 2023 solvency liabilities.
- The estimated transfer ratio has not decreased by 10% or more over the period; no Regulation 19 filing is required.
- All figures are in \$1,000,000 (CAD).



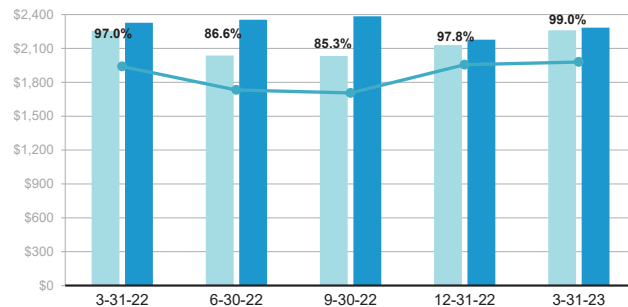
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# Executive Summary – Going Concern

Values in \$1,000,000 (CAD)

## Funded Status



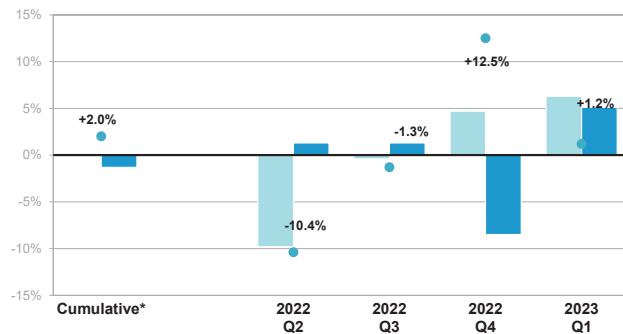
### Highlights for the Quarter-Ending 3/31/23

The plans' funded ratio increased to 99.0% at 3/31/23. This result was primarily due to the combined effects of:

- Better than expected asset returns,
- Contributions of \$18.8 million, in line with benefit accruals, and
- The impact of a new valuation as at January 1, 2023

	3/31/22	6/30/22	9/30/22	12/31/22	03/31/23
Market Value of Assets	\$ 2,257.3	\$ 2,037.5	\$ 2,033.6	\$ 2,130.3	\$ 2,260.4
Going Concern Liability	2,327.1	2,353.8	2,384.4	2,177.8	2,284.2
Surplus/(Deficit)	\$ (69.8)	\$ (316.3)	\$ (350.8)	\$ (47.5)	\$ (23.8)
Periodic Contributions	\$ 26.5	\$ 27.1	\$ 27.9	\$ 28.1	\$ 18.8
Effective Interest Rate	5.50%	5.50%	5.50%	6.25%	6.25%
Funded Ratio:	97.0%	86.6%	85.3%	97.8%	99.0%
Interest rate sensitivity:					
Asset:	1.6	1.5	1.5	1.6	1.5
Going Concern Liability:	14.1	14.1	14.1	13.2	13.2

## Asset-Liability Return



### Asset Liability Return for Quarter-Ending 3/31/23

Assets returned 6.3% during the quarter while liabilities returned 5.1%, resulting in a funded status increase of 1.2%.

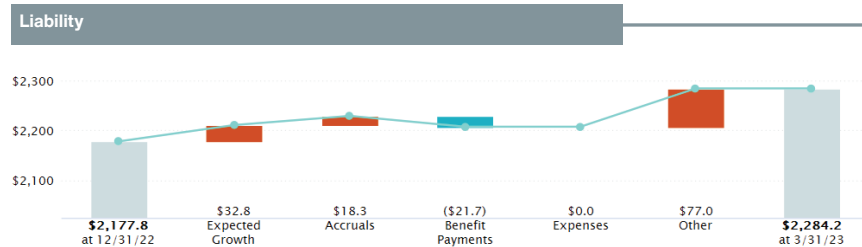
	Periodic Return/Change	Cumulative	6/30/22	9/30/22	12/31/22	3/31/23
Market Value of Assets	Return	0.0%	-9.8%	-0.4%	4.7%	6.3%
Going Concern:	Return	-1.3%	1.3%	1.3%	-8.5%	5.1%
Funded Ratio Change		2.0%	-10.4%	-1.3%	12.5%	1.2%

# Asset-Liability Performance Attribution – Going Concern

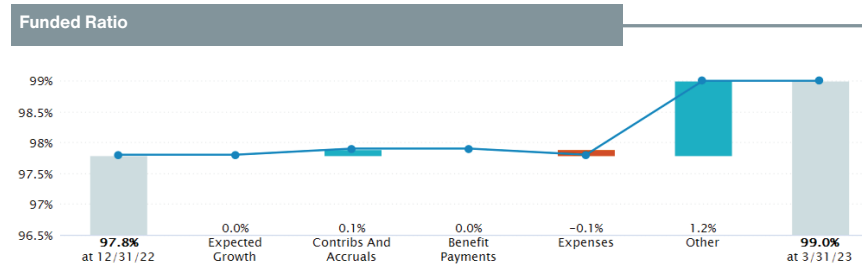
Values in \$1,000,000 (CAD)



- Overall, assets returned 6.3% during this quarter.
- The fixed income assets gained value due to a decrease in the underlying risk-free rates, partially offset by widening credit spreads.
- The plans' return-seeking assets performed better than expected during the quarter.
- The University and members made \$18.8 million in contributions during the quarter and the trust paid \$21.7 million in benefits to the participants.
- "Other" represents the scale of the over performance of the Plan's assets versus expectation (based on the Plan's going concern discount rate assumption).



- Liabilities were expected to grow by \$32.8 million due to interest cost during the quarter.
- New benefit accruals increased the liability by \$18.3 million during the quarter.
- Plan liabilities decreased by \$21.7 million during the quarter as benefits were paid.
- "Other" includes the impact of a new valuation as at January 1, 2023, higher PfAD, indexation loss for 2023 and demographic experience.



- Contributions exceeded the cost of new benefit accruals during the quarter, resulting in a net increase of 0.1% in the funded status.
- Assets returned 6.3% during the quarter while liabilities returned 5.1%, resulting in a funded status increase of 1.2%.

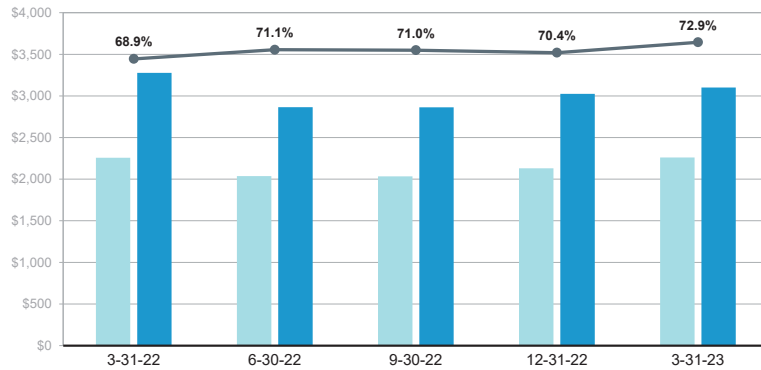


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# Executive Summary – Risk Free

Values in \$1,000,000 (CAD)

## Funded Status



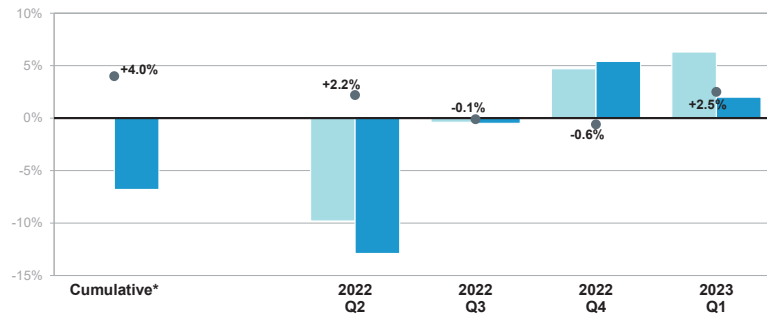
### Highlights for the Quarter-Ending 3/31/23

The plans' funded ratio increased to 72.9% at 3/31/23. This result was primarily due to the combined effects of:

- Better than expected asset returns, offset by
- New benefit accruals that exceeded contributions of \$18.8 million, and
- An increase in liabilities due to a reduction in the underlying risk-free rates and the impact of indexation at May 1, offset by a reduction in inflation assumptions implicit in market yields.

	3/31/22	6/30/22	9/30/22	12/31/22	03/31/23
Market Value of Assets	\$ 2,257.3	\$ 2,037.5	\$ 2,033.6	\$ 2,130.3	\$ 2,260.4
Risk-Free Liability	3,277.8	2,864.9	2,863.0	3,025.9	3,100.7
Surplus/(Deficit)	\$ (1,020.5)	\$ (827.4)	\$ (829.4)	\$ (895.6)	\$ (840.3)
Periodic Contributions	\$ 26.5	\$ 27.1	\$ 27.9	\$ 28.1	\$ 18.8
Discount Rate	0.94%	1.76%	1.84%	1.59%	1.74%
Funded Ratio:					
Assets/Risk-Free Liability	68.9%	71.1%	71.0%	70.4%	72.9%
Interest rate sensitivity:					
Assets:	1.6	1.5	1.5	1.6	1.5
Risk-Free Liability:	19.8	17.2	17.0	17.4	17.2

## Asset-Liability Return



### Asset Liability Return for Quarter-Ending 3/31/23

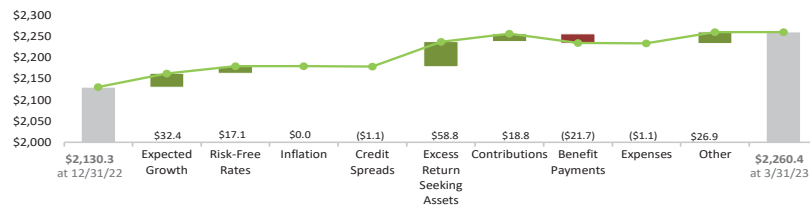
Assets returned 6.3% during the quarter while liabilities returned 2.0%, resulting in a funded status increase of 2.5%.

	Periodic Return/Change	Cumulative	6/30/22	9/30/22	12/31/22	3/31/23
Market Value of Assets Return		-10.9%	-9.8%	-0.4%	4.7%	6.3%
Risk-Free Liability:						
Return		-18.1%	-12.9%	-0.5%	5.4%	2.0%
Funded Ratio Change		4.9%	2.2%	-0.1%	-0.6%	2.5%

# Asset-Liability Performance Attribution – Risk Free

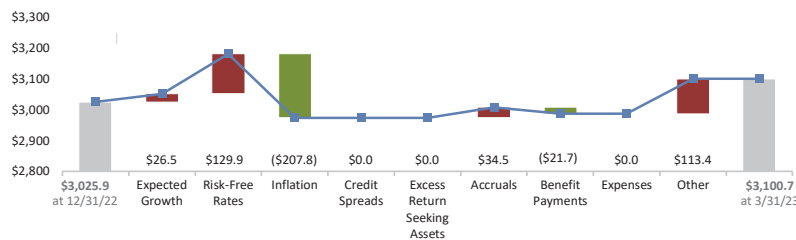
Values in \$1,000,000 (CAD)

## Assets



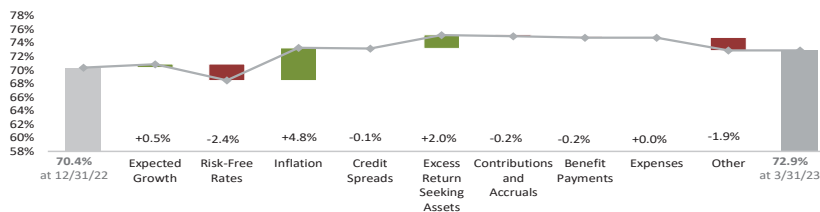
- Overall, assets returned 6.3% during this quarter.
- The fixed income assets gained value due to a decrease in the underlying risk-free rates, partially offset by widening credit spreads.
- The plans' return-seeking assets performed better than expected during the quarter.
- The University and members made \$18.8 million in contributions during the quarter and the trust paid \$21.7 million in benefits to the participants.
- "Other" includes the impact of active management, and differences between benchmark and actual investment allocations.

## Liability



- Liabilities were expected to grow by \$26.5 million due to interest cost during the quarter.
- New benefit accruals increased the liability by \$34.5 million during the quarter.
- Plan liabilities decreased by \$21.7 million during the quarter as benefits were paid.
- "Other" includes the impact of a new valuation as at January 1, 2023, indexation higher than assumed for 2023 and demographic experience.

## Funded Ratio



- The difference in exposure to risk-free rates (net of inflation) between assets and liabilities combined with changes in risk-free rates (net of inflation) resulted in an increase in funded status of 2.4%.
- Return-seeking assets experienced gains during the quarter in excess of expected, adding 2.0% to the plans' funded status during the period.
- Benefit accruals exceeded contributions during the quarter, resulting in a net decrease of 0.2% in the funded status.
- The impact of the new valuation as at January 1, 2023, the actual indexation adjustment in May 2023 and the additional indexation reserve for May 2024 (all included in "Other"), resulted in a net decrease of 1.9% in the funded status.

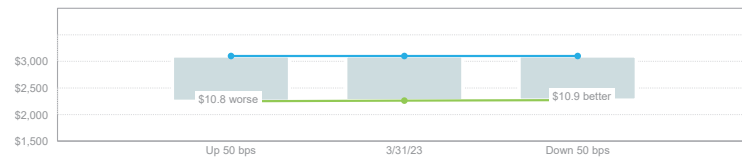


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# Sensitivity Analysis – Risk Free Benchmark

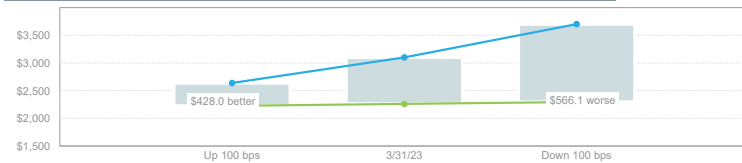
Values in \$1,000,000 (CAD)

## Credit Spreads



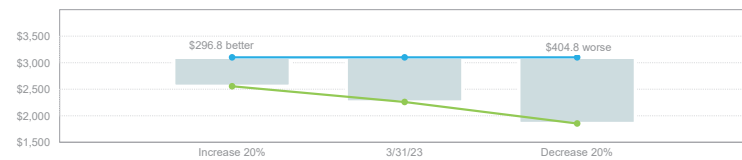
	Up 50bps	Current	Down 50bps
Market Value of Assets	\$2,249.6	\$2,260.4	\$2,271.3
Risk Free Liability	\$3,100.7	\$3,100.7	\$3,100.7
Surplus/(Deficit)	(\$851.1)	(\$840.3)	(\$829.4)
Change		(\$10.8)	\$10.9

## Risk Free Rates



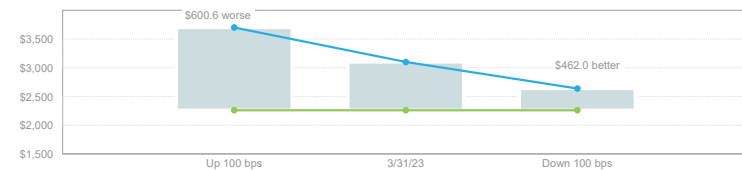
	Up 100bps	Current	Down 100bps
Market Value of Assets	\$2,226.4	\$2,260.4	\$2,294.9
Risk Free Liability	\$2,638.7	\$3,100.7	\$3,701.3
Surplus/(Deficit)	(\$412.3)	(\$840.3)	(\$1,406.4)
Change		\$428.0	(\$566.1)

## Return-Seeking Assets



	Increase 20%	Current	Decrease 20%
Market Value of Assets	\$2,557.2	\$2,260.4	\$1,855.6
Risk Free Liability	\$3,100.7	\$3,100.7	\$3,100.7
Surplus/(Deficit)	(\$543.5)	(\$840.3)	(\$1,245.1)
Change		\$296.8	(\$404.8)

## Inflation

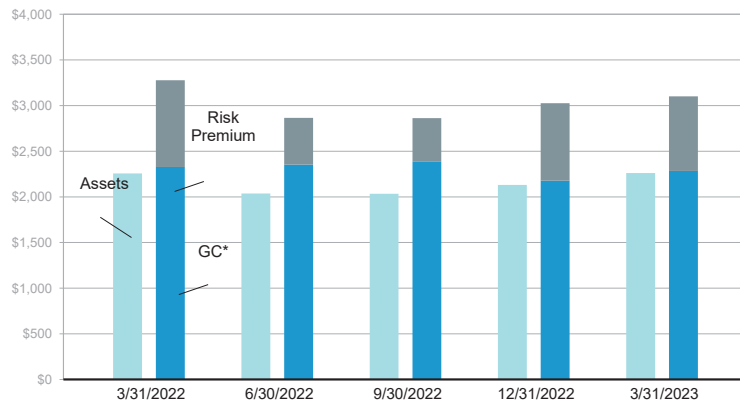


	Up 100bps	Inflation	Down 100bps
Market Value of Assets	\$2,260.4	\$2,260.4	\$2,260.4
Risk-Free Liability	\$3,447.3	\$3,100.7	\$2,837.2
Surplus/(Deficit)	(1,186.9)	(\$840.3)	(\$576.8)
Change		(\$346.6)	\$263.5

# Reconciliation of Risk-Free Benchmark and Going Concern Funded Status

## Funded Status

Values in \$1,000,000 (CAD)



\*Going Concern

	3/31/21	6/30/22	9/30/22	12/31/22	03/31/23
Market Value of Assets	\$ 2,257.3	\$ 2,037.5	\$ 2,033.6	\$ 2,130.3	\$ 2,260.4
Going Concern Liability	\$ 2,327.1	\$ 2,353.8	\$ 2,384.4	\$ 2,177.8	\$ 2,284.2
Risk Premium	<u>950.7</u>	<u>511.1</u>	<u>478.6</u>	<u>848.1</u>	<u>816.5</u>
Risk-Free Liability	\$ 3,277.8	\$ 2,864.9	\$ 2,863.0	\$ 3,025.9	\$ 3,100.7

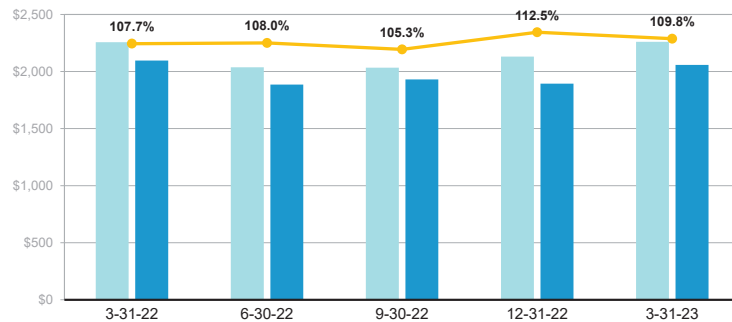
The difference between the Risk-Free Liability and the Going Concern Liability is a measure of the amount of risk premium on which the Pension Plan funding is based.



# Executive Summary – Solvency

Values in \$1,000,000 (CAD)

## Funded Status



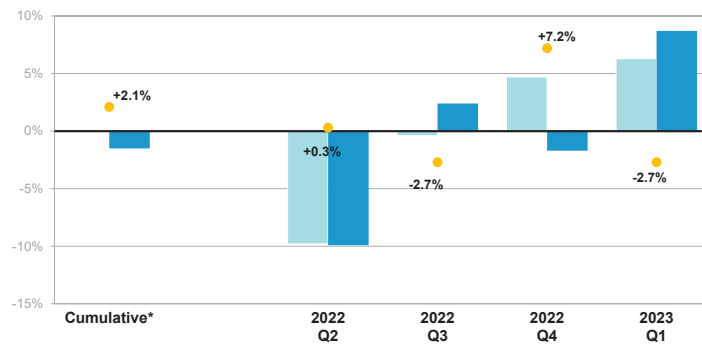
### Highlights for the Quarter-Ending 3/31/23

The plans' funded ratio decreased to 109.8% at 3/31/23. This result was primarily due to the combined effects of:

- Better than expected asset returns, offset by
- New benefit accruals that exceeded contributions, and
- An increase in liabilities due to a decrease in nominal interest rates.

	3/31/2022	6/30/2022	9/30/2022	12/31/2022	03/31/2023
Market Value of Assets	\$ 2,257.3	\$ 2,037.5	\$ 2,033.6	\$ 2,130.3	\$ 2,260.4
Solvency Liability	2,092.4	1,885.8	1,930.8	1,893.5	2,057.8
Surplus/(Deficit)	\$ 164.9	\$ 151.7	\$ 102.8	\$ 236.8	\$ 202.6
Periodic Contributions	\$ 26.5	\$ 27.1	\$ 27.9	\$ 28.1	\$ 18.8
Effective Interest Rate	3.70%	4.62%	4.52%	4.76%	4.52%
Funded Ratio:					
Assets/Solvency Liability	107.9%	108.0%	105.3%	112.5%	109.8%
Interest rate sensitivity:					
Assets	1.6	1.5	1.6	1.6	1.5
Solvency Liability	14.6	12.5	12.6	12.4	12.6

## Asset-Liability Return



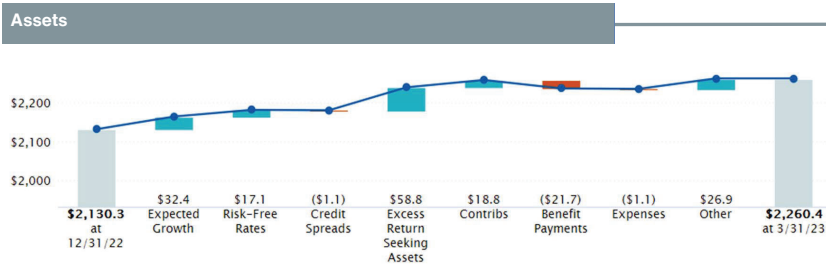
### Asset Liability Return for Quarter-Ending 3/31/23

Assets returned 6.3% during the quarter while liabilities returned 8.7%, resulting in a funded status decrease of 2.7%.

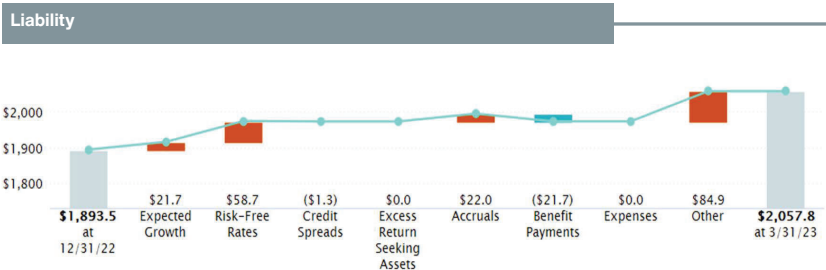
	Periodic Return/Change	Cumulative	6/30/22	9/30/22	12/31/22	03/31/23
Market Value of Assets Return		0.0%	-9.8%	-0.4%	4.7%	6.3%
Solvency Liability:						
Return		-1.5%	-9.9%	2.4%	-1.7%	8.7%
Funded Ratio Change		2.1%	0.3%	-2.7%	7.2%	-2.7%

# Asset-Liability Performance Attribution – Solvency

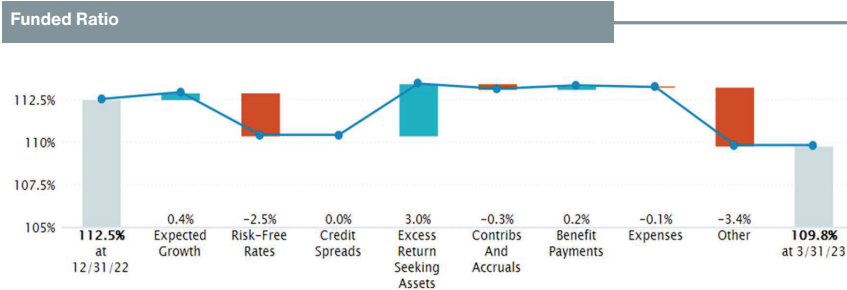
Values in \$1,000,000 (CAD)



- Overall, assets returned 6.3% during this quarter.
- The fixed income assets gained value due to a decrease in the underlying risk-free rates, partially offset by widening credit spreads.
- The plans' return-seeking assets performed better than expected during the quarter.
- The University and members made \$18.8 million in contributions during the quarter and the trust paid \$21.7 million in benefits to the participants.
- "Other" includes the impact of active management, and differences between benchmark and actual investment allocations.



- Liabilities were expected to grow by \$21.7 million due to interest cost during the quarter.
- Risk-free rates decreased, and credit spreads widened, resulting in a net increase of \$57.4 million (\$58.7 million - \$1.3 million).
- New benefit accruals increased the liability by \$22.0 million during the quarter.
- Plan liabilities decreased by \$21.7 million during the quarter as benefits were paid.
- "Other" includes the impact of a new valuation as at January 1, 2023, indexation loss and demographic experience.



- The difference in exposure to risk-free rates between assets and liabilities combined with changes in risk-free rates resulted in a decrease in funded status of 2.5%.
- Return-seeking assets experienced gains during the quarter in excess of expected, adding 3.0% to the plans' funded status during the period.
- Benefit accruals exceeded contributions during the quarter, resulting in a net decrease of 0.3% in the funded status.



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# Appendix



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# Plan Provisions & Membership Data



Plan Provisions and membership data are outlined in the Actuarial Valuation Results Presentation as of January 1, 2023.

# Actuarial Methods & Assumptions

Our analysis of the estimated financial position of the Pension Plan is based on the following:

	3/31/22	6/30/22	9/30/22	12/31/22	03/31/23
<b>Going Concern</b>					
Discount Rate	5.50%	5.50%	5.50%	6.25%	6.25%
Inflation	2.00%	2.00%	2.00%	2.00%	2.00%
Salary Increase	3.00%/4.00% <sup>1</sup>	3.00%/4.00% <sup>1</sup>	3.00%/4.00% <sup>1</sup>	3.00%/4.00% <sup>1</sup>	3.00%/4.00% <sup>1</sup>
PfAD	9.00%	9.00%	9.00%	9.00%	9.60%
Mortality	CPM2014Public	CPM2014Public	CPM2014Public	CPM2014Public	CPM2014Public
<b>Risk-Free Benchmark</b>					
Discount Rate (Net of inflation)	0.94%	1.76%	1.84%	1.59%	1.74%
<b>Solvency</b>					
Annuity Purchase Interest Rate	3.81%	4.69%	4.64%	4.91%	4.63%
Effective Date of Annuity Purchase Guidance Used	3/31/22	6/30/22	9/30/22	12/31/22	05/01/23
Lump Sum Value Interest Rate (Years 1-10) <sup>2</sup>	3.40%	4.30%	4.30%	4.30%	4.10%
Lump Sum Value Interest Rate (Years 10+) <sup>2</sup>	3.70%	4.60%	4.30%	4.70%	4.50%
Mortality <sup>3</sup>	CPM2014	CPM2014	CPM2014	CPM2014	CPM2014
<b>Underlying Canadian Reference Data</b>					
CANSIM v39054 (7 Year)	2.37%	3.15%	3.19%	3.27%	2.86%
CANSIM v39056 (30 Year Long Term)	2.37%	3.14%	3.09%	3.28%	3.02%
CANSIM v39057 (30 Year Real Return)	0.54%	1.36%	1.44%	1.19%	1.34%
CANSIM v39062 (Over 10 Years)	2.41%	3.19%	3.14%	3.31%	3.03%

<sup>1</sup> 3.00% per year for 1 year and 4.00% year thereafter effective with the January 1, 2023 valuation; 3.00% per year for 2 years and 4.00% thereafter in prior periods

<sup>2</sup> Lump Sum Value Interest Rates are based on rates in effect on the first day of the month following quarter end (i.e., January 1st, April 1st, July 1st and October 1st).

<sup>3</sup> With improvement scale MI-2017 for Going Concern and Risk Free and CPM-B for Solvency.

All other assumptions and methods are the same as those shown in the Actuarial Valuation Results presentation as of January 1, 2023. For the Risk-Free Benchmark basis, all other assumptions and methods are the same as those used for the Going Concern basis.

# Actuarial Attestation

**This document is intended to provide the University of Waterloo with a summary of the performance of the Pension Plan as of March 31, 2023.**

This analysis is intended to assist the University of Waterloo with a review of the associated issues and options, and its use may not be appropriate for other purposes. This analysis has been prepared solely for the benefit of the University of Waterloo. Any further dissemination of this report is not allowed without the written consent of Aon.

In conducting the analysis, we have relied on plan design, demographic and financial information provided by other parties, including the plan sponsor. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

Experience different than anticipated could have a material impact on the ultimate costs of the benefits. In addition, changes in plan provisions or applicable laws could have a substantial impact on cost. Actual experience may differ from our modeling assumptions.

Aon  
May 2023

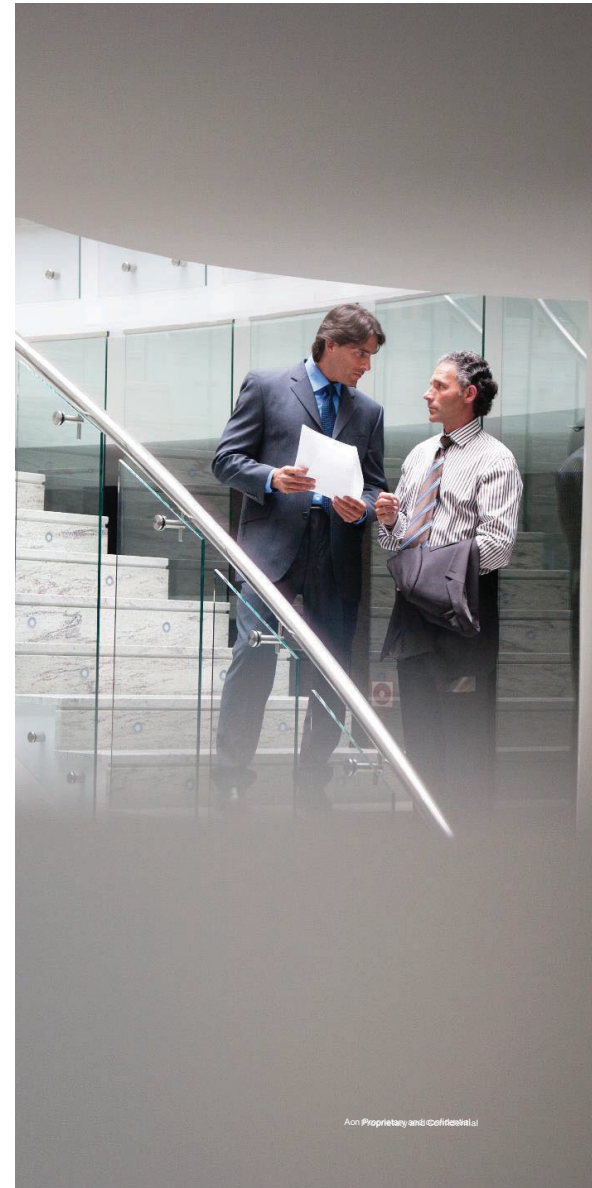
# Asset Allocation and Benchmarking

<b>Asset Class</b>	<b>03/31/23</b>
Alternatives	
• FTSE EPRA NAREIT DEVELOPED Total Return Index USD	2.9%
• MSCI USA Infrastructure Index	5.5%
Fixed Income	
• FTSE TMX Universe Bond Index	34.3%
International Equities	
• MSCI World Index	51.6%
• S&P TSX	5.7%
Total	100.0%

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*University of Waterloo Pension Plan | Quarterly Period Ending 31 March 2023*

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# Detailed Investment Review

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## Executive Summary

### Performance Summary<sup>1</sup>

As of 31 March 2023

	Allocation		Performance (%)									
	Market Value (\$000)	%	1 Quarter	Year To Date	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years	15 Years	
<b>Total Fund</b>	<b>2,260,369</b>	<b>100.0</b>	<b>6.32</b>	<b>6.32</b>	<b>-0.08</b>	<b>2.51</b>	<b>7.48</b>	<b>4.96</b>	<b>5.32</b>	<b>6.76</b>	<b>5.94</b>	
CPI + 3.5% <sup>2</sup>			2.31	2.31	7.95	9.16	8.02	7.11	6.78	5.95	5.74	
Value Added			4.01	4.01	-8.03	-6.65	-0.54	-2.15	-1.46	0.81	0.20	
Total Fund Benchmark <sup>10</sup>			4.66	4.66	-1.80	2.15	8.47	5.32	5.86	7.23	6.21	
Value Added			1.66	1.66	1.72	0.36	-0.99	-0.36	-0.54	-0.47	-0.27	
<b>Canadian Equities<sup>3</sup></b>	<b>127,418</b>	<b>5.6</b>	<b>4.54 (38)</b>	<b>4.54 (38)</b>	<b>-5.15 (88)</b>	<b>5.23 (96)</b>	<b>14.70 (98)</b>	<b>5.35 (100)</b>	<b>5.20 (100)</b>	<b>6.55 (98)</b>	<b>-</b>	
S&P/TSX Composite Index			4.55 (38)	4.55 (38)	-5.17 (88)	6.76 (81)	18.02 (69)	8.98 (68)	8.80 (52)	7.86 (86)	5.89 (89)	
Value Added			-0.01	-0.01	0.02	-1.53	-3.32	-3.63	-3.60	-1.31	-	
<b>TD Emerald Canadian Equity Index<sup>4</sup></b>	<b>127,418</b>	<b>5.6</b>	<b>4.54 (38)</b>	<b>4.54 (38)</b>	<b>-5.15 (88)</b>	<b>6.73 (82)</b>	<b>18.00 (69)</b>	<b>8.97 (68)</b>	<b>8.80 (52)</b>	<b>7.85 (86)</b>	<b>5.90 (89)</b>	
S&P/TSX Composite Index			4.55 (38)	4.55 (38)	-5.17 (88)	6.76 (81)	18.02 (69)	8.98 (68)	8.80 (52)	7.86 (86)	5.89 (89)	
Value Added			-0.01	-0.01	0.02	-0.03	-0.02	-0.01	0.00	-0.01	0.01	
<b>Global Equities<sup>6</sup></b>	<b>626,253</b>	<b>27.7</b>	<b>8.64 (27)</b>	<b>8.64 (27)</b>	<b>3.78 (47)</b>	<b>4.87 (54)</b>	<b>11.25 (83)</b>	<b>6.76 (83)</b>	<b>7.59 (63)</b>	<b>11.31 (65)</b>	<b>7.13 (89)</b>	
Global Equity Benchmark <sup>11</sup>			7.71 (34)	7.71 (34)	2.30 (60)	6.53 (33)	16.53 (27)	11.29 (12)	11.02 (12)	14.13 (13)	10.68 (16)	
Value Added			0.93	0.93	1.48	-1.66	-5.28	-4.53	-3.43	-2.82	-3.55	
<b>Walter Scott<sup>5</sup></b>	<b>445,897</b>	<b>19.7</b>	<b>10.34 (14)</b>	<b>10.34 (14)</b>	<b>6.36 (22)</b>	<b>6.84 (30)</b>	<b>13.64 (61)</b>	<b>10.24 (27)</b>	<b>11.48 (9)</b>	<b>13.61 (20)</b>	<b>11.14 (14)</b>	
MSCI World Index (Net) (CAD)			7.60 (36)	7.60 (36)	0.74 (72)	4.96 (52)	14.62 (48)	9.37 (43)	9.06 (35)	12.00 (52)	8.58 (68)	
Value Added			2.74	2.74	5.62	1.88	-0.98	0.87	2.42	1.61	2.56	
<b>RBC Global Focus Equity<sup>9</sup></b>	<b>86,872</b>	<b>3.8</b>	<b>2.71 (93)</b>	<b>2.71 (93)</b>	<b>-5.72 (95)</b>	<b>-0.87 (87)</b>	<b>12.87 (69)</b>	<b>8.33 (61)</b>	<b>8.90 (38)</b>	<b>-</b>	<b>-</b>	
MSCI AC World Index (Net)			7.18 (44)	7.18 (44)	0.29 (75)	3.36 (68)	13.59 (61)	8.37 (61)	7.96 (56)	11.19 (68)	8.00 (78)	
Value Added			-4.47	-4.47	-6.01	-4.23	-0.72	-0.04	0.94	-	-	
<b>Mirova Global Sustainable Equity<sup>9</sup></b>	<b>93,407</b>	<b>4.1</b>	<b>6.51 (52)</b>	<b>6.51 (52)</b>	<b>1.66 (65)</b>	<b>2.61 (74)</b>	<b>13.71 (60)</b>	<b>12.00 (8)</b>	<b>11.95 (6)</b>	<b>-</b>	<b>-</b>	
MSCI AC World Index (Net)			7.18 (44)	7.18 (44)	0.29 (75)	3.36 (68)	13.59 (61)	8.37 (61)	7.96 (56)	11.19 (68)	8.00 (78)	
Value Added			-0.67	-0.67	1.37	-0.75	0.12	3.63	3.99	-	-	

<sup>1</sup> Parentheses contain percentile rankings. (1st percentile is the best performing). All returns are reported gross of fees.

<sup>2</sup> CPI+3.5% benchmark has been implemented since February 2022. CPI+3.6% benchmark has been implemented retrospectively since 1 November 2018. From 1 January 2017 to 31 October 2018, CPI+3.5% benchmark was used. From 1 January 2016 to 31 December 2016, CPI + 3.7% benchmark was used. From 1 January 2014 to 31 December 2016, CPI+3.75% benchmark was used. Prior to 1 January 2014, CPI+3.85% benchmark was used.

<sup>3</sup> There was no exposure to Canadian Equities from January 2012 to April 2012.

<sup>4</sup> TD Emerald Canadian Equity Index added July 2020. Returns prior to these dates are representative only.

<sup>5</sup> Returns for Sionna before May 2012, Oldfield before July 2011, Trilogy before April 2008 and Walter Scott before July 2009 are based on composite returns.

<sup>6</sup> The global equities return prior to August 2018 includes Trilogy.

<sup>7</sup> In November 2016, TD Emerald U.S. pooled and International Index funds were added. Returns prior to these dates are representative only.

<sup>8</sup> The Currency Overlay was discontinued on 20 November 2017.

<sup>9</sup> In August 2021, RBC Global Focus Equity and Mirova Sustainable Global Equity strategies were added. Returns prior to these dates are representative only.

<sup>10</sup> Total Fund Benchmark was implemented as a performance objective in February 2022. Due to licensing constraints

FTSE Global Infrastructure 50/50 Index is used in place of UBS 50/50

<sup>11</sup> Global Equity Benchmark is 100% MSCI ACWI as of February 2022. Prior Benchmark was MSCI World

## Executive Summary

### Performance Summary<sup>1</sup>

As of 31 March 2023

	Allocation		Performance (%)										
	Market Value (\$000)	%	1 Quarter	Year To Date	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years	15 Years		
<b>U.S. Equities</b>													
<b>TD Emerald Pooled U.S. Fund<sup>7</sup></b>	<b>363,091</b>	<b>16.1</b>	<b>7.36 (38)</b>	<b>7.36 (38)</b>	<b>0.00 (58)</b>	<b>7.19 (42)</b>	<b>16.59 (48)</b>	<b>11.95 (32)</b>	<b>12.24 (33)</b>	-	-		
S&P 500 (CAD)			7.37 (38)	7.37 (38)	-0.02 (59)	7.19 (42)	16.63 (47)	11.98 (32)	12.27 (32)	15.51 (39)	12.11 (53)		
Value Added			-0.01	-0.01	0.02	0.00	-0.04	-0.03	-0.03	-	-		
<b>International Equities</b>													
<b>TD Emerald International Equity Index<sup>7</sup></b>	<b>198,351</b>	<b>8.8</b>	<b>8.32 (56)</b>	<b>8.32 (56)</b>	<b>6.95 (58)</b>	<b>3.73 (51)</b>	<b>11.15 (64)</b>	<b>5.84 (65)</b>	<b>4.66 (59)</b>	<b>8.15 (84)</b>	<b>5.03 (91)</b>		
MSCI EAFE (Net)			8.34 (56)	8.34 (56)	6.86 (59)	3.65 (52)	11.10 (65)	5.76 (67)	4.53 (62)	8.05 (86)	4.92 (92)		
Value Added			-0.02	-0.02	0.09	0.08	0.05	0.08	0.13	0.10	0.11		
<b>Fixed Income</b>													
<b>TDAM Universe Bond Index</b>	<b>690,349</b>	<b>30.5</b>	<b>2.54 (63)</b>	<b>2.54 (63)</b>	<b>-0.44 (78)</b>	<b>-2.24 (86)</b>	<b>-0.26 (100)</b>	<b>0.55 (98)</b>	<b>1.34 (14)</b>	-	-		
FTSE Canada Universe Bond			3.22 (65)	3.22 (65)	-2.01 (78)	-3.28 (86)	-1.67 (99)	-0.17 (97)	0.89 (97)	1.88 (93)	3.20 (95)		
Value Added			0.00	0.00	-0.01	-0.02	-0.18	-0.10	-0.08	0.58	0.79		
<b>TDAM Active Short Term Corporate</b>	<b>364,991</b>	<b>16.1</b>	<b>1.95 (100)</b>	<b>1.95 (100)</b>	<b>1.02 (100)</b>	<b>-1.26 (100)</b>	<b>1.27 (37)</b>	<b>1.31 (100)</b>	<b>1.81 (100)</b>	-	-		
FTSE Canada Short Term Corporate Bond			1.95 (100)	1.95 (100)	0.87 (100)	-1.29 (100)	1.23 (100)	1.33 (100)	1.83 (100)	2.01 (100)	3.15 (100)		
Value Added			0.00	0.00	0.15	0.03	0.04	-0.02	-0.02	-	-		
<b>Real Estate</b>													
<b>XRE ETF (Real Estate)</b>	<b>64,943</b>	<b>2.9</b>	<b>4.16 (1)</b>	<b>4.16 (1)</b>	<b>-13.56 (100)</b>	<b>2.86 (100)</b>	<b>10.69 (37)</b>	<b>1.28 (100)</b>	<b>4.89 (100)</b>	<b>4.59 (100)</b>	-		
FTSE EPRA Nareit Developed			0.92 (1)	0.92 (1)	-14.00 (100)	-0.70 (100)	5.78 (97)	-0.80 (100)	2.78 (100)	6.38 (100)	5.34 (-)		
Value Added			3.24	3.24	0.44	3.56	4.91	2.08	2.11	-1.79	-		
<b>Infrastructure</b>													
<b>Brookfield Infrastructure (BIP.UN)</b>	<b>75,270</b>	<b>3.3</b>	<b>10.15 (100)</b>	<b>10.15 (100)</b>	<b>-13.06 (100)</b>	<b>3.90 (100)</b>	<b>15.62 (37)</b>	<b>13.13 (100)</b>	<b>12.54 (100)</b>	<b>16.82 (100)</b>	-		
FTSE Global Core Infrastructure 50/50 Index			0.62 (100)	0.62 (100)	0.70 (100)	7.37 (100)	9.40 (100)	5.04 (100)	7.67 (100)	10.15 (100)	-		
Value Added			9.53	9.53	-13.76	-3.47	6.22	8.09	4.87	6.67	-		

<sup>1</sup> Parentheses contain percentile rankings. (1st percentile is the best performing). All returns are reported gross of fees.

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<sup>3</sup> There was no exposure to Canadian Equities from January 2012 to April 2012.

<sup>4</sup> TD Emerald Canadian Equity Index added July 2020. Returns prior to these dates are representative only.

<sup>5</sup> Returns for Sionna before May 2012, Oldfield before July 2011, Trilogy before April 2008 and Walter Scott before July 2009 are based on composite returns.

<sup>6</sup> The global equities return prior to August 2018 includes Trilogy.

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## Executive Summary

### Performance Summary<sup>1</sup>

As of 31 March 2023

	Allocation		Performance (%)								
	Market Value (\$000)	%	1 Quarter	Year To Date	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years	15 Years
<b>Brookfield Renewable (BEP.UN)</b>	<b>58,544</b>	<b>2.6</b>	<b>25.74</b>	<b>25.74</b>	<b>-10.56</b>	-	-	-	-	-	-
FTSE Global Core Infrastructure 50/50 Index			0.62	0.62	0.70	7.37	9.40	5.04	7.67	10.15	-
Value Added			25.12	25.12	-11.26	-	-	-	-	-	-
<b>Operating Account</b>	<b>56,149</b>	<b>2.5</b>									
<b>BAs/U.S. and CDN Cash</b>	<b>46,055</b>	<b>2.0</b>	<b>1.10</b>	<b>1.10</b>	<b>2.89</b>	<b>1.54</b>	<b>1.10</b>	<b>1.24</b>	<b>1.33</b>	<b>1.09</b>	-
<b>Operating Account</b>	<b>10,095</b>	<b>0.4</b>	<b>0.07</b>	<b>0.07</b>	<b>0.25</b>	<b>0.14</b>	<b>0.19</b>	<b>0.28</b>	<b>0.28</b>	<b>0.21</b>	<b>0.45</b>
<b>Currency Overlay Effect (Historical)<sup>8</sup></b>											
<b>Total Fund &amp; CO</b>	<b>2,260,369</b>	<b>100.0</b>	<b>6.32</b>	<b>6.32</b>	<b>-0.08</b>	<b>2.51</b>	<b>7.48</b>	<b>4.96</b>	<b>5.32</b>	<b>6.59</b>	<b>5.54</b>
<b>Total Fund ex CO</b>			<b>6.32</b>	<b>6.32</b>	<b>-0.08</b>	<b>2.51</b>	<b>7.48</b>	<b>4.96</b>	<b>5.32</b>	<b>6.76</b>	<b>5.94</b>
Value Added			0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.17	-0.40

<sup>1</sup> Parentheses contain percentile rankings. (1st percentile is the best performing). All returns are reported gross of fees.

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## Executive Summary

### Rolling Year Performance<sup>1</sup>

As of 31 March 2023

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total Fund</b>	<b>-0.08</b>	<b>5.17</b>	<b>18.13</b>	<b>-2.23</b>	<b>6.74</b>	<b>5.60</b>	<b>11.59</b>	<b>-0.22</b>	<b>15.07</b>	<b>9.70</b>
CPI + 3.5% <sup>2</sup>	7.95	10.40	5.77	4.42	5.45	5.89	5.12	4.81	4.74	5.10
Value Added	-8.03	-5.23	12.36	-6.65	1.29	-0.29	6.47	-5.03	10.33	4.60
Total Fund Benchmark <sup>1*</sup>	-1.80	6.26	22.29	-3.59	8.07	4.81	11.46	-0.71	13.80	14.54
Value Added	1.72	-1.09	-4.16	1.36	-1.33	0.79	0.13	0.49	1.27	-4.84
<b>Canadian Equities<sup>3</sup></b>	<b>-5.15 (88)</b>	<b>16.75 (89)</b>	<b>36.25 (90)</b>	<b>-18.36 (82)</b>	<b>4.59 (71)</b>	<b>3.50 (31)</b>	<b>21.20 (16)</b>	<b>-4.89 (64)</b>	<b>6.08 (67)</b>	<b>15.71 (91)</b>
S&P/TSX Composite Index	-5.17 (88)	20.19 (68)	44.25 (50)	-14.21 (50)	8.11 (29)	1.71 (64)	18.62 (37)	-6.57 (83)	6.93 (60)	15.97 (91)
Value Added	0.02	-3.44	-8.00	-4.15	-3.52	1.79	2.58	1.68	-0.85	-0.26
<b>TD Emerald Canadian Equity Index<sup>4</sup></b>	<b>-5.15 (88)</b>	<b>20.11 (69)</b>	<b>44.22 (50)</b>	<b>-14.18 (50)</b>	<b>8.11 (29)</b>	<b>1.69 (65)</b>	<b>18.51 (38)</b>	<b>-6.53 (83)</b>	<b>6.93 (60)</b>	<b>15.94 (91)</b>
S&P/TSX Composite Index	-5.17 (88)	20.19 (68)	44.25 (50)	-14.21 (50)	8.11 (29)	1.71 (64)	18.62 (37)	-6.57 (83)	6.93 (60)	15.97 (91)
Value Added	0.02	-0.08	-0.03	0.03	0.00	-0.02	-0.11	0.04	0.00	-0.03
<b>Global Equities<sup>6</sup></b>	<b>3.78 (47)</b>	<b>5.98 (54)</b>	<b>25.18 (85)</b>	<b>-5.65 (52)</b>	<b>10.99 (16)</b>	<b>11.85 (47)</b>	<b>21.77 (16)</b>	<b>-2.06 (59)</b>	<b>19.55 (64)</b>	<b>27.04 (73)</b>
Global Equity Benchmark <sup>1*</sup>	2.30 (60)	10.94 (16)	39.43 (49)	-3.07 (35)	9.96 (22)	12.02 (47)	20.75 (23)	0.54 (35)	24.10 (31)	31.76 (37)
Value Added	1.48	-4.96	-14.25	-2.58	1.03	-0.17	1.02	-2.60	-4.55	-4.72
<b>Walter Scott<sup>5</sup></b>	<b>6.36 (22)</b>	<b>7.33 (44)</b>	<b>28.55 (80)</b>	<b>0.63 (18)</b>	<b>16.60 (3)</b>	<b>14.66 (28)</b>	<b>16.23 (66)</b>	<b>4.17 (15)</b>	<b>22.14 (50)</b>	<b>22.65 (90)</b>
MSCI World Index (Net) (CAD)	0.74 (72)	9.35 (27)	36.70 (61)	-4.97 (47)	7.80 (36)	9.83 (64)	18.38 (45)	-1.43 (53)	21.66 (54)	29.18 (56)
Value Added	5.62	-2.02	-8.15	5.60	8.80	4.83	-2.15	5.60	0.48	-6.53
<b>RBC Global Focus Equity<sup>9</sup></b>	<b>-5.72 (95)</b>	<b>4.23 (68)</b>	<b>46.32 (23)</b>	<b>-4.21 (41)</b>	<b>11.18 (14)</b>	<b>23.14 (5)</b>	<b>16.25 (66)</b>	<b>2.75 (21)</b>	<b>-</b>	<b>-</b>
MSCI AC World Index (Net)	0.29 (75)	6.52 (50)	37.20 (59)	-5.89 (53)	6.34 (47)	11.04 (54)	18.66 (42)	-2.34 (61)	20.97 (59)	26.45 (75)
Value Added	-6.01	-2.29	9.12	1.68	4.84	12.10	-2.41	5.09	-	-
<b>Mirova Global Sustainable Equity<sup>9</sup></b>	<b>1.66 (65)</b>	<b>3.58 (72)</b>	<b>39.63 (48)</b>	<b>7.01 (3)</b>	<b>11.76 (10)</b>	<b>18.12 (13)</b>	<b>12.81 (87)</b>	<b>3.93 (16)</b>	<b>19.03 (68)</b>	<b>-</b>
MSCI AC World Index (Net)	0.29 (75)	6.52 (50)	37.20 (59)	-5.89 (53)	6.34 (47)	11.04 (54)	18.66 (42)	-2.34 (61)	20.97 (59)	26.45 (75)
Value Added	1.37	-2.94	2.43	12.90	5.42	7.08	-5.85	6.27	-1.94	-

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<sup>3</sup> There was no exposure to Canadian Equities from January 2012 to April 2012.

<sup>4</sup> TD Emerald Canadian Equity Index added July 2020. Returns prior to these dates are representative only.

<sup>5</sup> Returns for Sionna before May 2012, Oldfield before July 2011, Trilogy before April 2008 and Walter Scott before July 2009 are based on composite returns.

<sup>6</sup> The global equities return prior to August 2018 includes Trilogy.

<sup>7</sup> In November 2016, TD Emerald U.S. pooled and International Index funds were added. Returns prior to these dates are representative only.

<sup>8</sup> The Currency Overlay was discontinued on 20 November 2017.

<sup>9</sup> In August 2021, RBC Global Focus Equity and Mirova Sustainable Global Equity strategies were added. Returns prior to these dates are representative only.

<sup>10</sup> Total Fund Benchmark was implemented as a performance objective in February 2022. Due to licensing constraints

FTSE Global Infrastructure 50/50 Index is used in place of UBS 50/50

<sup>11</sup> Global Equity Benchmark is 100% MSCI ACWI as of February 2022. Prior Benchmark was MSCI World

## Executive Summary

### Rolling Year Performance<sup>1</sup>

As of 31 March 2023

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>U.S. Equities</b>										
<b>TD Emerald U.S. Pooled Fund<sup>7</sup></b>	<b>0.00 (58)</b>	<b>14.91 (22)</b>	<b>37.93 (64)</b>	<b>-0.88 (39)</b>	<b>13.41 (39)</b>	<b>10.16 (52)</b>	<b>20.69 (47)</b>	<b>3.93 (22)</b>	-	-
S&P 500 (CAD)	-0.02 (59)	14.93 (22)	38.06 (64)	-0.89 (39)	13.46 (38)	10.20 (51)	20.81 (45)	3.95 (22)	29.35 (49)	32.39 (70)
Value Added	0.02	-0.02	-0.13	0.01	-0.05	-0.04	-0.12	-0.02	-	-
<b>International Equities</b>										
<b>TD Emerald International Equity Index<sup>7</sup></b>	<b>6.95 (58)</b>	<b>0.61 (45)</b>	<b>27.62 (71)</b>	<b>-8.62 (50)</b>	<b>0.06 (38)</b>	<b>10.87 (72)</b>	<b>15.22 (50)</b>	<b>-6.28 (76)</b>	<b>13.86 (63)</b>	<b>27.86 (63)</b>
MSCI EAFE (Net)	6.86 (59)	0.54 (47)	27.66 (71)	-8.78 (51)	-0.23 (41)	10.98 (70)	15.15 (51)	-6.32 (77)	13.69 (66)	27.72 (64)
Value Added	0.09	0.07	-0.04	0.16	0.29	-0.11	0.07	0.04	0.17	0.14
<b>Fixed Income</b>										
<b>TDAM Universe Bond Index</b>	<b>-0.44</b>	<b>-4.00</b>	<b>3.82</b>	<b>3.02</b>	<b>4.54</b>	<b>0.73</b>	<b>-1.91</b>	<b>1.34</b>	-	-
<b>TDAM Universe Bond Index</b>	<b>-2.02 (78)</b>	<b>-4.56 (85)</b>	<b>1.11 (97)</b>	<b>4.63 (24)</b>	<b>5.26 (65)</b>	<b>1.26 (76)</b>	<b>-3.95 (100)</b>	<b>1.85 (1)</b>	<b>18.24 (1)</b>	<b>4.51 (1)</b>
FTSE TMX Canada Bond Universe	-2.01 (78)	-4.52 (83)	1.62 (93)	4.46 (29)	5.27 (63)	1.36 (74)	1.51 (88)	0.78 (68)	10.26 (32)	0.84 (74)
Value Added	-0.01	-0.04	-0.51	0.17	-0.01	-0.10	-5.46	1.07	7.98	3.67
<b>TDAM Active Short Term Corporate</b>	<b>1.02</b>	<b>-3.48</b>	<b>6.51</b>	<b>1.45</b>	<b>3.84</b>	<b>0.18</b>	<b>2.75</b>	<b>1.35</b>	-	-
FTSE Canada Short Term Corporate Bond	0.87	-3.40	6.46	1.63	3.84	0.19	2.79	1.28	4.24	2.50
Value Added	0.15	-0.08	0.05	-0.18	0.00	-0.01	-0.04	0.07	-	-
<b>Real Estate</b>										
<b>XRE ETF (Real Estate)</b>	<b>-13.56 (100)</b>	<b>22.39 (39)</b>	<b>28.18 (1)</b>	<b>-22.41 (100)</b>	<b>20.64 (1)</b>	<b>7.17 (57)</b>	<b>9.92 (21)</b>	<b>-2.58 (100)</b>	<b>11.61 (1)</b>	<b>-3.68 (100)</b>
FTSE EPRA Nareit Developed	-14.00 (100)	14.66 (100)	20.05 (1)	-18.19 (100)	18.48 (1)	0.76 (100)	5.03 (96)	3.42 (100)	33.18 (1)	11.01 (11)
Value Added	0.44	7.73	8.13	-4.22	2.16	6.41	4.89	-6.00	-21.57	-14.69
<b>Infrastructure</b>										
<b>Brookfield Infrastructure (BIP.UN)</b>	<b>-13.06</b>	<b>24.18</b>	<b>43.18</b>	<b>5.96</b>	<b>10.22</b>	<b>8.52</b>	<b>47.76</b>	<b>0.01</b>	<b>38.87</b>	<b>17.70</b>
FTSE Global Core Infrastructure 50/50 Index	0.70	14.49	13.56	-7.01	18.85	1.95	14.38	4.35	24.68	19.76
Value Added	-13.76	9.69	29.62	12.97	-8.63	6.57	33.38	-4.34	14.19	-2.06
<b>Brookfield Renewable (BEP.UN)</b>	<b>-10.56</b>	-	-	-	-	-	-	-	-	-
FTSE Global Core Infrastructure 50/50 Index	0.70	14.49	13.56	-7.01	18.85	1.95	14.38	4.35	24.68	19.76
Value Added	-11.26	-	-	-	-	-	-	-	-	-

<sup>1</sup> Parentheses contain percentile rankings. (1st percentile is the best performing). All returns are reported gross of fees.

<sup>2</sup> CPI+3.5% benchmark has been implemented since February 2022. CPI+3.6% benchmark has been implemented retrospectively since 1 November 2018. From 1 January 2017 to 31 October 2018, CPI+3.5% benchmark was used. From 1 January 2016 to 31 December 2016, CPI + 3.7% benchmark was used. From 1 January 2014 to 31 December 2016, CPI+3.75% benchmark was used. Prior to 1 January 2014, CPI+3.85% benchmark was used.

<sup>3</sup> There was no exposure to Canadian Equities from January 2012 to April 2012.

<sup>4</sup> TD Emerald Canadian Equity Index added July 2020. Returns prior to these dates are representative only.

<sup>5</sup> Returns for Sionna before May 2012, Oldfield before July 2011, Trilogy before April 2008 and Walter Scott before July 2009 are based on composite returns.

<sup>6</sup> The global equities return prior to August 2018 includes Trilogy.

<sup>7</sup> In November 2016, TD Emerald U.S. pooled and International Index funds were added. Returns prior to these dates are representative only.

<sup>8</sup> The Currency Overlay was discontinued on 20 November 2017.

<sup>9</sup> In August 2021, RBC Global Focus Equity and Mirova Sustainable Global Equity strategies were added. Returns prior to these dates are representative only.

<sup>10</sup> Total Fund Benchmark was implemented as a performance objective in February 2022. Due to licensing constraints

FTSE Global Infrastructure 50/50 Index is used in place of UBS 50/50

<sup>11</sup> Global Equity Benchmark is 100% MSCI ACWI as of February 2022. Prior Benchmark was MSCI World

## Executive Summary

### Performance Summary (Net of Fees)<sup>1</sup>

As of 31 March 2023

	Performance (%)								
	1 Quarter	Year To Date	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years	15 Years
<b>Total Fund</b>	<b>6.27</b>	<b>6.27</b>	<b>-0.25</b>	<b>2.28</b>	<b>7.25</b>	<b>4.75</b>	<b>5.08</b>	<b>6.49</b>	<b>5.65</b>
CPI + 3.5% <sup>2</sup>	2.31	2.31	7.95	9.16	8.02	7.11	6.78	5.95	5.74
Value Added	3.96	3.96	-8.20	-6.88	-0.77	-2.36	-1.70	0.54	-0.09
Total Fund Benchmark <sup>10</sup>	4.66	4.66	-1.80	2.15	8.47	5.32	5.86	7.23	6.21
Value Added	1.61	1.61	1.55	0.13	-1.22	-0.57	-0.78	-0.74	-0.56
<b>Canadian Equities<sup>3</sup></b>	<b>4.53</b>	<b>4.53</b>	<b>-5.17</b>	<b>5.16</b>	<b>14.63</b>	<b>5.31</b>	<b>5.16</b>	<b>6.54</b>	<b>-</b>
S&P/TSX Composite Index	4.55	4.55	-5.17	6.76	18.02	8.98	8.80	7.86	5.89
Value Added	-0.02	-0.02	0.00	-1.60	-3.39	-3.67	-3.64	-1.32	-
<b>TD Emerald Canadian Equity Index<sup>4</sup></b>	<b>4.53</b>	<b>4.53</b>	<b>-5.17</b>	<b>6.71</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
S&P/TSX Composite Index	4.55	4.55	-5.17	6.76	18.02	8.98	8.80	7.86	5.89
Value Added	-0.02	-0.02	0.00	-0.05	-	-	-	-	-
<b>Global Equities<sup>6</sup></b>	<b>8.49</b>	<b>8.49</b>	<b>3.21</b>	<b>4.31</b>	<b>10.48</b>	<b>6.03</b>	<b>6.86</b>	<b>10.60</b>	<b>6.43</b>
Global Equity Benchmark <sup>11</sup>	7.71	7.71	2.30	6.53	16.53	11.29	11.02	14.13	10.68
Value Added	0.78	0.78	0.91	-2.22	-6.05	-5.26	-4.16	-3.53	-4.25
<b>Walter Scott<sup>5</sup></b>	<b>10.20</b>	<b>10.20</b>	<b>5.80</b>	<b>6.28</b>	<b>13.00</b>	<b>9.59</b>	<b>10.81</b>	<b>12.85</b>	<b>10.37</b>
MSCI World Index (Net) (CAD)	7.60	7.60	0.74	4.96	14.62	9.37	9.06	12.00	8.58
Value Added	2.60	2.60	5.06	1.32	-1.62	0.22	1.75	0.85	1.79
<b>RBC Global Focus Equity<sup>8</sup></b>	<b>2.57</b>	<b>2.57</b>	<b>-6.24</b>	<b>-1.40</b>	<b>12.27</b>	<b>7.76</b>	<b>8.32</b>	<b>-</b>	<b>-</b>
MSCI AC World Index (Net)	7.18	7.18	0.29	3.36	13.59	8.37	7.96	11.19	8.00
Value Added	-4.61	-4.61	-6.53	-4.76	-1.32	-0.61	0.36	-	-

<sup>1</sup> Parentheses contain percentile rankings. (1st percentile is the best performing). All returns are reported gross of fees.

<sup>2</sup> CPI+3.5% benchmark has been implemented since February 2022. CPI+3.6% benchmark has been implemented retrospectively since 1 November 2018. From 1 January 2017 to 31 October 2018, CPI+3.5% benchmark was used. From 1 January 2016 to 31 December 2016, CPI + 3.7% benchmark was used. From 1 January 2014 to 31 December 2016, CPI+3.75% benchmark was used. Prior to 1 January 2014, CPI+3.85% benchmark was used.

<sup>3</sup> There was no exposure to Canadian Equities from January 2012 to April 2012.

<sup>4</sup> TD Emerald Canadian Equity Index added July 2020. Returns prior to these dates are representative only.

<sup>5</sup> Returns for Sionna before May 2012, Oldfield before July 2011, Trilogy before April 2008 and Walter Scott before July 2009 are based on composite returns.

<sup>6</sup> The global equities return prior to August 2018 includes Trilogy.

<sup>7</sup> In November 2016, TD Emerald U.S. pooled and International Index funds were added. Returns prior to these dates are representative only.

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FTSE Global Infrastructure 50/50 Index is used in place of UBS 50/50

<sup>11</sup> Global Equity Benchmark is 100% MSCI ACWI as of February 2022. Prior Benchmark was MSCI World



## Executive Summary

### Performance Summary (Net of Fees)<sup>1</sup>

As of 31 March 2023

	Performance (%)								
	1 Quarter	Year To Date	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years	15 Years
<b>Mirova Global Sustainable Equity<sup>8</sup></b>	<b>6.36</b>	<b>6.36</b>	<b>1.64</b>	<b>2.28</b>	<b>13.20</b>	<b>11.43</b>	<b>11.34</b>	-	-
MSCI AC World Index (Net)	7.18	7.18	0.29	3.36	13.59	8.37	7.96	11.19	8.00
Value Added	-0.82	-0.82	1.35	-1.08	-0.39	3.06	3.38	-	-
<b>U.S. Equities</b>									
<b>TD Emerald Pooled U.S. Fund<sup>7</sup></b>	<b>7.35</b>	<b>7.35</b>	<b>-0.03</b>	<b>7.17</b>	<b>16.56</b>	<b>11.92</b>	<b>12.21</b>	-	-
S&P 500 (CAD)	7.37	7.37	-0.02	7.19	16.63	11.98	12.27	15.51	12.11
Value Added	-0.02	-0.02	-0.01	-0.02	-0.07	-0.06	-0.06	-	-
<b>International Equities</b>									
<b>TD Emerald International Equity Index<sup>7</sup></b>	<b>8.32</b>	<b>8.32</b>	<b>9.17</b>	<b>4.79</b>	<b>11.90</b>	<b>6.36</b>	<b>5.07</b>	<b>8.34</b>	<b>5.14</b>
MSCI EAFE (Net)	8.34	8.34	6.86	3.65	11.10	5.76	4.53	8.05	4.92
Value Added	-0.02	-0.02	2.31	1.14	0.80	0.60	0.54	0.29	0.22
<b>Fixed Income</b>									
<b>TDAM Universe Bond Index</b>	<b>2.53</b>	<b>2.53</b>	<b>-0.50</b>	<b>-2.30</b>	<b>-0.30</b>	<b>0.52</b>	<b>1.31</b>	-	-
FTSE Canada Universe Bond	3.22	3.22	-2.01	-3.28	-1.67	-0.17	0.89	1.88	3.20
Value Added	0.00	0.00	-0.04	-0.04	-0.21	-0.12	-0.11	-0.11	-0.13
<b>TDAM Active Short Term Corporate</b>	<b>1.92</b>	<b>1.92</b>	<b>0.92</b>	<b>-1.35</b>	<b>1.17</b>	<b>1.22</b>	<b>1.72</b>	-	-
FTSE Canada Short Term Corporate Bond	1.95	1.95	0.87	-1.29	1.23	1.33	1.83	2.01	3.15
Value Added	-0.03	-0.03	0.05	-0.06	-0.06	-0.11	-0.11	-	-

<sup>1</sup> Parentheses contain percentile rankings. (1st percentile is the best performing). All returns are reported gross of fees.

<sup>2</sup> CPI+3.5% benchmark has been implemented since February 2022. CPI+3.6% benchmark has been implemented retrospectively since 1 November 2018. From 1 January 2017 to 31 October 2018, CPI+3.5% benchmark was used. From 1 January 2016 to 31 December 2016, CPI + 3.7% benchmark was used. From 1 January 2014 to 31 December 2016, CPI+3.75% benchmark was used. Prior to 1 January 2014, CPI+3.85% benchmark was used.

<sup>3</sup> There was no exposure to Canadian Equities from January 2012 to April 2012.

<sup>4</sup> TD Emerald Canadian Equity Index added July 2020. Returns prior to these dates are representative only.

<sup>5</sup> Returns for Sionna before May 2012, Oldfield before July 2011, Trilogy before April 2008 and Walter Scott before July 2009 are based on composite returns.

<sup>6</sup> The global equities return prior to August 2018 includes Trilogy.

<sup>7</sup> In November 2016, TD Emerald U.S. pooled and International Index funds were added. Returns prior to these dates are representative only.

<sup>8</sup> The Currency Overlay was discontinued on 20 November 2017.

<sup>9</sup> In August 2021, RBC Global Focus Equity and Mirova Sustainable Global Equity strategies were added. Returns prior to these dates are representative only.

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FTSE Global Infrastructure 50/50 Index is used in place of UBS 50/50

<sup>11</sup> Global Equity Benchmark is 100% MSCI ACWI as of February 2022. Prior Benchmark was MSCI World



## Executive Summary

### Rolling Year Performance (Net of Fees)<sup>1</sup>

As of 31 March 2023

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total Fund</b>	<b>-0.25</b>	<b>4.88</b>	<b>17.93</b>	<b>-2.43</b>	<b>6.43</b>	<b>5.26</b>	<b>11.29</b>	<b>-0.48</b>	<b>14.76</b>	<b>9.40</b>
CPI + 3.5% <sup>2</sup>	7.95	10.40	5.77	4.42	5.45	5.89	5.12	4.81	4.74	5.10
Value Added	-8.20	-5.52	12.16	-6.85	0.98	-0.63	6.17	-5.29	10.02	4.30
Total Fund Benchmark <sup>10</sup>	-1.80	6.26	22.29	-3.59	8.07	4.81	11.46	-0.71	13.80	14.54
Value Added	1.55	-1.38	-4.36	1.16	-1.64	0.45	-0.17	0.23	0.96	-5.14
<b>Canadian Equities<sup>3</sup></b>										
<b>TD Emerald Canadian Equity Index<sup>4</sup></b>	<b>-5.15</b>	<b>20.11</b>	<b>44.22</b>	<b>-14.18</b>	<b>8.11</b>	<b>1.69</b>	<b>18.51</b>	<b>-6.53</b>	<b>6.93</b>	<b>15.94</b>
S&P/TSX Composite Index	-5.17	20.19	44.25	-14.21	8.11	1.71	18.62	-6.57	6.93	15.97
Value Added	0.02	-0.08	-0.03	0.03	0.00	-0.02	-0.11	0.04	0.00	-0.03
<b>Global Equities<sup>6</sup></b>										
<b>Global Equity Benchmark</b>	<b>3.21</b>	<b>5.42</b>	<b>23.95</b>	<b>-6.29</b>	<b>10.24</b>	<b>11.22</b>	<b>20.98</b>	<b>-2.58</b>	<b>18.82</b>	<b>26.19</b>
Global Equity Benchmark	2.30	10.94	39.43	-3.07	9.96	12.02	20.75	0.54	24.10	31.76
Value Added	0.91	-5.52	-15.48	-3.22	0.28	-0.80	0.23	-3.12	-5.28	-5.57
<b>Walter Scott<sup>5</sup></b>										
<b>MSCI World Index (Net) (CAD)</b>	<b>5.80</b>	<b>6.76</b>	<b>27.75</b>	<b>-0.02</b>	<b>15.82</b>	<b>13.86</b>	<b>15.40</b>	<b>3.41</b>	<b>21.23</b>	<b>21.73</b>
MSCI World Index (Net) (CAD)	0.74	9.35	36.70	-4.97	7.80	9.83	18.38	-1.43	21.66	29.18
Value Added	5.06	-2.59	-8.95	4.95	8.02	4.03	-2.98	4.84	-0.43	-7.45
<b>RBC Global Focus Equity<sup>8</sup></b>										
<b>MSCI AC World Index (Net)</b>	<b>-6.24</b>	<b>3.68</b>	<b>45.56</b>	<b>-4.72</b>	<b>10.60</b>	<b>22.49</b>	<b>15.63</b>	<b>2.20</b>	<b>-</b>	<b>-</b>
MSCI AC World Index (Net)	0.29	6.52	37.20	-5.89	6.34	11.04	18.66	-2.34	20.97	26.45
Value Added	-6.53	-2.84	8.36	1.17	4.26	11.45	-3.03	4.54	-	-
<b>Mirova Global Sustainable Equity<sup>8</sup></b>										
<b>MSCI AC World Index (Net)</b>	<b>1.64</b>	<b>2.91</b>	<b>38.69</b>	<b>6.27</b>	<b>10.99</b>	<b>17.32</b>	<b>12.03</b>	<b>3.21</b>	<b>18.22</b>	<b>-</b>
MSCI AC World Index (Net)	0.29	6.52	37.20	-5.89	6.34	11.04	18.66	-2.34	20.97	26.45
Value Added	1.35	-3.61	1.49	12.16	4.65	6.28	-6.63	5.55	-2.75	-

<sup>1</sup> Parentheses contain percentile rankings. (1st percentile is the best performing). All returns are reported gross of fees.

<sup>2</sup> CPI+3.5% benchmark has been implemented since February 2022. CPI+3.6% benchmark has been implemented retrospectively since 1 November 2018. From 1 January 2017 to 31 October 2018, CPI+3.5% benchmark was used. From 1 January 2016 to 31 December 2016, CPI + 3.7% benchmark was used. From 1 January 2014 to 31 December 2016, CPI+3.75% benchmark was used. Prior to 1 January 2014, CPI+3.85% benchmark was used.

<sup>3</sup> There was no exposure to Canadian Equities from January 2012 to April 2012.

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## Executive Summary

### Rolling Year Performance (Net of Fees)<sup>1</sup>

As of 31 March 2023

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>U.S. Equities</b>										
<b>TD Emerald Pooled U.S. Fund<sup>7</sup></b>	<b>-0.03</b>	<b>14.88</b>	<b>37.89</b>	<b>-0.91</b>	<b>13.38</b>	<b>10.12</b>	<b>20.65</b>	<b>3.89</b>	-	-
S&P 500 (CAD)	-0.02	14.93	38.06	-0.89	13.46	10.20	20.81	3.95	29.35	32.39
Value Added	-0.01	-0.05	-0.17	-0.02	-0.08	-0.08	-0.16	-0.06	-	-
<b>International Equities</b>										
<b>TD Emerald International Equity Index<sup>7</sup></b>	<b>9.17</b>	<b>0.58</b>	<b>27.59</b>	<b>-8.64</b>	<b>0.04</b>	<b>10.83</b>	<b>15.18</b>	<b>-6.31</b>	<b>13.82</b>	<b>27.82</b>
MSCI EAFE (Net)	6.86	0.54	27.66	-8.78	-0.23	10.98	15.15	-6.32	13.69	27.72
Value Added	2.31	0.04	-0.07	0.14	0.27	-0.15	0.03	0.01	0.13	0.10
<b>Fixed Income</b>										
<b>TDAM Universe Bond Index</b>	<b>-0.44</b>	<b>-4.00</b>	<b>3.82</b>	<b>3.02</b>	<b>4.54</b>	<b>0.73</b>	<b>-1.91</b>	<b>1.34</b>	-	-
<b>TDAM Universe Bond Index</b>	<b>-2.05</b>	<b>-4.59</b>	<b>1.09</b>	<b>4.61</b>	<b>5.18</b>	<b>1.23</b>	<b>1.31</b>	<b>0.69</b>	<b>10.26</b>	<b>0.68</b>
FTSE Canada Universe Bond Index - C\$	-2.01	-4.52	1.62	4.46	5.27	1.36	1.51	0.77	10.26	0.84
Value Added	-0.04	-0.07	-0.53	0.15	-0.09	-0.13	-0.20	-0.08	0.00	-0.16
<b>TDAM Active Short Term Corporate</b>										
<b>TDAM Active Short Term Corporate</b>	<b>0.92</b>	<b>-3.57</b>	<b>6.40</b>	<b>1.37</b>	<b>3.73</b>	<b>0.08</b>	<b>2.64</b>	<b>1.23</b>	-	-
FTSE Canada Short Term Corporate Bond	0.87	-3.40	6.46	1.63	3.84	0.19	2.79	1.28	4.24	2.50
Value Added	0.05	-0.17	-0.06	-0.26	-0.11	-0.11	-0.15	-0.05	-	-

<sup>1</sup> Parentheses contain percentile rankings. (1st percentile is the best performing). All returns are reported gross of fees.

<sup>2</sup> CPI+3.5% benchmark has been implemented since February 2022. CPI+3.6% benchmark has been implemented retrospectively since 1 November 2018. From 1 January 2017 to 31 October 2018, CPI+3.5% benchmark was used. From 1 January 2016 to 31 December 2016, CPI + 3.7% benchmark was used. From 1 January 2014 to 31 December 2016, CPI+3.75% benchmark was used. Prior to 1 January 2014, CPI+3.85% benchmark was used.

<sup>3</sup> There was no exposure to Canadian Equities from January 2012 to April 2012.

<sup>4</sup> TD Emerald Canadian Equity Index added July 2020. Returns prior to these dates are presentative only.

<sup>5</sup> Returns for Sionna before May 2012, Oldfield before July 2011, Trilogy before April 2008 and Walter Scott before July 2009 are based on composite returns.

<sup>6</sup> The global equities return prior to August 2018 includes Trilogy.

<sup>7</sup> In November 2016, TD Emerald U.S. pooled and International Index funds were added. Returns prior to these dates are representative only.

<sup>8</sup> The Currency Overlay was discontinued on 20 November 2017.

<sup>9</sup> In August 2021, RBC Global Focus Equity and Mirova Sustainable Global Equity strategies were added. Returns prior to these dates are representative only.

<sup>10</sup> Total Fund Benchmark was implemented as a performance objective in February 2022. Due to licensing constraints

FTSE Global Infrastructure 50/50 Index is used in place of UBS 50/50

<sup>11</sup> Global Equity Benchmark is 100% MSCI ACWI as of February 2022. Prior Benchmark was MSCI World

# INVESTMENT CARBON ANALYSIS & DISCLOSURES

As at December 31, 2022





# Responsible Investing Advisory Group

In June 2021, the Board of Governors endorsed recommendations from the Responsible Investing Advisory Group related to the Pension and Endowment investments. These recommendations included:

- Adopt a scorecard approach to carbon measurement including: Total Carbon Emissions, Carbon Footprint, and Weighted Average Carbon Intensity
  - Equity measurements for 2021
  - Fixed income and real assets for 2023
- Carbon footprint reduction targets, for scope 1 & 2 emissions
  - 50% by 2030, relative to 2018
  - Carbon Neutral by 2040
- Recommendations formalized in Responsible Investment Policy, approved by Board in April 2022

# Carbon Measurement Process

The University has contracted with MSCI to provide the following services:

- MSCI index data (used for benchmarking)
- Access to ESG Manager portal and carbon data\*

\*MSCI carbon data is based on reported carbon from individual companies, or is estimated using a proprietary carbon emissions estimation model. MSCI carbon assessments and estimates are generated semi-annually; however due to timing differences and fiscal year cycles, carbon data could lag up to two years.

# Carbon Measurements

- Total Carbon Emissions
  - The absolute greenhouse gas emissions associated with a portfolio, expressed in tons CO<sub>2</sub>e
  
- Carbon Footprint
  - Total carbon emissions for a portfolio, normalized by the market value of the portfolio, expressed in tons CO<sub>2</sub>e / \$M USD invested
  
- Weighted Average Carbon Intensity
  - The portfolio's exposure to carbon-intensive companies, expressed in tons CO<sub>2</sub>e / \$M USD revenue

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Formula 
$$\sum_n^i \left( \frac{\text{current value of investment}_i}{\text{issuer's market capitalization}_i} * \text{issuer's Scope 1 and Scope 2 GHG emissions}_i \right)$$

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Formula 
$$\frac{\sum_n^i \left( \frac{\text{current value of investment}_i}{\text{issuer's market capitalization}_i} * \text{issuer's Scope 1 and Scope 2 GHG emissions}_i \right)}{\text{current portfolio value (\$M)}}$$

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Formula 
$$\sum_n^i \left( \frac{\text{current value of investment}_i}{\text{current portfolio value}} * \frac{\text{issuer's Scope 1 and Scope 2 GHG emissions}_i}{\text{issuer's \$M revenue}_i} \right)$$

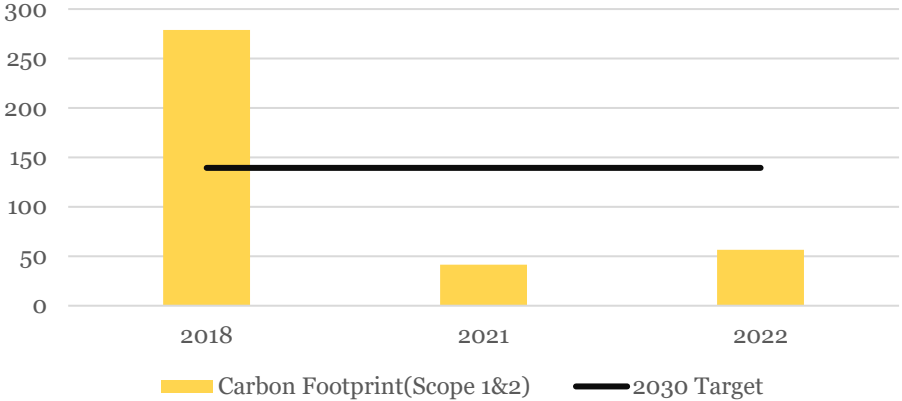
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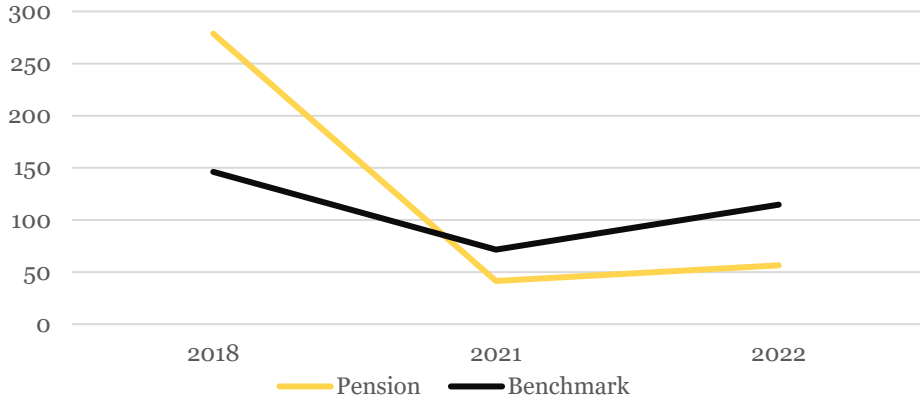
# Pension Equity - Scorecard

Carbon Measure	Total Carbon Emissions	Carbon Footprint	Weighted Average Carbon Intensity	Coverage	Equity Market Value (CAD)
2018 Equity Portfolio	123,798	278.8	239.8	96.1%	\$678,893,000
2018 Benchmark	69,878	146.2	255.8	93.5%	
2021 Equity Portfolio	51,698	41.5	115.6	99.4%	\$1,364,899,000
2021 Benchmark	89,036	71.5	174.1	96.9%	
2022 Equity Portfolio	50,036	56.5	128.3	99.5%	\$1,199,589,602
2022 Benchmark	101,527	114.7	198.4	99.0%	

Carbon Footprint vs Target



Carbon Footprint vs Benchmark



# Scorecard Considerations

- Carbon Footprint for Pension equity investments continues to meet the 2030 target, 50% reduction
- Carbon footprint measurement does not yet include Fixed Income or Real Asset investments
- Carbon emissions data continues to reflect impacts from shutdowns and restrictions resulting from the COVID-19 pandemic.
- Infrastructure investments were recently approved for the pension; impact on carbon metrics to be assessed

It will be appropriate to revisit the carbon reduction target after the carbon scorecard includes all asset categories and further trending in the carbon metrics are available.

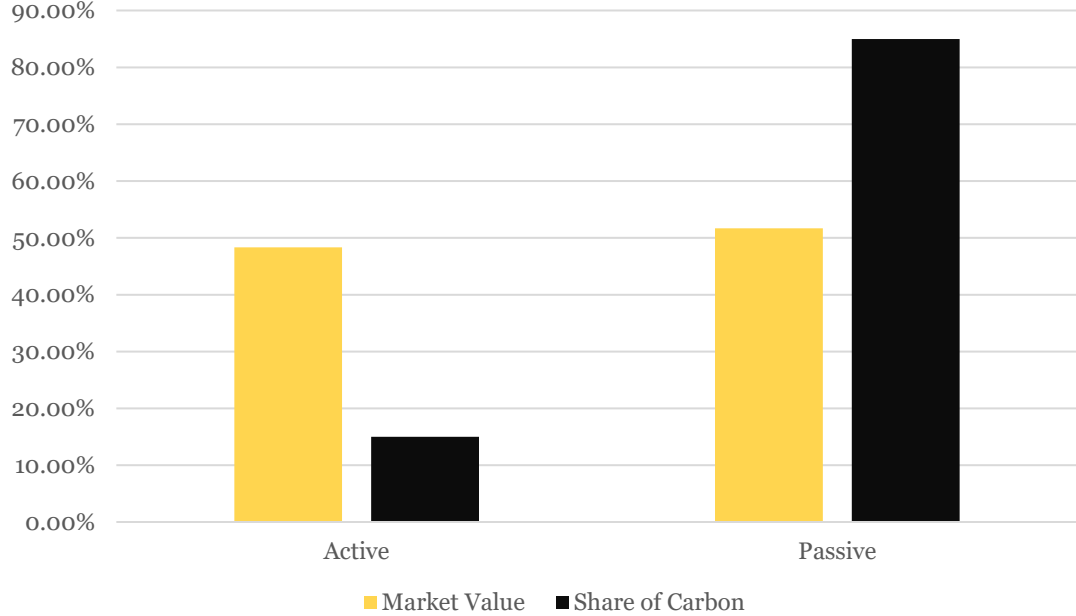


# CARBON ANALYSIS

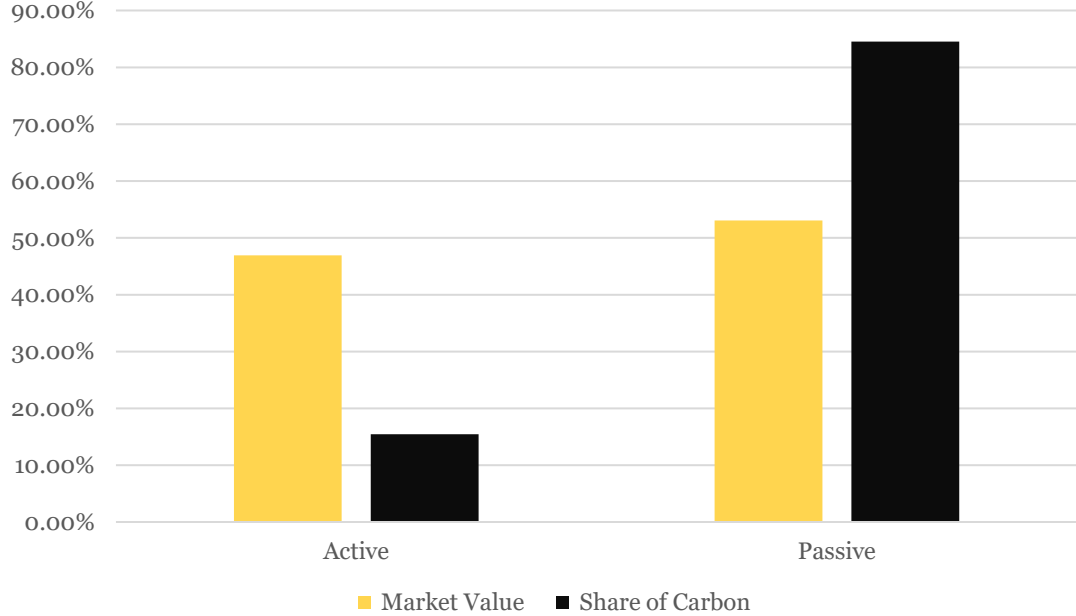
## Equities

# Pension Equity - Carbon by Management Style

2021 Market Value vs Total Carbon by Investment Management Style

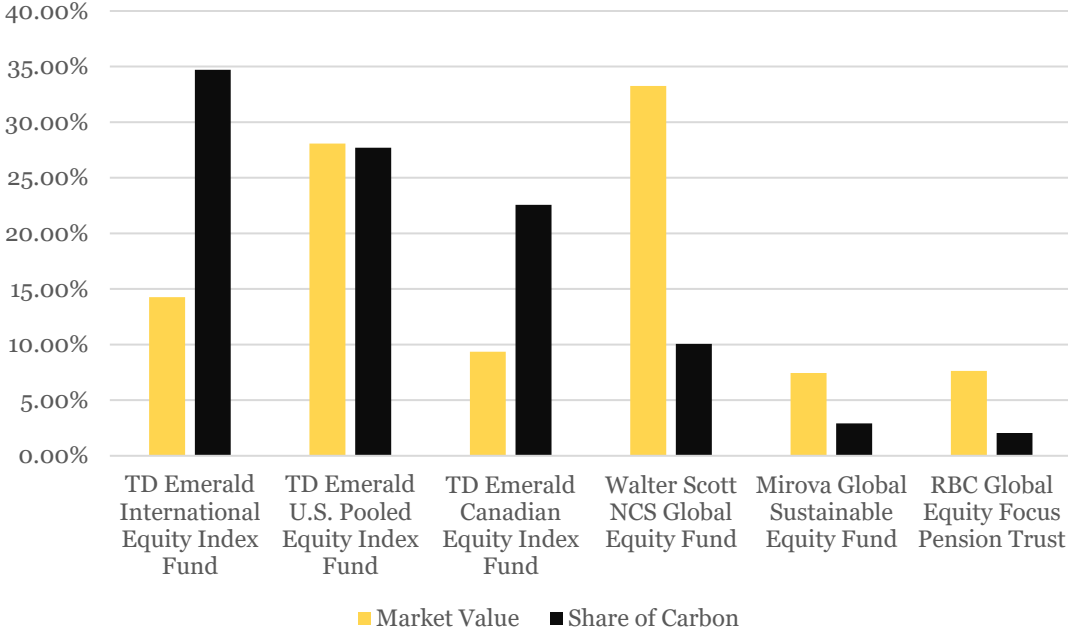


2022 Market Value vs Total Carbon by Investment Management Style

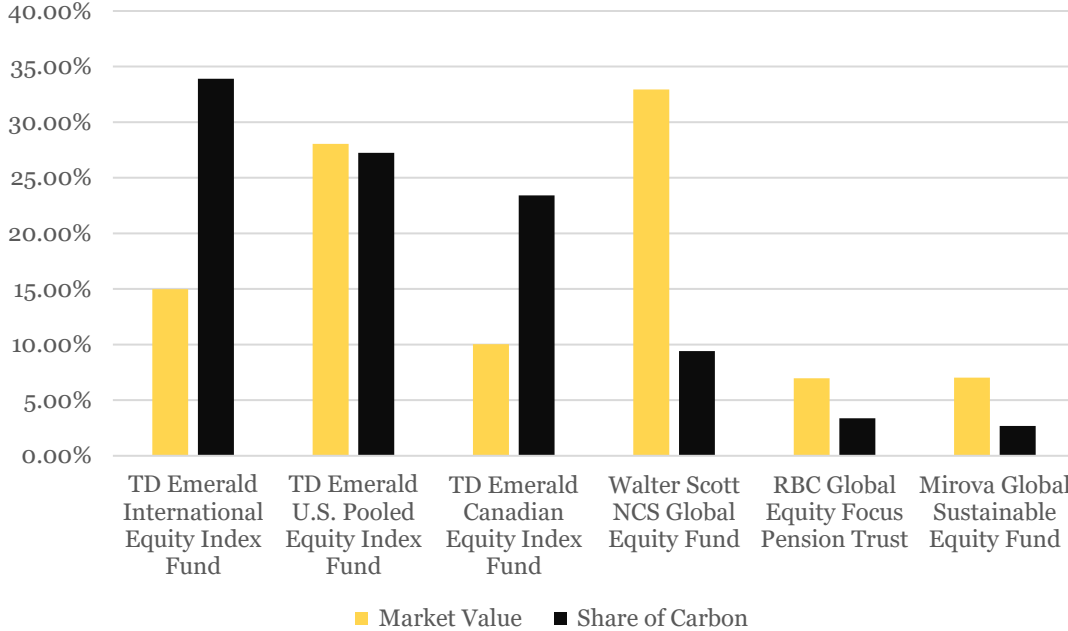


# Pension Equity – Carbon by Fund

2021 Market Value vs Total Carbon by Fund  
(as % of Equity Portfolio)

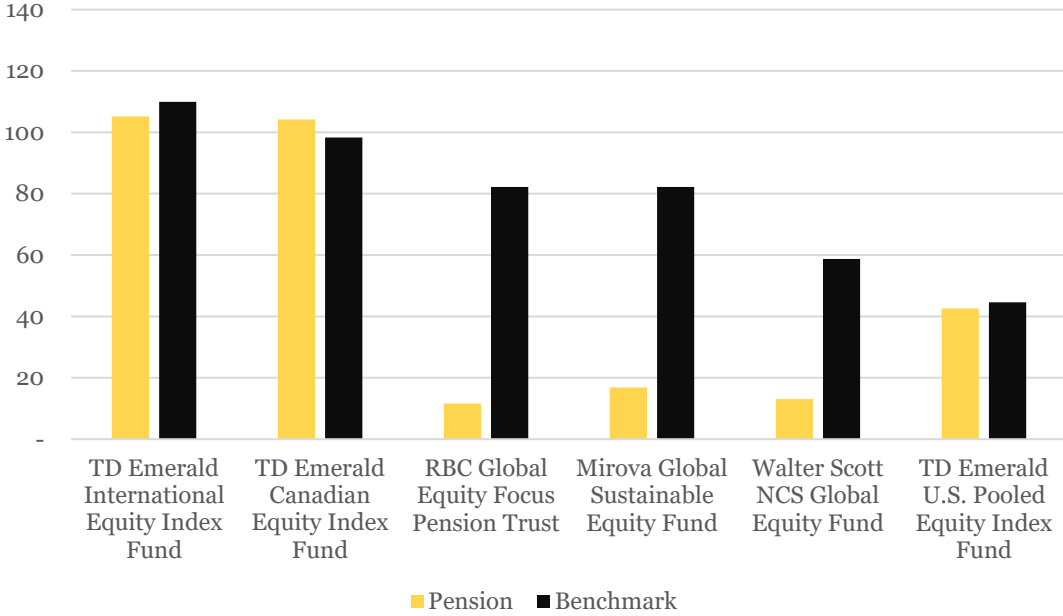


2022 Market Value vs Total Carbon by Fund  
(as % of Equity Portfolio)

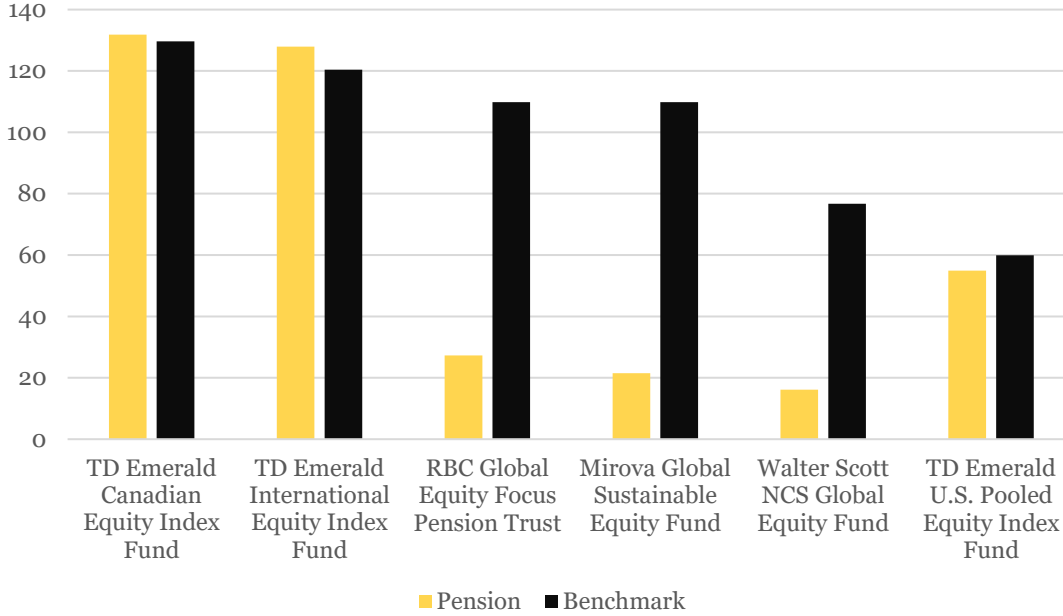


# Pension Equity – Carbon: Fund vs Benchmark

2021 Carbon Footprint vs Benchmark  
By Fund

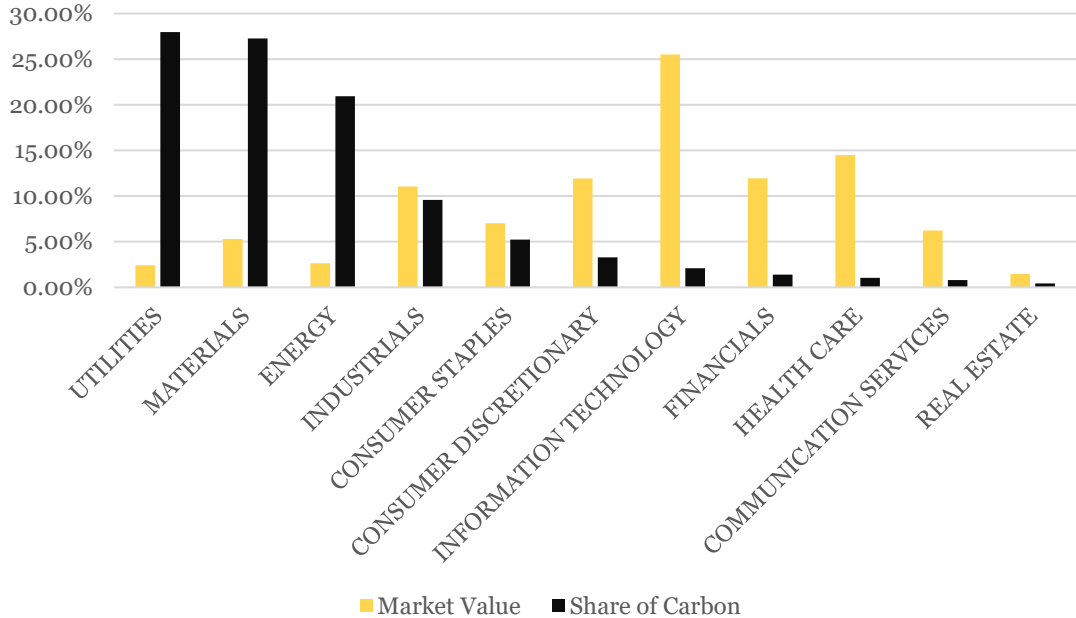


2022 Carbon Footprint vs Benchmark  
By Fund

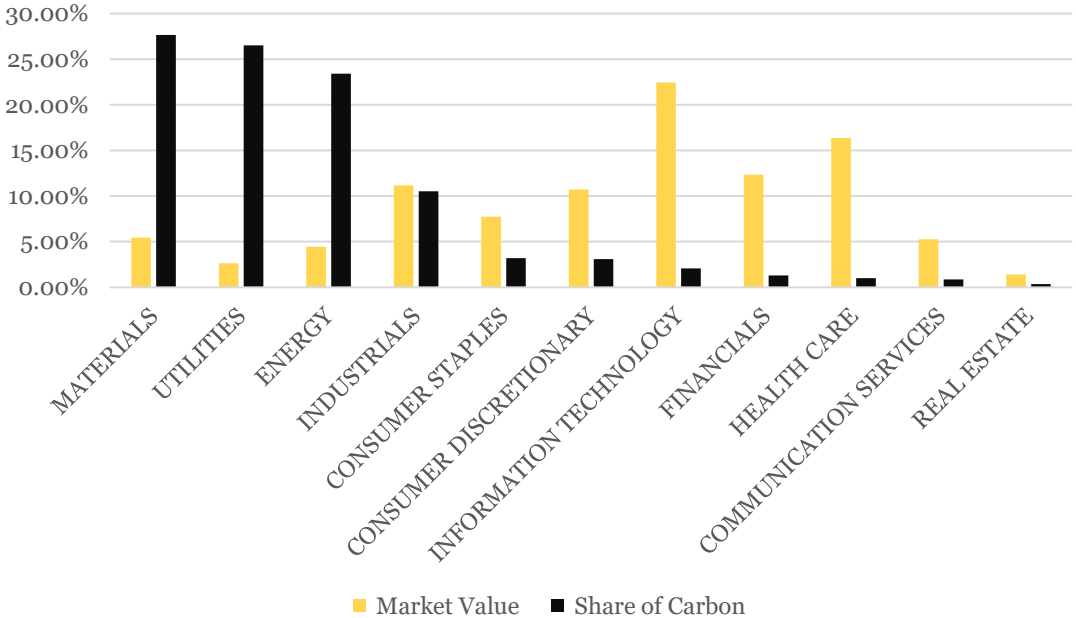


# Pension Equity - 2021 vs 2022: By Sector

2021 Market Value vs Total Carbon by Sector

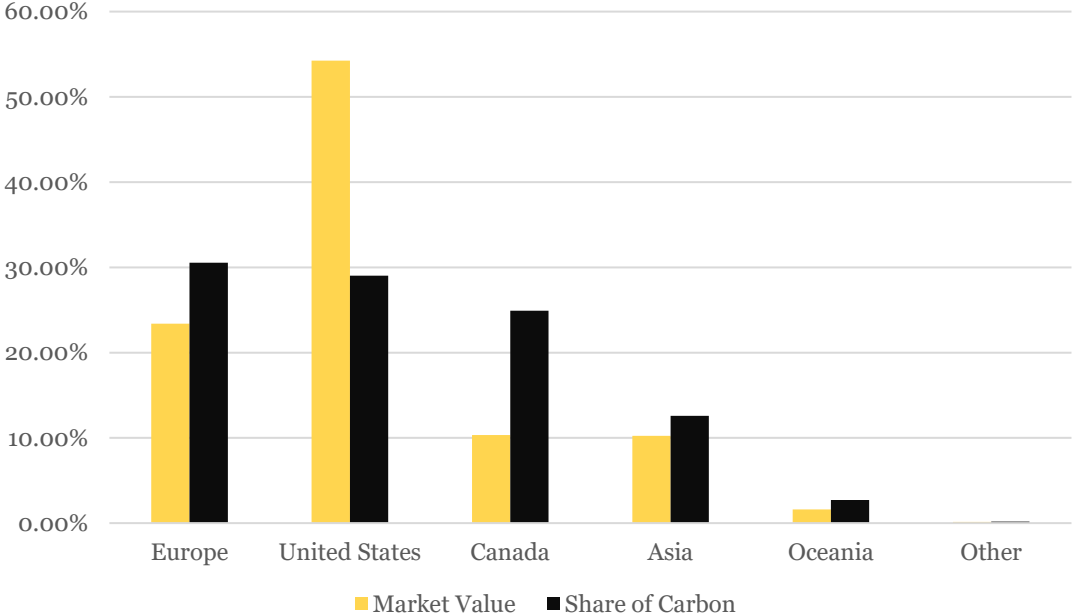


2022 Market Value vs Total Carbon by Sector

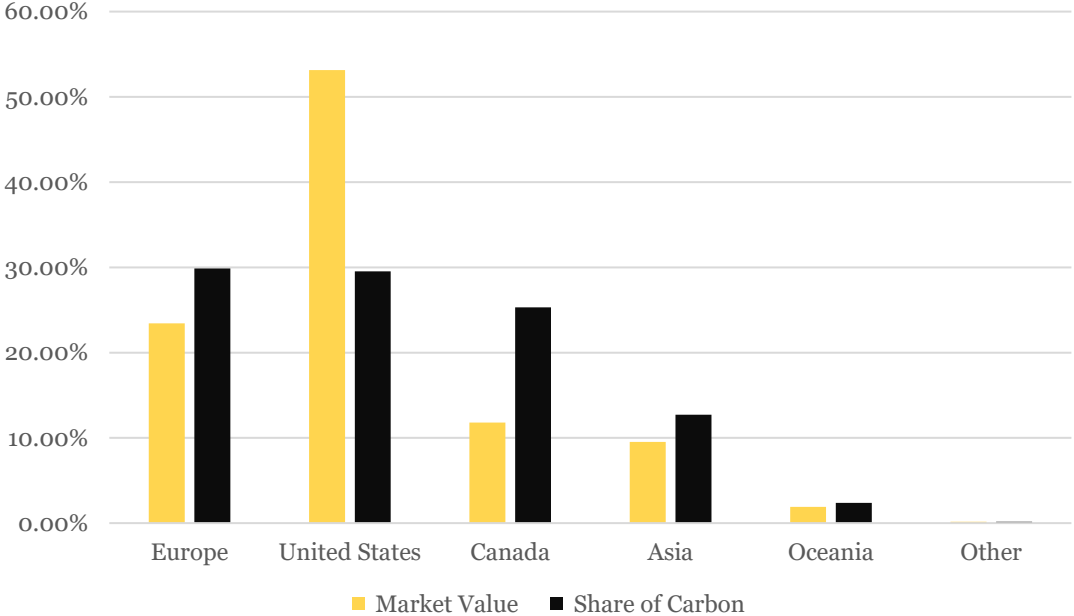


# Pension Equity - 2021 vs 2022: By Region

2021 Market Value vs Total Carbon by Region



2022 Market Value vs Total Carbon by Region



# Pension Equity - 2021 vs 2022: Top Carbon Emitters

Top 10 Carbon Emitting Companies Held in 2021 Equity Portfolio (Company Total Carbon Emissions)	Emissions (Tons of CO2e)
ARCELORMITTAL SA	150,800,000
HOLCIM LTD	117,000,000
EXXON MOBIL CORP	112,000,000
SOUTHERN CO	88,250,410
HEIDELBERGCEMENT AG	75,740,000
TOKYO ELECTRIC POWER	75,400,000
DUKE ENERGY CORP	74,979,700
NIPPON STEEL CORP	73,706,000
RWE AG	73,000,000
SHELL PLC	72,000,000

Top 10 Carbon Emitting Companies Held in 2022 Equity Portfolio (Company Total Carbon Emissions)	Emissions (Tons of CO2e)
ARCELORMITTAL SA	138,600,000
HOLCIM AG	126,000,000
EXXON MOBIL CORP	117,000,000
SHELL PLC	100,000,000
RWE AG	89,600,000
TOKYO ELECTRIC POWER	78,477,996
SOUTHERN CO	75,316,587
DUKE ENERGY CORP	74,979,700
HEIDELBERGCEMENT AG	74,550,000
BERKSHIRE HATHAWAY INC	73,835,516

# Pension Equity - 2021 vs 2022: Top Carbon Emitters

<b>Top 10 Contributors to 2021 Total Carbon Emissions Measurement</b> (UW Share of Company Carbon Emissions)	<b>Emissions</b> (Tons of CO <sub>2</sub> e)
LINDE PLC <sup>1</sup>	2,300
CANADIAN NATURAL	1,235
ALIMENTATION COUCHE-TARD INC <sup>1</sup>	1,213
ARCELORMITTAL SA	1,024
HOLCIM LTD	1,004
SUNCOR ENERGY INC	962
EXXON MOBIL CORP	933
TC ENERGY CORP	813
EMERA INC	739
SOUTHERN CO	738

<b>Top 10 Contributors to 2022 Total Carbon Emissions Measurement</b> (UW Share of Company Carbon Emissions)	<b>Emissions</b> (Tons of CO <sub>2</sub> e)
LINDE PLC <sup>1</sup>	2,401
CANADIAN NATURAL RESOURCES LTD	1,140
HOLCIM AG	1,068
SHELL PLC	930
SUNCOR ENERGY INC	930
TC ENERGY CORP	917
EXXON MOBIL CORP	905
ARCELORMITTAL SA	819
RWE AG	796
NEXTERA ENERGY INC <sup>1</sup>	771

1) Included in both Active & Passive Funds



# UNIVERSITY OF WATERLOO



**YOU+WATERLOO**

*Our greatest impact happens together.*

**Finance & Aon**  
**Report to the Pension & Benefits Committee**  
**19 May 2023**

The following recommendation is being forwarded to the Committee for approval.

**APPROVAL**

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**Recommendation:** That Pension & Benefits Committee recommend that the Board of Governors approve the filing of the Actuarial Valuation as of January 1, 2023 for the University of Waterloo Pension Plan with the regulator, as presented.

**Background and Rationale.** The University of Waterloo pension plan is a defined-benefit plan. The plan is funded by contributions from the employees and the University, and by investment returns. An actuarial valuation report is required to be filed with the Ontario pension regulator at least every three years. In practice the committee commissions a report on an annual basis for planning and monitoring purposes and recommends filing the valuation more regularly than required.

It is recommended that the 1 January 2023 valuation of the University Pension Plan is filed with the regulators. Attachment #1 provides the rationale for this recommendation and includes relevant excerpts from the actuarial valuation as of January 1, 2023 for the University of Waterloo pension plan.



## Attachment 1

### Background on Valuation Filing Recommendation

As shown in the table below, the total University contributions will be the same whether or not the January 1, 2023 actuarial valuation is filed with the regulators. The difference between the two scenarios is the allocation of the University contributions between current service cost, statutory special payments and additional contributions.

Filing of the January 1, 2023 actuarial valuation will ensure that the University funding plan of 12.45% of pensionable earnings will satisfy the statutory contribution requirements for three more years. In addition, filing of the actuarial valuation will reduce the Pension Benefits Guarantee Fund assessment by approximately \$64,000.

The filing decision should be assessed every year if the statutory requirements are satisfied by the University funding plan.

2023	Based on December 31, 2021 Filed Valuation	Based on January 1, 2023 Filed Valuation
<b>Member Contributions</b>		
	8.97% of pensionable earnings = \$49,027,000	8.97% of pensionable earnings = \$49,027,000
<b>Total University Funding Commitment</b>		
	12.45% of pensionable earnings = \$68,029,000	12.45% of pensionable earnings = \$68,029,000
University Current Service Cost	\$ 52,949,000	\$ 49,027,000
Statutory Special Payments	0	16,828,000
Additional Contributions Allocated to RPP	<u>15,080,000</u>	<u>2,174,000</u>
<b>Total University Contributions</b>	\$ 68,029,000	\$ 68,029,000

**UNIVERSITY OF WATERLOO  
PENSION PLAN FOR FACULTY AND STAFF**

Amendment No. 9

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**The Board of Governors of the University of Waterloo resolves that the University of Waterloo Pension Plan for Faculty and Staff (amended and restated effective January 1, 2011), Registration Number 0310565 (the “Plan”), is amended to as follows:**

1. Effective January 1, 2014, Section 2.17 of the Plan shall be deleted and replaced with the following:

“2.17 **“Final Average Earnings”** shall be determined as follows:

- (a) the average of the Member’s Earnings during the 36 consecutive months of highest Earnings (“averaging period”) during 120 months of his or her Continuous Employment immediately preceding the earliest of the Employee’s date of termination of employment, Retirement or death; however, at the end of each month in calendar years 2014 and 2015, the 36 consecutive month averaging period shall be increased by one month such that effective December 31, 2015 and thereafter, the averaging period shall be determined over 60 consecutive months during 120 months of his or her Continuous Employment preceding the earliest of the Employee’s date of termination of employment, Retirement or death;
- (b) for a Member who is laid-off or on a leave of absence including a sabbatical leave, and provided he or she returns to the University after the period of absence, the averaging period referred to in (a) may include all or part of the period of absence, as necessary, and Earnings during the leave of absence shall be deemed as though the Member was employed by the University during the period of absence;
- (c) for a Member who has fewer months of Continuous Employment than the averaging period referred to in (a) at the date of determination, Final Average Earnings means the average of the Member’s earnings during the total period of the Member’s Continuous Employment;
- (d) notwithstanding (a) above, for a Member who, effective December 31, 2012 or earlier and pursuant to University compensation arrangements, has opted to convert one week of annual vacation entitlement in each year preceding retirement (to a maximum of three) into a 2.0% salary increase, the averaging period referred to in (a) shall remain at 36 consecutive months after January 1, 2014; and
- (e) notwithstanding the above, for a Member who terminates employment, Retires or dies on or after January 1, 2014, Final Average Earnings shall be the greater of:
  - (i) the Member’s Final Average Earnings calculated pursuant to paragraphs (a) through (d); or
  - (ii) the Member’s Final Average Earnings calculated as at December 31, 2013.”

2. Effective September 24, 2022, "St Paul's University College" in Schedule A (List of Affiliated Organizations) shall be replaced with "United College".

### CERTIFICATION

I \_\_\_\_\_, Secretary to the Board of Governors of the University of Waterloo, do hereby certify under the seal of the University that the foregoing resolution was duly approved by the Board of Governors at a meeting held on the \_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date**