UNIVERSITY OF GUELPH

PENSION PLAN FOR PROFESSIONAL STAFF OF UNIVERSITY OF GUELPH

Actuarial Valuation as at October 1, 2019

April 16, 2020

Registration Number: 0324616

Willis Towers Watson

DISCLAIMERS

This document is an actuarial valuation report of a pension plan. It is technical in nature and the reader should seek expert advice to fully understand it. The actuarial results presented here are based on numerous economic and demographic assumptions as to future events. Emerging experience, differing from the assumptions, will result in gains or losses that will be revealed in future actuarial valuations.

This report is based on the terms of engagement listed in Appendix A.

This report is based on the premise that all the plan's assets, including any letters of credit, are available to meet the plan's liabilities included in this valuation.

This report is based on the premise that the plan remains a going concern. This report does not address the disposition of any surplus assets remaining in the event of plan windup. If an applicable pension regulator or other entity with jurisdiction directs otherwise, certain financial measures contained in this report, including contribution requirements, may be affected.

The results presented in this report have been developed using a particular set of actuarial assumptions. Other results could have been developed by selecting different actuarial assumptions. The results presented in this report are reasonable actuarial results based on actuarial assumptions reflecting our expectation of future events.

Future contribution levels may change as a result of future changes in the actuarial methods and assumptions, the membership data, the plan provisions and the legislative rules, or as a result of future experience gains or losses, none of which have been anticipated at this time.

The results were developed with various data as at the valuation date that were provided to us: plan membership data, plan assets data, plan provisions and statement of investment policy. Towers Watson Canada Inc. ("Willis Towers Watson") has relied on these data after verifying them and assessing their reasonableness. However, Willis Towers Watson has not independently audited these data.

The information contained in this report was prepared for University Of Guelph, for its internal use and for filing with the Pension Authorities, in connection with the actuarial valuation of the plan prepared by Willis Towers Watson. This report is not intended, nor necessarily suitable, for other parties or for other purposes. Furthermore, some results in this report are based on assumptions mandated by legislation. These results may not be appropriate for purposes other than those for which they were prepared. Further distribution of all or part of this report to other parties (except where such distribution is required by applicable legislation) or other use of this report is expressly prohibited without Willis Towers Watson's prior written consent. Willis Towers Watson is available to provide additional information with respect to this report to the above-mentioned intended users upon request.

The numbers in this report are not rounded. The fact that numbers are not rounded does not imply a greater level of precision than if the numbers had been rounded.

Definitions:

Pension Authorities means the Financial Services Regulatory Authority of Ontario and the Canada Revenue Agency ("CRA").

Pension Legislation means the *Pension Benefits Act (Ontario)* and Regulation thereto and the *Income Tax Act (Canada)* and Regulations thereto ("ITA").

Table of Contents

Introduction **1**

Section 1 : Going Concern Financial Position **3**

1.1 Statement of Financial Position *3*
1.2 Reconciliation of Financial Position *4*
1.3 Contributions (Ensuing Year) *5*

Section 2 : Solvency and Hypothetical Windup Financial Position **7**

2.1 Statement of Solvency and Hypothetical Windup Financial Position *7*
2.2 Determination of the Statutory Solvency Excess (Deficiency) *9*
2.3 Letters of Credit *10*

Section 3 : Contributions **11**

3.1 Estimated Minimum Employer Contribution (Ensuing Year) *11*
3.2 Estimated Maximum Employer Contribution (Ensuing Year) *12*
3.3 Timing of Contributions *12*

Section 4 : Actuarial Opinion **13**

Appendix A : Significant Terms of Engagement and Certificate of the Plan Administrator **15**

A.1 Significant Terms of Engagement *15*
A.2 Certificate of the Plan Administrator *16*

Appendix B : Assets **17**

B.1 Statement of Market Value (All Plans) *17*
B.2 Asset Class Distribution *19*
B.3 Reconciliation of Invested Assets (Market Value) *20*
B.4 Development of the Going Concern Value of Assets *21*
B.5 Going Concern Value of Assets by Plan *22*
B.6 Reconciliation of Face Amount of Letter of Credit *23*

Appendix C : Actuarial Basis - Going Concern Valuation **24**

C.1 Methods *24*
C.2 Actuarial Assumptions *25*
C.3 Rationale for Actuarial Assumptions *27*

Appendix D : Actuarial Basis - Solvency and Hypothetical Windup Valuations **30**

D.1 Methods *30*

D.2 Solvency Incremental Cost Actuarial Method ... 31

D.3 Actuarial Assumptions ... 32

D.4 Rationale for Actuarial Assumptions ... 34

Appendix E : Membership Data ... 37

Appendix F : Summary of Plan Provisions ... 41

Appendix G : Sensitivity Analysis and Other Disclosures ... 48

G.1 Sensitivity Information ... 48

G.2 Solvency Incremental Cost ... 48

G.3 Provision for Adverse Deviations Level ... 48

G.4 Effects of Plausible Adverse Scenarios ... 51

Introduction

Purpose

This report with respect to the Pension Plan for Professional Staff of University of Guelph has been prepared for University Of Guelph, the plan administrator, and presents the results of the actuarial valuation of the plan as at October 1, 2019.

The principal purposes of the report are:

- to present information on the financial position of the plan on going concern, solvency and hypothetical windup bases;
- to provide the basis for employer contributions.

Significant Events since Previous Actuarial Valuation (October 1, 2018)

Changes to the going concern basis, if any, are described in Appendix C. Changes to the solvency basis are described in Appendix D.

As noted in the report on the previous actuarial valuation as at October 1, 2018, this report reflects amendments to the Pension Legislation which were released in May 2019, to clarify certain details related to the new funding framework that took effect on May 1, 2018.

Subsection 3260 of the Canadian Institute of Actuaries' Practice-Specific Standards for Pension Plans has been amended for valuations with effective dates on or after March 1, 2019. The amendments require additional going concern disclosures on the effects of certain plausible adverse scenarios on a plan's funded status and normal actuarial cost requirements, which have been included in this report.

Since October 1, 2019, there have been increases to member contribution rates for the UGFA Unit 2 membership group effective May 1, 2020 and for the UGFA membership group effective July 1, 2020. These changes have been reflected in this report.

Subsequent Events

We completed this actuarial valuation on March 24, 2020.

Subsequent to the valuation date, both pension plan asset values and bond yields have been volatile and, as a result, the financial position of the pension plan may have deteriorated. The effects of this volatility have not been reflected in this report but, if sustained, and together with other subsequent experience, will be reflected at the next valuation date.

Amendments to section 3500 (Pension Commuted Values) of the Canadian Institute of Actuaries' Practice-Specific Standards for Pension Plans were announced on January 24, 2020, with an effective date of August 1, 2020, subsequently revised to no earlier than December 1, 2020. However, the underlying data necessary to evaluate the impacts of the amendments is not currently available. The effects of these amendments will be reflected in a subsequent actuarial opinion.

To the best of our knowledge and on the basis of our discussions with University Of Guelph, no other events which would have a material financial effect on the actuarial valuation occurred between the actuarial valuation date and the date this actuarial valuation was completed.

Next Valuation

The next actuarial valuation of the plan must be performed with an effective date not later than October 1, 2020.

Section 1: Going Concern Financial Position

1.1 Statement of Financial Position

	October 1, 2019	October 1, 2018
Going Concern Value of Assets	$ 1,148,047,000	$ 1,086,002,000
Actuarial Liability		
Active and disabled members	$ 520,917,414	$ 500,457,141
Retired members and beneficiaries	543,322,235	502,491,315
Terminated vested members	14,725,732	13,190,413
Total actuarial liability	$ 1,078,965,381	$ 1,016,138,869
Actuarial Surplus (Unfunded Actuarial Liability)	$ 69,081,619	$ 69,863,131
Funded Ratio	106%	107%
Provision for Adverse Deviations (PfAD)	$ 156,148,311	91,719,901
Actuarial Surplus (Unfunded Actuarial Liability) After PfAD	$ (87,066,692)	(21,856,770)
Excess Actuarial Surplus[1]	$ 0	$ 0

Note:

[1] Considered to be nil if there is a hypothetical windup or solvency deficit.

1.2 Reconciliation of Financial Position

Actuarial surplus (unfunded actuarial liability) as at October 1, 2018		$ 69,863,131
Net special payments		10,779,025
Expected interest on:		
■ Actuarial surplus (unfunded actuarial liability)	$ 4,331,514	
■ Net special payments	329,125	4,660,639
Plan experience:		
■ Investment gains (losses)	(1,077,753)	
■ Salary gains (losses)	1,153,623	
■ YMPE and ITA DB limit gains (losses)	374,550	
■ Cost-of-living adjustment gains (losses)	2,193,407	
■ Retirement gains (losses)	2,089,475	
■ Withdrawal gains (losses)	(4,953,051)	
■ Mortality gains (losses)	(1,925,232)	
■ Gains (losses) from miscellaneous sources	5,536,726	3,391,745
Change in actuarial basis:		
■ Discount rate	(27,192,004)	
■ Salary increase assumption	5,542,826	
■ Mortality assumptions	(24,443,686)	
■ Retirement assumptions	24,986,700	
■ Other assumptions	1,493,243	(19,612,921)
Actuarial surplus (unfunded actuarial liability) as at October 1, 2019		$ 69,081,619

1.3 Contributions (Ensuing Year)

	October 1, 2019	October 1, 2018
Employer Normal Actuarial Cost		
Normal actuarial cost in respect of benefits	$ 34,943,897	$ 33,035,416
Provision for Adverse Deviations (PfAD)	5,038,100	2,959,552
Estimated member contributions	(18,362,731)[1]	(16,561,256)[2]
Employer normal actuarial cost	$ 21,619,266[1]	$ 19,433,712[2]
Employer normal actuarial cost as % of member contributions	118%[1]	117%[2]

Notes:

[1] Member contribution rates will change effective May 1, 2020 for UGFA Unit 2 and July 1, 2020 for UGFA. As a result of these changes, estimated member contributions for the year starting October 1, 2018 will be $472,000 higher on an annualized basis, with an offsetting reduction to the employer normal actuarial cost. The employer normal actuarial cost as a % of member contributions will change to 112% effective July 1, 2020. There is no change effective May 1, 2020 given the small size of the UGFA Unit 2 membership group.

[2] Member contribution rates changed effective May 1, 2019 for P&M and July 1, 2019 for UGFA and for members not represented by a union, association or group. As a result of these changes, estimated member contributions for the year starting October 1, 2018 were expected to be $672,000 higher on an annualized basis, with an offsetting reduction to the employer normal actuarial cost. The employer normal actuarial cost as a % of member contributions changed to 115% effective May 1, 2019 and 109% effective July 1, 2019.

Reconciliation of Employer Normal Actuarial Cost Rule

Employer normal actuarial cost as a % of member contributions at October 1, 2018	117%
▪ Changes in membership profile	0%
▪ Changes in actuarial basis	(2)%
▪ Changes in plan provisions	(8)%
▪ Change in the PfAD level	11%
Employer normal actuarial cost as a % of member contributions at October 1, 2019	118%

Going Concern Amortization Payments

The going concern deficit must be liquidated by the following payments:

Type of payment	Effective date	Month of last payment	Annual amortization payment	Present value as at October 1, 2019 (at 6.00% per annum)
Going Concern	Oct. 1, 2019	Sep. 2020	$ 1,618,229	$ 1,568,172
Going Concern	Oct. 1, 2020	Sep. 2030	11,987,317	85,498,520
Total			$ 13,605,546	$ 87,066,692

Section 2: Solvency and Hypothetical Windup Financial Position

2.1 Statement of Solvency and Hypothetical Windup Financial Position

	October 1, 2019	October 1, 2018
Solvency Value of Assets		
Market value of assets	$ 1,152,486,000	$ 1,106,610,000
Provision for plan windup expenses	(1,000,000)	(800,000)
Total solvency value of assets	$ 1,151,486,000	$ 1,105,810,000
Solvency Liability		
Active and disabled members	$ 806,927,215	$ 680,155,880
Retired members and beneficiaries	675,283,189	619,072,613
Terminated vested members	25,164,324	21,494,526
Total solvency liability	$ 1,507,374,728	$ 1,320,723,019
Solvency Surplus (Unfunded Solvency Liability)	$ (355,888,728)	$ (214,913,019)
Prior year credit balance	$ 0	$ 0
Face amount of letter(s) of credit	$ 6,174,733	$ 0
Solvency ratio	77%	84%
Value of excluded benefits	$ 208,019,507	$ 165,077,918
Total hypothetical windup liability	1,715,394,235	1,485,800,937
Hypothetical Windup Surplus (Unfunded Hypothetical Windup Liability)	$ (563,908,235)	$ (379,990,937)
Lesser of estimated employer contributions for the period until the next actuarial valuation and the prior year credit balance	0	0
Transfer ratio	68%	74%
PBGF Information		
Ontario PBGF liability	$ 1,507,374,728	$ 1,320,723,019
Ontario asset ratio	100%	100%
Ontario portion of the fund	$ 1,152,486,000	$ 1,106,610,000
PBGF assessment base	$ 354,888,728	$ 214,113,019
Ontario additional PBGF liability	$ 0	$ 0

Comments:

- The solvency actuarial valuation results presented in this report are determined under a scenario where, following a plan windup, the employer discontinues its operations.

- The hypothetical windup valuation results presented in this report are determined under the same scenario used for the solvency valuation.

- As the transfer ratio is less than 1.00, transfer deficiencies must be paid over a maximum period of five years unless the cumulative transfer deficiencies are within the limits prescribed by the Pension Legislation or the employer remits additional contributions in respect of the transfer deficiencies. Pursuant to Regulations 19(4) or 19(5) to the Pension Legislation, approval of the Chief Executive Officer will be required to make commuted value transfers if there has been a significant decline in the transfer ratio after the actuarial valuation date.

2.2 Determination of the Statutory Solvency Excess (Deficiency)

In calculating the statutory solvency excess (deficiency), various adjustments can be made to the solvency financial position.

		October 1, 2019		October 1, 2018
Solvency surplus (unfunded solvency liability)	$	(355,888,728)	$	(214,913,019)
Adjustments to solvency position:				
■ Present value of existing amortization payments	$	55,878,579	$	49,662,801
■ Adjustment to reflect reduced solvency deficiency[1]		216,662,791		198,108,453
■ Face amount of letter(s) of credit		6,174,733		0
■ Smoothing of asset value		(4,439,000)		0
■ Averaging of liability discount rate[2]		62,956,121		0
■ Prior year credit balance		0		0
■ Total	$	337,233,224	$	247,771,254
Statutory solvency excess (deficiency)	$	(18,655,504)	$	32,858,235

Note:

[1] At October 1, 2019, equals 15% of the solvency liability after averaging of discount rates. At October 1, 2018, equals 15% of the solvency liability.

[2] Reflects the difference between the solvency liabilities based on the discount rates before and after averaging.

Comment:

- The present value of existing amortization payments reflects any changes made in this actuarial valuation to going concern amortization schedules.
- Further details on the present value of going concern amortization payments at October 1, 2019 are provided below.

Details of Present Value of Existing Amortization Payments

Type of payment	Effective date	Month of last payment recognized in calculation	Annual amortization payment	Present value as at October 1, 2019 (at 2.86% per annum)
Going Concern	Oct. 1, 2019	Sep. 2020	$ 1,618,229	$ 1,593,752
Going Concern	Oct. 1, 2020	Sep. 2025	11,987,317	54,284,827
Total			$ 13,605,546	$ 55,878,579

Amortization Payment Schedule after Adjustments (reflecting the current valuation results)

Type of payment	Effective date	Month of last payment recognized in calculation	Annual amortization payment	Present value as at October 1, 2019 (at 2.86% per annum)
Going Concern	Oct. 1, 2019	Sep. 2020	$ 1,618,229	$ 1,593,752
Going Concern	Oct. 1, 2020	Sep. 2025	11,987,317	54,284,827
Solvency	Oct. 1, 2020	Sep. 2025	4,119,557	18,655,504
Total			$ 17,725,103	$ 74,534,083

The employer may establish a letter of credit in order to cover all of or a portion of the above solvency amortization payments, to the extent the letter(s) of credit does not exceed 15% of the solvency liabilities.

2.3 Letters of Credit

The data relating to the letter(s) of credit are based on documentation provided by the employer.

The Pension Legislation permits the employer to deposit one or more letters of credit with the pension fund holder in lieu of making solvency amortization payments. Between October 1, 2018 and October 1, 2019, the employer deposited a letter of credit in the cumulative amount of $6,174,733, representing forgone solvency amortization payments of $5,939,099 based on the August 1, 2016 actuarial valuation, plus interest adjustments of $235,634. Under the Pension Legislation, the employer can choose to remit expected interest on the forgone solvency amortization payments in cash or include the expected interest in the face amount of the letter(s) of credit. The employer elected the latter approach.

In this report, all dollar amounts shown exclude the face amount(s) of the letter of credit, except where such inclusion is specifically indicated.

Section 3: Contributions

3.1 Estimated Minimum Employer Contribution (Ensuing Year)

The estimated minimum employer contributions for the year beginning October 1, 2019 are shown in the table below. The amounts for the year beginning October 1, 2019 are before the adjustments to member contributions noted in Section 1.3 that come into effect after the valuation date.

Year Beginning		**October 1, 2019**
Employer Normal Actuarial Cost (including the PfAD)	$	21,619,266
Amortization Payments		
Going concern		1,618,229
Solvency		0
Sub-total	$	1,618,229
Application of Prior Year Credit Balance		0
Application of available actuarial surplus [1]		0
Estimated Minimum Employer Contribution	$	23,237,495

Note:

[1] The available actuarial surplus is the lesser of the going concern actuarial surplus after PfAD and the amount that, if it were deducted from the solvency assets of the plan, would reduce the solvency ratio to 1.05.

3.2 Estimated Maximum Employer Contribution (Ensuing Year)

		October 1, 2019
Employer Normal Actuarial Cost	$	21,619,266
Greater of the Unfunded Actuarial Liability and the Unfunded Hypothetical Windup Liability		563,908,235
Estimated Maximum Employer Contribution	$	585,527,501

3.3 Timing of Contributions

Employer normal cost and member contributions: monthly and within 30 days of the month to which they pertain.

Amortization payments: monthly before the end of the month to which they pertain (or replaced by an equivalent letter of credit), if applicable.

Adjustment to contributions made since the valuation date: within 60 days from the date that this report is filed with the Pension Authorities.

Section 4: Actuarial Opinion

In our opinion, for the purposes of the going concern, solvency and hypothetical windup valuations:

- the membership data on which the actuarial valuations are based are sufficient and reliable,
- the assumptions are appropriate, and
- the methods employed in the actuarial valuations are appropriate.

This report has been prepared, and our opinion has been given, in accordance with accepted actuarial practice in Canada. The actuarial valuations have been conducted in accordance with our understanding of the funding and solvency standards prescribed by the Pension Legislation.

Towers Watson Canada Inc.

Melbourne, Geoffrey	Davis Gonsalves Gonsalves, Davis
FCIA	FCIA

Toronto, Ontario
April 16, 2020

Appendix A: Significant Terms of Engagement and Certificate of the Plan Administrator

A.1 Significant Terms of Engagement

For purposes of preparing this actuarial valuation report, the plan administrator has directed that:

- The actuarial valuation is to be prepared as at October 1, 2019.
- No margins for adverse deviations are to be used.
- For the purpose of determining the going concern discount rate, the investment policy dated January 22, 2020, which is the most up-to-date version, should be considered. There are no expectations that the target asset class distribution will be modified in the near future.
- For purposes of determining the Provision for Adverse Deviations level as at October 1, 2019, the actual asset allocation based on the September 30, 2019 audited financial statements and additional information related to the investment categories provided directly by the plan administrator should be used.
- For purposes of determining the Provision for Adverse Deviations level, the plan is to be considered open to new entrants.
- The going concern value of assets is to be determined using the averaging technique described in the Asset Valuation Method section in Appendix C.
- The going concern valuation should use the projected unit credit prorated on service.
- For purposes of determining the solvency liabilities of the plan, the value of benefits arising from future inflation are to be excluded.
- The asset value and liability discount rates are to be determined using the averaging techniques for statutory solvency purposes described in the Asset Valuation Method and Rationale for Actuarial Assumptions sections in Appendix D.
- The solvency and hypothetical windup valuation results are to be determined under a scenario where the employer discontinues its operations and all expenses are paid from the pension fund.

Should these directions from the plan administrator be amended or withdrawn, Willis Towers Watson reserves the right to amend or withdraw this report.

A.2 Certificate of the Plan Administrator

I hereby certify that to the best of my knowledge and belief:

- the significant terms of engagement contained in Appendix A of this report are accurate and reflect the plan administrator's judgement of the plan provisions and/or an appropriate basis for the actuarial valuation of the plan;
- the information on plan assets, including the information on the investment policy and intended changes to the asset mix distribution after the valuation date, if any, forwarded to Towers Watson Canada Inc. and summarized in Appendix B of this report is complete and accurate;
- the data forwarded to Towers Watson Canada Inc. and summarized in Appendix E of this report are a complete and accurate description of all persons who are members of the plan, including beneficiaries who are in receipt of a retirement income, in respect of service up to the date of the actuarial valuation;
- the summary of plan provisions contained in Appendix F of this report is accurate;
- for purposes of determining the Provision for Adverse Deviations level, the fixed income allocation for each asset class shown in Appendix G is appropriate; and
- except as noted in the Introduction of this report, there have been no events which occurred between the actuarial valuation date and the date this actuarial valuation was completed that may have a material financial effect on the actuarial valuation.

Martha Harley	April 22, 2020
Signature	Date
Martha Harley	AVP, Human Resources
Name	Title
L Kimball	April 22, 2020
Signature	Date
Lori Kimball	AVP, Finance
Name	Title

Appendix B: Assets

B.1 Statement of Market Value (All Plans)

The assets of the University of Guelph's three pension plans are held in a commingled fund managed by a number of investment managers. The master trustee as at October 1, 2019 is CIBC Mellon.

As at October 1, 2019, an amount of $525,000 was payable from the master trust, comprising the following:

	Professional Plan	Retirement Plan	Non-Professional Plan	Total
Employer normal cost contributions in transit	$ 589,000	$ 192,000	$ 0	$ 781,000
Member contributions in transit	540,000	177,000	10,000	727,000
Accrued investment counsel and trustee fees	(1,015,000)	(389,000)	(19,000)	(1,423,000)
Other net payables at October 1, 2019	(428,000)	(173,000)	(9,000)	(610,000)
Net receivable (payable)	$ (314,000)	$ (193,000)	$ (18,000)	$ (525,000)

	October 1, 2019		October 1, 2018	
Invested Assets				
Equities				
■ Canadian equities	$ 164,952,000	10.2%	$ 169,877,000	10.9%
■ U.S./international equities	656,248,000	40.7%	686,655,000	44.3%
■ Total equities	$ 821,200,000	50.9%	$ 856,532,000	55.2%
Fixed income and mortgage	$ 603,482,000	37.4%	$ 533,739,000	34.4%
Real estate and infrastructure	$ 143,151,000	8.9%	$ 116,064,000	7.5%
Cash and cash equivalents	$ 45,081,000	2.8%	$ 45,253,000	2.9%
Total invested assets	$ 1,612,914,000	100.0%	$ 1,551,588,000	100.0%
Other Assets				
Accrued income	$ 0		$ 2,937,000	
Net accounts receivable/ (payable)	(525,000)		(1,191,000)	
Total other assets	$ (525,000)		$ 1,746,000	
Total Assets	$ 1,612,389,000		$ 1,553,334,000	

Comments:

- The invested assets are held by CIBC Mellon under accounts TRDUGX UGXF00010002, TRDUGX UGXF00020002 and TRDUGX UGXF00030002.
- The data relating to the invested assets are based on the financial statements issued by CIBC Mellon and Ernst and Young. All such data has been relied upon by Willis Towers Watson following tests of reasonableness with respect to contributions, benefit payments and investment income. However, Willis Towers Watson has not independently audited or verified this data.

B.2 Asset Class Distribution

The following table shows the target asset allocation stipulated by the plan's investment policy in respect of major asset classes and the actual asset allocation as at October 1, 2019.

Asset Class	Target asset allocation[1]	Asset allocation as at October 1, 2019
Equities		
■ Canadian equities	13% (8% - 18%)	10.2%
■ U.S. equities	13% (8% - 18%)	17.4%
■ International equities	14% (9% - 19%)	16.4%
■ Emerging market	5% (0% - 10%)	6.9%
Total equities	45% (40% - 50%)	50.9%
Real estate and infrastructure		
■ Real estate	10% (5% - 15%)	5.1%
■ Infrastructure	10% (5% - 15%)	3.8%
Total real estate/infrastructure	20% (15% - 25%)	8.9%
Fixed Income		
■ Mortgages	5% (0% - 10%)	7.5%
■ Canadian fixed income	22.5% (12.5% - 32.5%)	23.1%
■ Global high yield income	5% (0% - 10%)	6.8%
Total fixed income	32.5% (27.5% – 37.5%)	37.4%
Cash	2.5% (0% - 5%)	2.8%

Note:

[1] This information was obtained from the investment policy in effect for the plan as at October 1, 2019.

B.3 Reconciliation of Invested Assets (Market Value)

	Professional Plan	All Plans
Assets as at October 1, 2018	$ 1,106,610,000	$ 1,553,334,000
Receipts:		
■ Contributions:		
– Employer normal actuarial cost	20,307,000	27,553,000
– Employer amortization payments	10,779,000	13,193,000
– Employer other contributions	0	1,389,000
– Members' required contributions	17,752,000	24,503,000
– Members' other contributions	1,023,000	1,123,000
■ Investment return, net of investment expenses	50,888,000	71,518,000
■ Total receipts	$ 100,749,000	$ 139,279,000
Transfers from/(to) other University Plans	$ 2,338,000	$ 0
Disbursements:		
■ Benefit payments:		
– Pension payments	$ 46,968,000	$ 64,164,000
– Lump sum settlements	8,964,000	14,254,000
■ Non-investment expenses	1,279,000	1,806,000
■ Total disbursements	$ 57,211,000	$ 80,224,000
Assets as at October 1, 2019	$ 1,152,486,000	$ 1,612,389,000

Comments:

- This reconciliation is based on the financial statements issued by CIBC Mellon and Ernst and Young.
- The rate of return earned on the market value of assets (all plans), net of all expenses, from October 1, 2018 to October 1, 2019 was approximately 4.5%.

B.4 Development of the Going Concern Value of Assets

			Adjusted Market Value Beginning from September 30:				
			2015	2016	2017	2018	2019
(Adj) Market Value	September 30, 2015		1,264,216,000				
Net Contributions			(14,686,000)				
Assumed Interest		6.00%	75,412,000				
(Adj) Market Value	September 30, 2016		1,324,942,000	1,358,901,000			
Net Contributions			(14,119,000)	(14,119,000)			
Assumed Interest		5.65%	74,460,000	76,379,000			
(Adj) Market Value	September 30, 2017		1,385,283,000	1,421,161,000	1,440,597,000		
Net Contributions			15,083,000	15,083,000	15,083,000		
Assumed Interest		5.65%	78,695,000	80,722,000	81,820,000		
(Adj) Market Value	September 30, 2018		1,479,061,000	1,516,966,000	1,537,500,000	1,554,525,000	
Net Contributions			(10,906,000)	(10,906,000)	(10,906,000)	(10,906,000)	
Assumed Interest		6.20%	91,364,000	93,714,000	94,987,000	96,042,000	
(Adj) Market Value	September 30, 2019		1,559,519,000	1,599,774,000	1,621,581,000	1,639,661,000	1,612,914,000
Actuarial Value of Assets at October 1, 2019							1,606,690,000

Comments:

- The starting value of each column is the actual market value of assets, excluding net accounts receivable/(payable) at the indicated date.
- The rate of return earned on the going concern value of assets, net of all expenses, from October 1, 2018 to October 1, 2019 was approximately 6.1%.

B.5 Going Concern Value of Assets by Plan

The going concern value of assets for the total fund is allocated to each of the three plans participating in the fund. The going concern value of invested assets, excluding the net accounts receivable/(payable) of $(525,000), is allocated in proportion to the number of units of the total fund held by each plan. The number of units held by each plan and the allocated going concern values of assets are as follows:

					Total Going Concern Value of Assets	
Plan	***Number of Units***	***Going Concern Value of Assets [1]***	***Pending Inter-Plan Transfers***	***Net Accounts Receivable / (Payable)***	***Before Collar [2]***	***After Collar [2]***
Professional	4,905,027	$ 1,146,314,000	$ 2,047,000	$ (314,000)	$ 1,148,047,000	$ 1,148,047,000
Retirement	1,882,786	440,010,000	$ (2,047,000)	(193,000)	437,770,000	437,770,000
Non-Professional	87,147	20,366,000	$ -	(18,000)	20,348,000	20,348,000
Total	6,874,960	$ 1,606,690,000	$ -	$ (525,000)	$ 1,606,165,000	$ 1,606,165,000

Notes:

[1] Excluding net accounts receivable / (payable).

[2] Methodology used to determine the Going Concern Value of Assets includes provision that resulting amount must be within 90%-110% of market value of assets.

B.6 Reconciliation of Face Amount of Letter of Credit

Face amount as at October 1, 2018			$	0
Newly forgone solvency amortization payments				5,939,099
Accrued interest				235,634
Employer contributions for:				
▪ Interest accruals	$	0		
▪ Reduction of the face amount		0		0
Face amount as at October 1, 2019			$	6,174,733

Comments:

- Any portion of the face amount of the letter of credit that is in respect of solvency amortization payments after the actuarial valuation date has been excluded.
- This reconciliation is based on information provided by CIBC Mellon.

Appendix C: Actuarial Basis - Going Concern Valuation

C.1 Methods

Asset Valuation Method

The development of the going concern value of assets was performed for the three University plans, i.e., the Professional Plan, the Retirement Plan and the Non-Professional Plan, in total. The total invested assets were allocated among the three plans in proportion to the units allocated to each plan by the trustee, to which net outstanding amounts were then incorporated on a plan-by-plan basis.

The going concern value of assets was calculated as the average of the market value of invested assets at the valuation date and the adjusted market values at September 30 of the four previous years. To obtain these adjusted market values, the market values at September 30th of each of the four preceding years were accumulated to the valuation date with net contributions and assumed investment returns. Net contributions were calculated as contributions less benefit payments and were assumed to occur uniformly throughout each year. Assumed investment returns were calculated assuming that each year the assets earned interest at the going concern liability discount rate in effect during such year. The going concern value of invested assets was determined for all plans combined, with the result allocated pro-rata to each plan's market value of invested assets. This was then adjusted for net outstanding amounts and so that the value is within 90%/110% of market value on a plan-by-plan basis.

The objective of the asset valuation method is to produce a smoother pattern of going-concern surplus (deficit) and hence a smoother pattern of contributions, consistent with the long-term nature of a going concern valuation. The assumed investment return has been selected to equal the expected return on the assets over long periods with a margin for adverse deviations (where applicable). To the extent that such margins are reflected, it may be anticipated that, on average, the asset valuation method will tend to produce a result that is somewhat less than the market value of assets.

Actuarial Cost Method

The actuarial liability and the normal actuarial cost were calculated using the projected unit credit cost method (prorated on credited service). A middle of year decrement timing model has been applied.

C.2 Actuarial Assumptions

	October 1, 2019	October 1, 2018
Economic Assumptions (per annum)		
Liability discount rate	6.00%	6.20%
Rate of inflation	2.00%	Same
Rate of salary increase	3.75%	4.00%
Escalation of YMPE under Canada/Québec Pension Plan [1]	3.00%	Same
Escalation of *Income Tax Act (Canada)* maximum pension limit[2]	3.00%	Same
Post-retirement pension increases	0.60%	Same
Interest on members' contributions	6.00%	6.20%
Demographic Assumptions		
Mortality	85% of CPM-2014 Public Sector Mortality Table, projected using Scale CPM-B	95%/100% for males/females of CPM-2014 Public Sector Mortality Table, projected using Scale CPM-B
Retirement from active membership	Age-related rates (Table 1)	Age-related rates (Table 2)
Pension commencement after termination of employment	Earliest unreduced retirement date	Same
Withdrawal	Age-related rates (Table 3)	Age-related rates (Table 4)
Percentage of involuntary terminations of employment	0%	Same
Disability incidence/recovery	Nil	Same
Other		
Percentage of members with an eligible spouse at pension commencement and electing joint and survivor pension form	80%	85%
Years male spouse older than female spouse	3	Same
Provision for non-investment expenses	None; return on plan assets is net of all expenses	Same

Notes:

[1] The YMPE of $57,400 for 2019 is the starting value for the YMPE projection as at the current actuarial valuation and is indexed starting in 2020.

[2] The *Income Tax Act (Canada)* maximum pension limit of $3,025.56 per year of service in 2019 is the starting value for maximum pension limit projection as at the current valuation and is indexed starting in 2020.

Table 1 — Retirement Rates (Used for Current Valuation)

Age	Rate
55 to 59	.04
60	.10
61	.05
62 to 64	.10
65	.25
66 to 68	.20
69	1.00

Table 2 — Retirement Rates (Used for Previous Valuation)

Age	Rate [1]
55 to 59	.05
60 to 64	.15
65 to 68	.50
69	1.00

Note:

[1] Plus 0.05 at age where member first attains 85 points if prior to age 65.

Table 3 — Withdrawal Rates (Used for Current Valuation)

Age	Rate
20 to 34	.060
35 to 39	.050
40 to 44	.045
45 to 49	.035
50 to 54	.025
55	.000

Table 4 — Withdrawal Rates (Used for Previous Valuation)

Age	Rate
20 to 29	.10
30 to 39	.06
40 to 44	.04
45 to 54	.03
55	.00

C.3 Rationale for Actuarial Assumptions

The rationale for the material actuarial assumptions used in the going concern valuation is summarized below. The going concern assumptions do not include margins for adverse deviations as a separate Provision for Adverse Deviations has been applied to the actuarial liability and normal actuarial cost.

Liability discount rate

The assumption is an estimate of the expected long-term return on plan assets adjusted as follows:

■ Expected long-term return on plan assets before adjustments	6.15%
■ Investment management fees	(0.04)%
■ Adjustment for non-investment expenses paid by the plan	(0.11)%
■ Expected long-term return on plan assets after adjustments and margin	6.00%

Post-retirement pension increases

Recognizing the asymmetric nature of the plan's indexation provision, this assumption was developed by determining the median level of post-retirement increases that results from the plan's indexation provision using the Willis Towers Watson's capital market model. The capital market model simulates inflation with this variable being developed through both the analysis of historical rates, and the application of econometric theory. In modeling inflation, current conditions and long-term expectations are used

Rate of inflation

Estimate of future rates of inflation considering economic and financial market conditions at the valuation date.

Rate of salary increase

■ Assumed rate of inflation	2.00%
■ Average increases in payroll above inflation for the overall plan membership	1.00%
■ Average expected increase as a result of individual employee merit and promotion	0.75%
■ Total rate of salary increase	3.75%

Escalation of YMPE under C/QPP and ITA limit

Indexed annually based on increases in the Industrial Aggregate Wage index for Canada, assumed to be a rate of inflation of 2.00% per annum, plus 1.00% per annum for the effect of real economic growth and productivity gains in the economy.

Mortality

Base mortality rates from the CPM-2014 Public Sector table are considered reasonable for the actuarial valuation of the plan since many university employees might be expected to have socio-economic characteristics more similar to the public sector.

A multiplier of 85% is applied to the base mortality rates and were developed based on a review of plan experience for the 10-year period ending October 1, 2018.

Applying improvement scale CPM-B generationally provides allowance for improvements in mortality after 2018 and is considered reasonable for projecting mortality experience into the future.

No allowance has been made for mortality prior to retirement with respect to terminated vested members in order to approximate the value of pre-retirement death benefits.

Retirement from active membership

The rates of retirement were developed based on a review of plan experience for the 5-year period extending from October 1, 2013 to October 1, 2018 and an assessment of future expectations. All members are assumed to commence their pension at retirement date.

Pension commencement after termination of employment

All terminated members are assumed to commence their pension at the age that produces the highest liability.

Withdrawal

The rates of withdrawal were developed based on a review of plan experience for the 5-year period extending from October 1, 2013 to October 1, 2018 and an assessment of future expectations.

Percentage of involuntary terminations of employment

No allowance has been made for involuntary terminations of employment since assuming otherwise would not have a material impact on the actuarial valuation results.

Disability incidence/recovery

There are no disability benefits under the plan other than the accrual of retirement income (earnings remain constant) during disability. Consequently, the assumption of no incidence of disability or recovery therefrom makes an appropriate allowance for such continued accruals.

Percentage of members with an eligible spouse at pension commencement and electing joint and survivor pension form

The assumed percentage of members with a spouse and the proportion electing a joint and survivor pension form are based on a review of plan experience for the 5-year period extending from October 1, 2013 to October 1, 2018.

Years male spouse older than female spouse

The assumption is based on a review of plan experience for the 5-year period extending from October 1, 2013 to October 1, 2018.

Provision for non-investment expenses

The liability discount rate is net of all expenses. The assumed level of expenses reflected in the liability discount rate is based on recent experience of the plan and an assessment of future expectations.

Appendix D: Actuarial Basis - Solvency and Hypothetical Windup Valuations

D.1 Methods

Asset Valuation Method

The market value of invested assets, adjusted for net outstanding amounts, has been used for the solvency and hypothetical windup valuations. The resulting value has been reduced by a provision for plan windup expenses.

The adjustment in respect of the smoothing of solvency assets for purposes of determining the statutory solvency deficiency was calculated as the difference between the going concern value of assets used for the going concern valuation and the market value of assets.

Liability Calculation Method

The solvency and hypothetical windup liabilities for members were calculated using the unit credit cost method.

Other Considerations

The solvency and hypothetical windup valuations have been prepared on a hypothetical basis. In the event of an actual plan windup, the plan assets may have to be allocated between various classes of plan members or beneficiaries as required by applicable Pension Legislation. Such potential allocation has not been performed as part of these solvency and hypothetical windup valuations.

D.2 Solvency Incremental Cost Actuarial Method

To calculate the Solvency Incremental Cost ("SIC"), we used the same method as for the solvency valuation.

No decrements and no new entrants have been considered on the basis that such assumptions would not have a material impact on the SIC. The benefits and members' contributions were projected using the going concern valuation assumptions and the plan provisions.

The projected population, benefits and members' contributions were adjusted with the going concern actuarial assumptions and the plan provisions.

We adjusted the expected settlement method at the end of the projection period to reflect demographic evolution. We used the discount rate applicable to the settlement method at the valuation date for each member.

The liability discount rates are assumed to remain at their current level over the projection period.

D.3 Actuarial Assumptions

	October 1, 2019	October 1, 2018
Economic Assumptions (per annum)		
Liability discount rate for solvency (before averaging) and hypothetical windup (before pension commencement)		
■ Annuity purchase	2.80%	3.40%
■ Commuted value transfer	2.30% for 10 years, 2.60% thereafter	3.30% for 10 years, 3.40% thereafter
Liability discount rate for hypothetical windup (after pension commencement)		
■ Annuity purchase	1.00%	1.70%
■ Commuted value transfer	2.30% for 10 years, 2.60% thereafter	3.30% for 10 years, 3.40% thereafter
Liability discount rate for solvency (after averaging)		
■ Annuity purchase	3.04%	N/A
■ Commuted value transfer	2.42% for 10 years, 3.28% thereafter	N/A
Discount rate for determining amortization payments [1]	2.86%	3.37%
Demographic Assumptions		
Mortality	CPM-2014 Canadian Pensioners' Mortality Table, projected generationally using Scale CPM-B [2]	Same
Retirement/pension commencement	Described in section D.4	Same

	October 1, 2019	October 1, 2018
Other		
Percentage of members with an eligible spouse at pension commencement and electing joint and survivor pension form	80%	85%
Years male spouse older than female spouse	3	Same
Percentage of members receiving settlement by commuted value transfer [3]		
■ Inactive members	0%	Same
■ Active members under 55 years old	100%	Same
■ Active members aged 55 years and over	25%	Same
Provision for expenses	$1,000,000	$800,000

Notes:

[1] Equal to the liability-weighted average of the smoothed liability discount rates for settlements by commuted value transfer (rate in effect for the first 10 years) and annuity purchase.

[2] Solvency liabilities for benefits expected to be settled by group annuity purchase have been increased by 3% in order to estimate insurers' expectations regarding longer average life expectancy.

[3] The balance are assumed to receive settlement by annuity purchase.

D.4 Rationale for Actuarial Assumptions

The rationale for the material actuarial assumptions used in the solvency and hypothetical windup valuations is summarized below.

The actuarial assumptions used in the solvency and hypothetical windup valuations do not include margins for adverse deviations.

Liability discount rate

Discount rate for solvency (before averaging) and hypothetical windup

Portion expected to be settled by a group annuity purchase: based on the CIA annuity purchase guidance applicable at the valuation date which corresponds to an approximation of the annuity purchase rate. The duration of the liabilities assumed to be settled through the purchase of non-indexed annuities is 11.1.

Portion expected to be settled by commuted value transfer: determined in accordance with the *Standards of Practice for Pension Commuted Values* in effect at the valuation date.

Discount rate for solvency (after averaging)

The average of the discount rates as at October 1, 2019 and the four previous-year ends is determined using the rates set out below. The 5-year averaging period is consistent with the period used to determine the smoothed value of assets for the solvency asset adjustment.

Portion expected to be settled by a group annuity purchase:

October 1, 2015	3.20%
October 1, 2016	2.60%
October 1, 2017	3.20%
October 1, 2018	3.40%
October 1, 2019	2.80%
Average	3.04%

Portion expected to be settled by commuted value transfer:

	First 10 years	Thereafter
October 1, 2015	2.00%	3.70%
October 1, 2016	1.60%	3.00%
October 1, 2017	2.90%	3.70%
October 1, 2018	3.30%	3.40%
October 1, 2019	2.30%	2.60%
Average	2.42%	3.28%

Rate of inflation

Determined in accordance with the CIA Standards of Practice and the CIA guidance.

Mortality

For the benefits that are expected to be settled by a group annuity purchase: Based on CIA annuity purchase guidance. This guidance indicates that an adjustment to regular annuity purchase assumptions would be expected where there is demonstrated sub- or super-standard mortality versus a typical group annuity purchase, or where an insurer might be expected to assume significantly shorter or longer-than-average pension plan longevity based on the above factors. In this regard, the mortality assumptions being used on a going concern basis suggests that the standard mortality rates be adjusted. The adjustment has been restricted to a 3% increase in the solvency liabilities. A similar increase has not been made to the hypothetical windup liabilities on the basis that the CIA annuity purchase guidance is not overly refined due to limited actual indexed annuity purchases.

For benefits that are expected to be settled by commuted value transfer: determined in accordance with the *Standards of Practice for Pension Commuted Values* in effect at the valuation date. No pre-retirement mortality has been assumed in order to approximate the value of pre-retirement death benefits.

Retirement/pension commencement

- Active and disabled members: pension commences at the age that produces the highest actuarial value (including statutory grow-in rights for members in Ontario).
- Terminated vested members: pension commences at earliest unreduced retirement date under terms of the plan.

This is in accordance with the CIA Standards and consistent with the expected assumption that would have been used by insurers to price the group annuity.

Percentage of members with an eligible spouse at pension commencement and electing joint and survivor pension form

See rationale for going concern assumptions in Appendix C.

Percentage of members receiving settlement by commuted value transfer

This assumption has been determined by considering the benefit provisions of the plan, legislative requirements to offer specific settlement options to various classes of members, and, in particular, the options to be provided to members upon plan windup.

The assumption also reflects the expectation that members further from retirement are more likely to elect to settle their pension benefit by a commuted value transfer, while members closer to retirement are more likely to elect to settle their pension benefit through a group annuity purchase where this option is available.

Provision for expenses

Allowance was made for normal administrative, actuarial, legal and other costs which would be incurred if the plan were to be wound up (excluding costs relating to the resolution of surplus or deficit issues). The actuarial valuation is premised on a scenario in which all costs incurred as a result of plan windup were assumed to be paid from the pension fund.

Appendix E: Membership Data

	October 1, 2019	October 1, 2018
Active and disabled members		
■ Number	1,820	1,738
■ Average age	48.0	48.2
■ Average credited service	11.8	12.0
■ Annual payroll	$214,913,129	$203,317,939
■ Average salary	$118,084	$116,984
Retired members and beneficiaries		
■ Number	1,192	1,171
■ Average age	75.7	75.3
■ Total annual pension	$48,287,067	$46,507,812
■ Average annual pension	$40,509	$39,716
Terminated vested members		
■ Number	184	186
■ Average age	49.3	49.6
■ Total Annual Pension	$1,564,218	$1,566,845
■ Total Lifetime Pension	$8,501	$8,424

The following distribution relates to active and disabled members. The following meanings have been assigned to:

- Age: Age as at October 1, 2019
- Credited Service: Credited service as at October 1, 2019
- Salary: Pensionable earnings for year commencing October 1, 2019

Credited Service

Age		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 +	Total
< 25	Number	6								6
	Average Salary	*								*
25 – 29	Number	57	1							58
	Average Salary	69,197	*							*
30 – 34	Number	129	28							157
	Average Salary	85,916	76,731							84,278
35 – 39	Number	148	69	21	2					240
	Average Salary	94,331	99,305	96,494	74,146					95,782
40 – 44	Number	71	79	64	25					239
	Average Salary	99,409	108,064	119,859	100,007					107,809
45 – 49	Number	77	59	88	78	14				316
	Average Salary	105,469	111,759	125,476	141,533	108,256				121,241
50 – 54	Number	43	29	60	98	48	11	4		293
	Average Salary	107,184	108,566	123,542	145,043	131,477	111,295	81,353		127,115
55 – 59	Number	25	17	43	72	51	35	8		251
	Average Salary	124,136	102,410	130,412	143,048	139,652	138,916	91,496		133,338
60 – 64	Number	8	14	22	39	37	27	50		197
	Average Salary	160,936	144,070	131,345	139,977	144,106	160,654	150,890		146,534
65 +	Number	1	3	7	9	6	10	27		63
	Average Salary	*	*	162,810	143,876	163,191	189,581	175,375		169,225
Total	Number	565	299	305	323	156	83	89		1,820
	Average Salary	95,062	105,492	123,897	139,182	136,280	148,431	149,854		118,084

Average Age = 48.0 Average Credited Service = 11.8

Review of Membership Data

The membership data were supplied by University of Guelph's third-party administrator, Morneau Shepell, as at October 1, 2019.

Elements of the data review included the following:

- ensuring that the data were intelligible (i.e., that an appropriate number of records was obtained, that the appropriate data fields were provided and that the data fields contained valid information);
- preparation and review of membership reconciliations to ascertain whether the complete membership of the plan appeared to be accounted for;
- review of consistency of individual data items and statistical summaries between the current actuarial valuation and the previous actuarial valuation;
- review of reasonableness of individual data items, statistical summaries and changes in such information since the previous actuarial valuation date; and
- comparison of the membership data and the plan's financial statements for consistency.

However, the tests conducted as part of the membership data review may not have captured certain deficiencies in the data. We have also relied on the certification of the plan administrator as to the quality of the data, as described below.

Data Adjustments

For certain groups, credited service for the period between the termination benefit change date and retirement benefit change date is based on the membership data supplied by Morneau Shepell as of August 1, 2016.

Membership Reconciliation

Active and disabled members:	
■ As at October 1, 2018	1,738
■ New entrants (including re-employed)	136
■ Retirements	(41)
■ Terminations:	
– Not settled	0
– With lump sum settlement	(29)
– With deferred pension entitlement	(17)
■ Deaths:	
– Not settled	0
– With lump sum settlement	(1)
– With survivor's pension	0
■ Transferred out	(5)
■ Transferred in	38
■ Data corrections	1
■ As at October 1, 2019	1,820
Retired members and beneficiaries:	
■ As at October 1, 2018	1,171
■ New retirements	44
■ New beneficiaries	17
■ Deaths:	
– Without survivor's pension	(23)
– With survivor's pension	(17)
■ Data corrections	0
■ As at October 1, 2019	1,192
Terminated vested members:	
■ As at October 1, 2018	186
■ New vested terminations	17
■ Lump sum settlements	(18)
■ Retirements	(3)
■ Deaths:	
– With lump sum settlement	0
– With survivor's pension	0
■ Data corrections	2
■ As at October 1, 2019	184

Appendix F: Summary of Plan Provisions

The following is an outline of the principal features of the plan which are of financial significance to valuing the plan benefits. This summary is based on the most recently restated plan document as at June 30, 2015, amendment #1 to amendment #7 and amendment #8 (expected to be filed in May 2020), as provided by University of Guelph, and does not make any provisions for the possibility that a change or action (retroactive or otherwise) could be imposed by order of a regulatory body or a court. It is not a complete description of the plan terms and should not be relied upon for administration or interpretation of benefits. For a detailed description of the benefits, please refer to the plan document.

Plan Effective Date

September 1, 1965

Definitions

Best Average Earnings

Average earnings for the best 36 consecutive months prior to date of termination or retirement.

CPI Increase

Increase in average Canadian Consumer Price Index in the 12-month period ending in April of one year over a similar period in the previous year.

Credited Service

Continuous service since the Effective Date during which regular contributions are made. Proportionate Credited Service is granted to part-time Members. Credited Service is limited to 35 years.

Earnings

Basic earnings (annualized for part-time Employees), including deferred income, excluding bonuses, overtime payments and other payments. Earnings for disabled Members, during the period of disability, are deemed to be equal to the Member's earnings in the 12 months immediately prior to disability and increased annually to reflect the percentage increase in the salary base level for the Member’s union, association, or group, as applicable.

Employee

Full-time or part-time, permanent, professional staff.

YMPE Average

Average YMPE for the 60 consecutive months immediately prior to date of termination or retirement.

85 Points Date

The date where the sum of Member's age and Credited Service is equal to 85 (determined based on the presumption that the Member remained in active service).

Plan Participation

All new regular full-time Employees are required to join the Plan, as a condition of employment, as of the first day of the month coincident with or immediately following the date of hire.

Membership in the Plan is available on an optional basis for a part-time Employee upon satisfaction of the minimum eligibility conditions prescribed under the Pension Benefits Act (Ontario).

Certain members of the PSPP and the OPSEU Plan affected by the Memorandum of Agreement between OMAFRA and the University became Members of the Plan upon their transfer to the University at April 1, 1997.

Member Contributions

Member contribution rates reflected in this current report vary by employee group as follows:

Employee Group	Effective Date	% Below YMPE	% Above YMPE
UGFA Unit 2	May 1/18	7.50	9.50
	May 1/20	8.00	10.00
UGFA	Jul. 1/18	8.18	9.88
	Jul. 1/19	8.58	10.28
	Jul. 1/20	8.99	10.69
P&M	May 1/18	7.69	9.39
	May 1/19	7.94	9.64
ONA	May 1/18	8.66	10.36
Members not represented by a Union, Association or Group	Jul. 1/18	7.70	9.40
	Jul. 1/19	8.10	9.80

Earnings for contribution purposes are limited to an annually set maximum ($171,000 in 2019). Members are not required to contribute after completion of 35 years of Credited Service. Contributions are waived during disability.

Normal Retirement

Eligibility

First day of the month next following or coincident with attainment of age 65.

Basic Annual Pension

1.50% of the Member's Best Average Earnings not exceeding the YMPE Average, plus 2.00% of the Member's Best Average Earnings in excess of the YMPE Average, for each year of Credited Service.

Maximum Pension

Current Income Tax Act (Canada) limit or such higher amount as permitted from time to time. The plan provisions provide for limitation on pre-1990 past service benefits as defined in subsection 8504(6) of the Regulations to the *Income Tax Act (Canada)*.

Early Retirement

Eligibility

First day of the month next following or coincident with attainment of age 55.

Basic Annual Pension

Member's pension is reduced by 1/4% for each month that retirement precedes the earliest of:

a. normal retirement age; and

b. Earliest Unreduced Date ("EUD") as outlined below for each employee group.

		Earliest Unreduced Date ("EUD")	
Employee Group	**EUD Change Date**	**For service up to EUD Change Date**	**For service on or after EUD Change Date**
UGFA Unit 2	Sep. 1/11	85 Points Date	90 Points Date and at least age 60
UGFA	Jul. 1/13	85 Points Date	87 Points Date and at least age 62
P&M	Jul. 1/13	85 Points Date	85 Points Date and at least age 60
ONA Local 15	N/A	85 Points Date	85 Points Date
Members not represented by a Union, Association or Group	Jul. 1/13	85 Points Date	87 Points Date and at least age 62

Postponed Retirement

Eligibility

Retirement from the University after age 65, but in no event after age 69.

Annual Pension Income

Pension accrued at date of retirement.

Forms of Payment

Timing

Pensions are payable monthly on the last day of each calendar month.

Normal Form

Monthly pension payable at the end of each month for life, together with a continuation of 60% to the spouse on the Member's earlier death. A survivor's pension is payable to the Member's children under certain circumstances. A Member without a spouse receives a monthly pension payable for life, guaranteed for 60 months in any event.

Optional Forms

Optional forms of pension are available on an actuarial equivalent basis. Optional forms include variations in term certain guarantee and varying levels of continuation for spousal forms.

Death Benefit

Pre-Retirement

A lump sum payment equal to the value of the accrued pension assuming the member had terminated or retired, as applicable, on his date of death.

Post-Retirement

Based on normal form or optional form of pension elected by a Member.

Termination of Employment

Accrued pension commencing at normal retirement date, or as early as age 55 with the applicable reduction applied. The reduction varies depending on whether the benefit was earned before or after the Termination Benefit Change Date (outlined below):

- In respect of service up to the Termination Benefit Change Date, the accrued pension is reduced by ¼% for each month that pension commencement precedes the earlier of the normal retirement date and the 85 Points Date.
- In respect of service on or after the Termination Benefit Change Date, the accrued pension is actuarially reduced for pension commencement prior to the normal retirement date.

Alternatively a Member may elect to have the commuted value of his accrued pension transferred to a registered vehicle on a locked-in basis. For service up to the Termination Benefit Change Date the lump sum benefit is equal to the greater of twice his required contributions, with interest, and the commuted value.

The actuarial equivalent lump sum value of the benefit earned prior to January 1, 1987 shall not be less than the Member's contributions made during such period together with interest. Also, in the event the Member's contributions made subsequent to January 1, 1987 together with interest are greater than 50% of the actuarial equivalent lump sum value of the benefit earned during such period, a refund will be provided.

If the Member's termination of employment is involuntary and without cause, and the Member has at least 55 points (age plus continuous service) at termination of employment, the member is permitted to commence his or her accrued pension on or after age 55 based on the early retirement provisions described above that would have applied had the member continued in employment until such early retirement date.

Employee Group	Termination Benefit Change Date
UGFA Unit 2	Sep. 1/11
UGFA	Jul. 1/12
P&M	Jul. 1/12
ONA Local 15	Jun. 1/12
Members not represented by a Union, Association or Group	Jul. 1/13

Disability Benefit

Required Member contributions cease during disability; Credited Service continues to accrue and Earnings are indexed during disability.

Adjustment to Pension in Payment

Pensions are increased annually while in payment to reflect the excess, if any, by which the previous year's CPI increase (maximum 8%) is over 2.0%.

Appendix G: Sensitivity Analysis and Other Disclosures

G.1 Sensitivity Information

Amounts determined with a discount rate 1% lower:

Going concern actuarial liability	$ 1,235,811,327
Solvency actuarial liability	$ 1,742,111,310
Employer normal actuarial cost as a percentage of member contributions	167%

G.2 Solvency Incremental Cost

Solvency Incremental Cost (up to next valuation date)	$ 69,890,549

G.3 Provision for Adverse Deviations Level

Actual Asset Allocation for Fixed Income Assets

The actual asset allocation as at October 1, 2019 has been used to determine the Provision for Adverse Deviation level, as disclosed in the September 30, 2019 audited financial statements. We have relied on the direction from the plan administrator related to fixed income allocations and ratings. Fixed income investments listed below not meeting the minimum credit rating prescribed by the Pension legislation (within the global high yield bond allocation) have been categorized as non-fixed income.

	Actual asset allocation	Fixed income allocation	Non-fixed income allocation	Fixed income weight
Asset classes				
- Canadian equities	10.23%	0.00%	10.23%	0%
- US equities	17.43%	0.00%	17.43%	0%
- International equities	16.40%	0.00%	16.40%	0%
- Emerging market equities	6.85%	0.00%	6.85%	0%
- Real estate	5.10%	2.55%	2.55%	50%
- Infrastructure	3.77%	1.88%	1.89%	50%
- Mortgages	7.52%	3.76%	3.76%	50%
- Fixed income	29.91%	27.05%	2.86%	90%
- Cash and accrued income	2.79%	2.79%	0.00%	100%
Total	100.00%	38.03%	61.97%	

Benchmark Discount Rate

Components	**Rate**
CANSIM V39056	1.51%
Risk Premium on Non-Fixed Income Assets[1]	3.10%
Risk Premium on Fixed Income Assets[2]	0.57%
Diversification Allowance	0.50%
Benchmark Discount Rate	5.68%

Notes:

1 5.00% of the non-fixed proportion of the assets.

2 1.50% of the fixed proportion of the assets.

Provision for Adverse Deviation Level

Components	Provision for Adverse Deviation level
Fixed	4.00%
Asset mix based	4.39%
Benchmark discount rate based[1]	6.87%
Provision for Adverse Deviation Level[2]	15.26%

Note:

[1] Reflects going concern discount rate less benchmark discount rate (subject to a minimum of zero), multiplied by the going concern liabilities duration (refer to sub-section G.1)

[2] The Provision for Adverse Deviations is applied to the going concern actuarial liability and total normal cost, excluding any portion for future indexation.

G.4 Effects of Plausible Adverse Scenarios

In accordance with CIA Standards of Practice, the risk assessments below have been performed only for the going concern valuation of the plan.

Interest Rate Risk

Yields on the plan's fixed income investments have been assumed to decline immediately by 110 basis points on a weighted average basis, resulting in a reduction in the going concern discount rate of 26 basis points. For this purpose, fixed income investments have been deemed to include only Canadian bonds and mortgages. The market values and expected returns for equities, real estate, infrastructure and high yield bonds have been assumed to be unaffected by the bond yield changes.

The Provision for Adverse Deviation (PfAD) has been assumed to increase from 15.26% to 26.62% due to the change in bond yields.

The smoothed value of assets adopted under the going concern basis has been adjusted to reflect the changes in fixed income investment values under this interest rate risk scenario.

No allowance has been made for any other effects on the going concern actuarial liability or total normal cost due to the change in bond yields.

Deterioration of Asset Values

Market values of equities, real estate, infrastructure and high yield bonds have been assumed to decline immediately by 18.52% on a weighted average basis. Market values of Canadian bonds and mortgages, expected future returns for all asset classes, as well as the going concern discount rate, have been assumed to be unaffected by this deterioration of asset values.

The smoothed value of assets adopted under the going concern basis has been adjusted to reflect this immediate deterioration of asset values.

No allowance has been made for any other effects of the deterioration of asset values.

The adverse scenario for a deterioration of asset values is based on the capital market assumptions from Willis Towers Watson's capital market model, with a 10th percentile scenario used for each relevant asset class independently.

Longevity Risk

Longevity risk has been assessed by applying a multiplier of 74% to all base mortality rates as per Appendix C (replacing the current 85% multiplier), while leaving the assumed mortality improvement rates unchanged.

No allowance has been made for any effects on asset values or any effects on the going concern actuarial liability or total normal cost other than the mortality assumption change.

Effects

The effects of the plausible adverse scenarios above on the funded status of the plan and on the total normal cost is shown in the following table. For this purpose, the going concern actuarial liability and total normal cost reflect application of the PfAD.

Scenario	**Baseline**	**Interest Rate Risk**	**Deterioration of Asset Values**	**Longevity Risk**
Going concern discount rate	6.00%	5.74%	6.00%	6.00%
PfAD	15.26%	26.62%	15.26%	15.26%
Weighted average fixed income yield change	N/A	(1.10)%	N/A	N/A
Fixed income asset value change	N/A	11.03%	N/A	N/A
Non-fixed income asset value deterioration	N/A	N/A	(18.52)%	N/A
Market value of assets	1,152,486,000	1,191,384,477	1,004,422,390	1,152,486,000
Going concern value of assets	1,148,047,000	1,154,005,343	1,104,864,628	1,148,047,000
Going concern actuarial liability (including PfAD)	1,235,113,692	1,399,893,885	1,235,113,692	1,263,800,729
Actuarial surplus (unfunded actuarial liability) after PfAD	(87,066,692)	(245,888,542)	(130,249,064)	(115,753,729)
Total normal cost (including PfAD)	39,981,997	46,107,871	39,981,997	40,567,297

Canada Revenue Agency / Agence du revenu du Canada

Protected B when completed

Actuarial Information Summary

See the instructions for completing this form. If an item does not apply, enter N/A.

Part I – Plan Information and Contributions

A. 001. Name of registered pension plan

Pension Plan for Professional Staff of University of Guelph

B. 002. Registration number

Canada Revenue Agency: 0324616 Other:

C. 003. Is this plan a designated plan?	**D. 004. Valuation date of report**	**E. 005. End date of period covered by report**
☐ Yes ☑ No	Year Month Day: 2019 10 01	Year Month Day: 2020 09 30

F. 006. Purpose of the report (indicate all reasons for which the report was prepared)

- ☐ Initial report for a newly established plan
- ☑ Regular (triennial or annual) report for an ongoing plan
- ☐ Interim report in respect of an amendment to an ongoing plan
- ☐ Partial termination
- ☐ Termination
- ☐ Conversion
- ☐ Other (explain)

G. Contributions (prior to application of any credits or surplus) for covered period

Periods (see instructions)	Period 1	Period 2	Period 3	Period 4
007. Period start date (YYYY-MM-DD)	2019-10-01			
008. Period end date (YYYY-MM-DD)	2020-09-30			
Normal cost (defined benefit provision) **009.** Members	18,362,731			
010. Employer	21,619,266			
010a. Explicit expense allowance included in employer normal cost above	0			
Normal cost (money purchase provision) **011.** Members	0			
012. Employer	0			
Special payments Special payments for going-concern unfunded liability and solvency deficiency **013.** Employer	1,618,229			
013a. Members	0			
Fixed contributions **014.** Estimated dollar amounts of fixed employer and, if applicable, member contributions (defined benefit provision)	0			
014a. Estimated dollar amounts of fixed employer and, if applicable, member contributions (money purchase provision)	0			

Part II – Membership and Actuarial Information

H. Membership information	Number	Average age	Average pensionable service	Average salary	Average annual pension
015. Active members	1,820	48.00	11.80	118,084	N/A
016. Retired members	1,192	75.70	**N/A**	**N/A**	40,509
017. Other participants	184	49.30	**N/A**	**N/A**	8,501

I. Actuarial basis for going-concern valuation (see instructions)

020. Asset valuation method

☐ Market ☑ Smoothed Market ☐ Book ☐ Book and Market combination ☐ Other (specify)

021. Liability valuation method

☑ Accrued benefit (unit credit) ☐ Entry age normal ☐ Individual level premium ☐ Aggregate ☐ Attained Age

☐ Other (specify)

Canada

I. Actuarial basis for going-concern valuation (continued)

Selected actuarial assumptions

Where a flat rate is used, enter the rate under Ultimate rate and N/A under Initial rate and Number of years.

Valuation interest rate	Initial rate (%)	Number of years	Ultimate rate (%)
025. Active members	N/A	N/A	6.00
026. Retired members	N/A	N/A	6.00
027. Rate of indexation	N/A	N/A	0.60
028. Rate of general wage and salary increase	N/A	N/A	3.75
029. YMPE escalation rate	N/A	N/A	3.00
030. Income Tax Regulations' maximum pension limit escalation	N/A	N/A	3.00
031. Rate of CPI increase	N/A	N/A	2.00

032. Components of going-concern valuation interest rate on line **025** and/or **026**

a) Expected investment return on plan assets, excluding additional return from active investment management .... 6.15 %

b) Expected additional return from active investment management .... 0.00 %

c) Expected expenses paid from the fund for active investment management .... 0.00 %

d) Expected investment expenses other than those reported on line **032 (c)** .... -0.04 %

e) Other expected expenses including administrative expenses .... -0.11 %

f) Effect of rebalancing and diversification, if any .... 0.00 %

g) Margins for adverse deviations .... 0.00 %

h) Other components .... 0.00 %

i) Net going concern valuation interest rate .... 6.00 %

035. Year Income Tax Regulations' maximum pension limit escalation commences 2020

036. Mortality table

☐ 1994 GAM Static ☐ 1994 Group Annuity Reserving (GAR) ☐ 1994 UP ☐ 80% of 1983 GAM ☐ CPM2014

☑ CPM2014Publ ☐ CPM2014Priv ☐ Other (specify) ______

036a. Improvement scale

Has a projection of mortality improvement been made? .... ☑ Yes ☐ No

i) Has an assumption of generational mortality improvements been made? .... ☑ Yes ☐ No

ii) If applicable, what is the year in which the mortality improvements have been projected? ....

iii) Which scale have you used?

☐ Scale AA ☑ Scale CPM-B ☐ Scale CPM-B1D2014 ☐ Other (specify) ______

036b. Adjustment to the mortality table

i) Has an adjustment to the mortality table been made? .... ☑ Yes ☐ No

ii) If **yes**, which percentage did you apply to .... Male 85.00 Female 85.00

037. Allowance for promotion, seniority, and merit increases

☑ Included in (line **028**) above ☐ Separate scale based on age or service ☐ No allowance

038. Allowance for expenses

038a. Allowance for investment expenses

☑ Implicit ☐ Explicit ☐ Both explicit and implicit

038b. Allowance for administrative expenses

☑ Implicit ☐ Explicit ☐ Both explicit and implicit

039. If a multi-employer plan, number of hours of work per member per plan year ....

040. Was a withdrawal scale used? .... ☑ Yes ☐ No

041. Were variable retirement rates used? .... ☑ Yes ☐ No

042. If **no**, what is the assumed retirement age? ....

J. Actuarial basis for solvency valuation

Valuation interest rate	Initial rate (%)	Select period	Ultimate rate (%)
045. Benefits to be settled by lump sum transfer	2.30	10	2.60
046. Benefits to be settled by purchase of deferred annuity	N/A	N/A	2.80
047. Benefits to be settled by purchase of immediate annuity	N/A	N/A	2.80
048. Rate of indexation	N/A	N/A	N/A

049. Mortality table

Lump sum: ☐ 1994 UP Generational ☐ CPM2014Priv ☑ CPM2014 ☐ CPM2014Publ ☐ Other (specify) ______

Annuity Purchase: ☐ 1994 UP Generational ☐ CPM2014Priv ☑ CPM2014 ☐ CPM2014Publ ☐ Other (specify) ______

049a. Improvement scale used

Lump sum: ☐ Scale AA ☑ Scale CPM-B ☐ Scale CPM-B1D2014 ☐ Other (specify) ______ ☐ None

Annuity Purchase: ☐ Scale AA ☑ Scale CPM-B ☐ Scale CPM-B1D2014 ☐ Other (specify) ______ ☐ None

K. Balance sheet information (DB provisions, see instructions)

050. Market value of assets, adjusted for receivables and payables	1,152,486,000
051. Amount of contributions receivable included in market value above	1,129,000
Going-concern valuation	
052. Going-concern assets	1,148,047,000
053. Optional ancillary contributions account balance included in going-concern assets above for a flexible pension plan (if applicable)	0
Going-concern liabilities	
060. For active members	520,917,414
061. For retired members	543,322,235
062. For other participants	14,725,732
063. For optional ancillary benefits to be provided under a flexible pension plan (if applicable)	0
064. Reserves	
064a. Expenses	0
064b. Ad-hoc indexing	0
064c. Provision for adverse deviation	156,148,311
064d. Other (Specify) ______	
070. Net funded position—surplus/deficit	(87,066,692)
071. Additional voluntary contributions	0
072. Money purchase assets (if applicable)	0

Solvency valuation

Complete lines **080** to **100** only if the report contains an explicit solvency valuation

Solvency assets	
080. Solvency assets with adjustment for expense provision, if any	1,151,486,000
081. Amount of wind-up expense provision reflected in line **080**	1,000,000
082. Optional ancillary contributions account balance included in solvency assets above for a flexible pension plan (if applicable)	0
Solvency liabilities	
090. For active members	806,927,215
091. For retired members	675,283,189
092. For other participants	25,164,324
093. For optional ancillary benefits to be provided under a flexible pension plan (if applicable)	0
094. Reserves	
094a. Expenses	0
094b. Other (Specify) ______	
100. Net solvency position—surplus/deficit	(355,888,728)
101. Incremental cost	69,890,549

If the plan provides benefit increases coming into effect during the period covered by the report but after the valuation date, have those increases been reflected in:

102. The going-concern liabilities in lines **060** to **064**? ☐ Yes ☐ No ☑ N/A

103. The solvency liabilities in lines **090** to **094**? ☐ Yes ☐ No ☑ N/A

Discount rate sensitivity

	Change in percentage using discount rate 1% lower	Change in amount using discount rate 1% lower	Change in amount using discount rate 1% higher
104. Going-concern liabilities	14.50	156,845,946	-136,939,468
105. Normal cost	22.60	7,883,265	-6,432,179
106. Solvency liabilities	15.60	234,736,582	-203,107,568

107. Duration of the portion of the liabilities assumed to be settled through the purchase of annuities: 11.10

L. Actuarial gains or losses

110. Was a gain/loss analysis done? ☑ Yes ☐ No

111. If line **110** is **yes**, indicate the date of the last filed funding valuation report and the net funded position as of that date: Year 2018, Month 10, Day 01 — (21,856,770)

If line **110** is **yes**, indicate amount of gain or loss due to:

112. interest on surplus (unfunded liability)	(1,355,120)
113. special payments made	10,779,025
114. amount used for contribution holiday	0
115. change in actuarial assumptions	(19,612,921)
116. change in the asset valuation method	0
117. change in liability valuation method	0
118. plan amendments/changes	0
119. investment experience	(1,077,753)
120. retirement experience	2,089,475
121. mortality experience	(1,925,232)
122. withdrawal experience	(4,953,051)
123. salary increase experience	1,153,623
124. optional ancillary contributions forfeited	

Are there major contributing sources other than lines **112** to **124** above (if **yes**, specify)

125. cost of living adjustment	2,193,407
126. provision for adverse deviation	(58,837,011)
127. all other sources (combined)	6,335,636

M. Subsequent events

135. Are there any subsequent event(s) that have not been reflected in the valuation? (refer to SOP) ☑ Yes ☐ No

N. Statements of opinion

136. Does the report include the statements of opinion required by the SOP (data, assumptions, methods, accepted actuarial practice)? ☑ Yes ☐ No

136a. Are any of the actuary's statements of opinion qualified? ☐ Yes ☑ No

Part III – Information required by the Financial Services Commission of Ontario

O. Additional valuation information

For purposes of Part III, the Regulation refers to the Regulation 909, R.R.O. 1990, as amended except as otherwise provided.

Going-concern valuation

137. Are benefits under the pension plan provided by an annuity purchase? ☐ Yes ☑ No

138. If line **137** is **yes**,

a) Enter the total asset value of the buy-in annuities as reported in the actuarial valuation report ______

b) Enter the total liabilities related to the buy-in annuities as reported in the actuarial valuation report ______

c) Enter the total asset value of the non-discharged buy-out annuities as reported in the actuarial valuation report ______

d) Enter the total liabilities related to the non-discharged buy-out annuities as reported in the actuarial valuation report ______

e) Have any annuities been discharged under OPBA section 43.1 since last valuation date? ☐ Yes ☐ No

If yes,

i) How many annuity discharge transactions have been made since the last valuation date? ______

ii) Enter the total premium of the buy-out annuities if the purchase was made since the last valuation date ______

iii) Enter the going-concern liabilities related to the annuity discharge at the time of purchase. ______

iv) Enter the top-up contributions required as per section 4 of Ontario Regulation 193/18. ______

139.1. Is the plan required to report the amount of Available Actuarial Surplus? ☑ Yes ☐ No

i) If **yes**, enter the amount of Available Actuarial Surplus 0

139.2. Breakdown of the total special payyments with respect to the going-concern unfunded liability and plan amendment

Special payments with respect to:	Period 1	Period 2	Period 3	Period 4	Present value of the special payments on the going-concern basis
Going-concern unfunded liability **139.2a** Members	0				0
139.2b Employer	1,618,229				87,066,692
Plan amendment **139.2c** Members	0				0
139.2d Employer	0				0

Provision for Adverse Deviations

139.3. Is the Provision for Adverse Deviations of the plan zero or deemed to be zero? ☐ Yes ☑ No

If **no**, complete lines **139.4** to **139.9**

139.4. Is the plan closed as determined in subsection 11.2(2) component A of the Regulation? ☐ Yes ☑ No

139.5 Combined target asset allocation for fixed income assets as determined in subsection 11.2(4) component J of the Regulation 38.03 %

139.6 Plan's duration of going-concern liabilities in subsection 11.2(5) of the Regulation 14.57

139.7 Total Provision for Adverse Deviation (%) 15.26 %

139.8 Amount of Provision for Adverse Deviation included normal cost (line **9**, **10** and **10a**) 5,038,100.00

139.9. a) Does the plan provide future escalated adjustments? ☑ Yes ☐ No

If **139.9(a)** is **yes,**

b) Are the future costs of escalated adjustments included in the calculation of the Provision for Adverse Deviation amounts on lines **064c** and **139.8**? ☐ Yes ☑ No

If **139.9(b)** is **no,**

c) Enter the going-concern liability related to the future escalated adjustments 55,713,014

d) Enter the normal cost related t o the future escalated adjustments 1,928,824

Solvency valuation

140.1 If line **137** is **yes**,

a) Enter the total asset value of the buy-in annuities as reported in the actuarial valuation report ....

b) Enter the total liabilities related to the buy-in annuities as reported in the actuarial valuation report ....

c) Enter the total asset value of the non-discharged buy-out annuities as reported in the actuarial valuation report ....

d) Enter the total liabilities related to the non-discharged buy-out annuities as reported in the actuarial valuation report ....

e) If line **138(e)** is **yes**,
i) Enter the solvency liabilities related to the discharge at the time of purchase..

140.2. Enter the total value of any reduced solvency deficiency payments (or solvency deficiency payments if applicable) that are guaranteed by letter(s) of credit 6,174,733

140.3 Enter the expiry date of the letter of credit, if any .... Year Month Day 2020 09 30

140.4 Solvency asset adjustment .... -4,439,000

140.5 Solvency liability adjustment.. 62,956,121

140.6 Reduced solvency deficiency.. 216,662,791

140.7 Solvency ratio as per the Regulation (express in decimal format) 0.7700

140.8 Components of the solvency special payments on lines **013** and **013a**

Special payments with respect to reduced solvency deficiency	Period 1	Period 2	Period 3	Period 4	Present value of the special payments on the solvency basis
140.8a Members	0				0
140.8b Employer	0				74,534,083

141. Have any of the excludable benefits been excluded?.. ☑ Yes ☐ No ☐ N/A

142. If line **141** is **yes**, enter the total amount of liabilities being excluded 208,019,507

144. (i) Has an averaging method been applied to the market value of assets in determining the solvency asset adjustment?... ☑ Yes ☐ No

a) If **yes**, indicate the positive or negative amount by which the solvency assets are adjusted as a result of applying the averaging method.. (4,439,000)

(ii) Has the averaging method used in determining the solvency asset adjustment changed since the last valuation? ☑ Yes ☐ No

If **yes**, complete **(ii)a** or **(ii)b**, as appropriate:

a) The change in method increases the solvency asset adjustment by the amount of...................................... 0

b) The change in method decreases the solvency asset adjustment by the amount of 4,439,000

P. Miscellaneous

145. Prior year credit balance.. 0

146. Transfer ratio (express in decimal format).. 0.6800

Guarantee fund assessment

147. PBGF liabilities 1,507,374,728

148. PBGF assessment base.. 354,888,728

149. Amount of additional liability for plant closure and/or permanent layoff benefits as described in E of subsection 37(4) of the Regulation 0

149a. Number of Ontario plan beneficiaries.. 3,196

Part IV – Information required by the Canada Revenue Agency

R. Additional information

173. Surplus/deficit determined at the valuation date as per the instructions:

173a. Going-concern basis	-87,066,692
173b. Wind-up basis	-563,908,235
173c. For designated plans, maximum funding valuation basis	

174. Excess surplus determined at the valuation date:

174a. Going-concern basis	
174b. For designated plans, maximum funding valuation basis	

175. For designated plans, employer normal cost determined under the maximum funding valuation basis:

Period 1	
Period 2	
Period 3	
Period 4	

176. Minimum surplus required under applicable pension benefit legislation before contribution holiday:

176a. Going-concern basis	
176b. Wind-up basis	

177. Maximum amount that could be claimed as eligible employer contribution(s) – defined benefit provisions – under subsection 147.2(2) of the Income Tax Act:

177a. Unfunded liability	563,908,235
177b. Normal cost:	
Period 1	21,619,266
Period 2	
Period 3	
Period 4	

178. Do you have any employees contributing over the limit stipulated under paragraph 8503(4) of the Income Tax Regulations? ☑ Yes ☐ No

Part V – Information required by Retraite Québec

S. Additional Information

185. Date on which the valuation report was prepared .... ______

186. Value of additional liabilities arising from an improvement on a funding basis .... ______

187. Value of additional liabilities arising from an improvement on a solvency basis .... ______

188. Surplus assets that can be allocated to fund contributions .... ______

189. Special payments.......... ______

190. Total of the letters of credit taken into account in the assets on a funding basis.......... ______

191. Insured annuities from an insurer taken into account in the actuarial valuation on a solvency basis.......... ______

T. Additional information for plans whose employer is a municipality, a municipal housing bureau, or an educational institution at the university level

For service prior to the establishment of the stabilization fund

192. Reserve on a funding basis .... ______

	Present value	Amortization payments			
		Period 1	Period 2	Period 3	Period 4
193. Deficiency attributable to the employer					
194. Funding deficiency **194a.** Payable by the members					
194b. Payable by the employer					

For service following the establishment of the stabilization fund

195. Stabilization fund value .... ______

	Stabilization contributions			
	Period 1	Period 2	Period 3	Period 4
196. Members				
197. Employer				

	Present value	Amortization payments			
		Period 1	Period 2	Period 3	Period 4
198. Technical funding deficiency **198a.** Payable by the members					
198b. Payable by the employer					

U. Additional information for pension plans other than those mentioned in Section T, and for which solvency funding does not apply.

199. Target level (as a percentage) of the required stabilization provision .... ____________

	Current service stabilization contributions			
	Period 1	**Period 2**	**Period 3**	**Period 4**
200. Members				
201. Employer				

	Present Value	Amortization payments			
		Period 1	**Period 2**	**Period 3**	**Period 4**
202. Technical funding deficiency **202a.** Payable by the members					
202b. Payable by the employer					
203. Stabilization funding deficiency **203a.** Payable by the members					
203b. Payable by the employer					
204. Improvement funding deficiency **204a.** Payable by the members					
204b. Payable by the employer					

Part VI – Certification by Actuary

As the actuary who signed the funding valuation report (the report), I certify that this completed form accurately reflects the information provided in the report.

Dated this 22 (day) day of April (month), 2020 (year)

Davis Gonsalves
Signature of actuary

Davis Gonsalves
Print or type name of actuary

Willis Towers Watson PLC
Name of firm

(416)960-7486
Telephone

davis.gonsalves@willistowerswatson.com
Email*

*** Optional information. The Canada Revenue Agency will not communicate on plan specific matters with clients by email, since we cannot guarantee the confidentiality of emailed information.**

Personal information is collected under the authority of section 147.2 of the Income Tax Act and is used for the administration of a registered pension plan. It may also be used for any purpose related to the administration or enforcement of the Act such as audit and compliance. Information may also be shared or verified under information-sharing agreements to the extent authorized by law. Under the Privacy Act, individuals have the right to access their personal information and request correction if there are errors or omissions. Refer to Info Source **canada.ca/cra-info-source**, Personal Information Bank CRA PPU 226.