

Contributory Pension Plan for  
Hourly-Rated Employees of  
McMaster University including  
McMaster Divinity College  
**Report on the Actuarial  
Valuation for Funding  
Purposes as at January 1, 2020**

September 2020

Financial Services Regulatory Authority of Ontario Registration Number: 0215418

Canada Revenue Agency Registration Number: 0215418

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To prepare the results in this report, actuarial assumptions are used to model a single scenario from a range of possibilities for each valuation basis. The results based on that single scenario are included in this report. However, the future is uncertain and the Plan's actual experience will differ from those assumptions; these differences may be significant or material. Different assumptions or scenarios within the range of possibilities may also be reasonable, and results based on those assumptions would be different. Furthermore, actuarial assumptions may be changed from one valuation to the next because of changes in regulatory and professional requirements, developments in case law, plan experience, changes in expectations about the future, and other factors.

The valuation results shown in this report also illustrate the sensitivity to one of the three key actuarial assumptions, including the discount rate, and the sensitivity to three adverse scenarios. We note that the results presented herein rely on many assumptions, all of which are subject to uncertainty, with a broad range of possible outcomes, and the results are sensitive to all the assumptions used in the valuation.

Should the Plan be wound up, the going concern funded status and solvency financial position, if different from the wind-up financial position, become irrelevant. The hypothetical wind-up financial position estimates the financial position of the Plan assuming it is wound up on the valuation date. Emerging experience will affect the wind-up financial position of the Plan assuming it is wound up in the future. In fact, even if the Plan were wound up on the valuation date, the financial position would continue to fluctuate until the benefits are fully settled.

Decisions about benefit changes, granting new benefits, investment policy, funding policy, benefit security, and/or benefit-related issues should not be made solely on the basis of this valuation, but only after careful consideration of alternative economic, financial, demographic, and societal factors, including financial scenarios that assume future sustained investment losses.

Funding calculations reflect our understanding of the requirements of Pension Benefits Act of Ontario, the Income Tax Act, and related regulations that are effective as of the valuation date. Mercer is not a law firm, and the analysis presented in this report is not intended to be a legal opinion. You should consider securing the advice of legal counsel with respect to any legal matters related to this report.

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# 1

## Summary of Results (\$000's)

	01.01.2020	01.07.2019
<b>Going Concern Financial Status</b>		
Smoothed value of assets	\$66,202	\$60,925
Going concern funding liabilities	\$57,202	\$57,586
Provision for adverse deviations in respect of the going concern liabilities	\$6,292	\$6,324
Funding excess (shortfall)	\$2,708	(\$2,985)
<b>Hypothetical Wind-up Financial Position</b>		
Wind-up assets	\$68,085	\$61,361
Wind-up liability	\$76,215	\$77,925
Wind-up excess (shortfall)	(\$8,130)	(\$16,564)
Wind-up ratio	90%	79%

<b>Funding Requirements in the Year Following the Valuation <sup>1</sup></b>		
Total current service cost	\$1,081	\$1,129
Estimated members' required contributions	(\$479)	(\$490)
Estimated University's current service cost	\$602	\$639
Provision for adverse deviations in respect of current service cost	\$119	\$124
<b>Total</b>	<b>\$721</b>	<b>\$763</b>
University's current service cost and provision for adverse deviations in respect of the current service cost expressed as a percentage of members' required contributions	151%	156%
Minimum special payments		
Year 1	\$0	\$730
Estimated minimum University contribution		
Year 1	\$721	\$1,493
Year 2	\$719	N/A
Year 3	\$761	N/A
Estimated maximum eligible University contribution		
	\$8,851	\$17,327
Next required valuation date		
	January 1, 2023	July 1, 2020

<sup>1</sup> Provided for reference purposes only. Contributions must be remitted to the Plan in accordance with the Minimum Funding Requirements and Maximum Eligible Contributions sections of this report.

## 2

# Introduction

### To McMaster University

At the request of McMaster University, we have conducted an actuarial valuation of the Contributory Pension Plan for Hourly-Rated Employees of McMaster University including McMaster Divinity College (the “Plan”), sponsored by McMaster University (the “University”), as at the valuation date, January 1, 2020. We are pleased to present the results of the valuation.

### Purpose

The purpose of this valuation is to determine:

- The funded status of the Plan as at January 1, 2020 on going concern, hypothetical wind-up, and solvency bases;
- The minimum required funding contributions from 2020, in accordance with the *Pension Benefits Act of Ontario* (the “Act”); and
- The maximum permissible funding contributions from 2020, in accordance with the *Income Tax Act*.

The information contained in this report was prepared for the internal use of the University, and for filing with the Financial Services Regulatory Authority of Ontario and with the Canada Revenue Agency, in connection with our actuarial valuation of the Plan. This report will be filed with the Financial Services Regulatory Authority of Ontario and with the Canada Revenue Agency. This report is not intended or suitable for any other purpose.

In accordance with pension benefits legislation, the next actuarial valuation of the Plan will be required as at a date not later than January 1, 2023, or as at the date of an earlier amendment to the Plan depending on any funding implications.

### Terms of Engagement

In accordance with our terms of engagement with McMaster University, our actuarial valuation of the Plan is based on the following material terms:

- It has been prepared in accordance with applicable pension legislation and actuarial standards of practice in Canada.

- As instructed by the University, we have not reflected a margin for adverse deviations in the going concern valuation in excess of the provision for adverse deviations prescribed by the Act.
- We have reflected the University’s decisions for determining the solvency funding requirements, summarized as follows:
  - The same plan wind-up scenario was hypothesized for both hypothetical wind-up and solvency valuations.
  - Although permissible, no benefits were excluded from the solvency liabilities.
  - The solvency financial position was determined on a market value basis.

See the Valuation Results – Solvency section of the report for more information.

## Events since the Last Valuation at July 1, 2019

### Pension Plan

There have been no special events since the last valuation date.

This valuation reflects the provisions of the Plan as at January 1, 2020. The Plan has been amended since the date of the previous valuation to make certain housekeeping changes to promote clarity. The Plan text was also restated to consolidate previous amendments. We are not aware of any pending definitive or virtually definitive amendments coming into effect during the period covered by this report. The Plan provisions are summarized in Appendix F.

### Assumptions

We have used the same going concern valuation assumptions and methods as were used for the previous valuation, except for the following:

	Current valuation	Previous valuation
Discount rate:	4.85%	4.75%
Post-retirement pension increases:	0.00% per year	0.33% starting January 1, 2020, 0.00% per year thereafter
Interest on employee contributions:	4.85%	4.75%

A summary of the going concern methods and assumptions is provided in Appendix C.

The hypothetical wind-up and solvency assumptions have been updated to reflect market conditions at the valuation date. A summary of the hypothetical wind-up and solvency methods and assumptions is provided in Appendix D.

## Regulatory Environment and Actuarial Standards

There have been no changes to the Act or the relevant regulations that impact the funding of the Plan.

On January 24, 2020, the Canadian Institute of Actuaries released the final standards for pension commuted values ("CIA CV Standard"). The new CIA CV Standard was scheduled to be effective August 1, 2020 with early adoption permitted for target pension arrangements. In April 2020, the CIA announced that the new CIA CV Standard will be effective no earlier than December 1, 2020.

From the effective date, they will affect the assumptions used to value the solvency and wind-up liabilities for benefits assumed to be settled through a lump sum transfer.

## Subsequent Events

After checking with representatives of the University, to the best of our knowledge there have been no events subsequent to the valuation date that, in our opinion, would have a material impact on the results of the valuation as at January 1, 2020. However, since the valuation date, there have been significant fluctuations in the financial markets, which may have led to a deterioration of the funded position of the Plan after the valuation date. Our valuation reflects the financial position of the Plan as of the valuation date and does not take into account any experience after the valuation date.

## Impact of Case Law

This report has been prepared on the assumption that all claims on the Plan after the valuation date will be in respect of benefits payable to members of the Plan determined in accordance with the Plan terms and that all Plan assets are available to provide for these benefits. It is possible that court and regulatory decisions and changes in legislation could give rise to additional entitlements to benefits under the Plan and cause the results in this report to change. By way of example, we bring your attention to the following decisions:

- The Ontario Court of Appeal's 2003 decision in *Aegon Canada Inc. and Transamerica Life Canada versus ING Canada Inc.* restricted the use of original plan surplus where two or more pension plans were merged.
- The Supreme Court of Canada's 2004 decision in *Monsanto Canada Inc. versus Superintendent of Financial Services* upheld the requirement, with retroactive effect, to distribute surplus on partial plan wind-up under the *Pension Benefits Act (Ontario)*.

We are not in a position to assess the impact that such decisions or changes could have on the assumption that all plan assets on the valuation date are available to provide for benefits determined in accordance with the Plan

terms. If such a claim arises subsequent to the date of this report, the consequences will be dealt with in a subsequent report. We are making no representation as to likelihood of such a claim.

# 3 Valuation Results – Going Concern

## Financial Status

A going concern valuation compares the relationship between the value of Plan assets and the present value of expected future benefit cash flows in respect of accrued service, assuming the Plan will be maintained indefinitely.

The results of the current valuation, compared with those from the previous valuation, are summarized as follows:

(\$000's)	01.01.2020	01.07.2019
<b>Assets</b>		
Market value of assets, adjusted for in-transits	\$68,265	\$61,541
Asset smoothing adjustment	(\$2,063)	(\$616)
Smoothed value of assets	\$66,202	\$60,925
<b>Going concern funding target</b>		
Going concern liabilities:		
• Active and suspended members	\$23,344	\$23,725
• Pensioners and survivors	\$32,583	\$32,702
• Deferred pensioners	\$1,275	\$1,159
• Subtotal	\$57,202	\$57,586
Provision for adverse deviations in respect of going concern liabilities as prescribed by the Act	\$6,292	\$6,324
Total	\$63,494	\$63,910
Funding excess (shortfall)	\$2,708	(\$2,985)

The going concern liabilities at January 1, 2020 do not include an additional margin for adverse deviations beyond the provision for adverse deviations prescribed by the Act.

## Reconciliation of Financial Status (\$000's)

Funding excess (shortfall) as at previous valuation		(\$2,985)
Provision for Adverse Deviations (PfAD) at previous valuation		\$6,324
Funding excess (shortfall) before PfAD		\$3,339
Interest on funding excess (shortfall) before PfAD at 4.75% per year		\$78
University's special payments, with interest		\$5,255
Expected funding excess (shortfall)		\$8,672
Net experience gains (losses)		
• Net investment return	(\$741)	
• Increase in YMPE	(\$34)	
• Mortality	\$346	
• Retirement	(\$41)	
• Termination	\$67	
• Interest on employee contributions	\$20	
• Impact of PfAD on current service cost	\$13	
Total experience gains (losses)		(\$370)
Impact of changes in assumptions		\$617
Net impact of other elements of gains and losses		\$81
Funding excess (shortfall) before PfAD		\$9,000
Provision for Adverse Deviations at current valuation		(\$6,292)
Funding excess (shortfall) as at current valuation		\$2,708

## Current Service Cost

The current service cost is an estimate of the present value of the additional expected future benefit cash flows in respect of pensionable service that will accrue after the valuation date, assuming the Plan will be maintained indefinitely. A provision for adverse deviations in respect of the current service cost is determined in accordance with the Act.

The current service cost and the provision for adverse deviations in respect of the current service cost, during the year following the valuation date, compared with the corresponding values determined in the previous valuation, is as follows:

(\$000's)	2020	2019/2020
Total current service cost	\$1,081	\$1,129
Estimated members' required contributions	(\$479)	(\$490)
Estimated University's current service cost	\$602	\$639
University's current service cost expressed as a percentage of members' required contributions	126%	131%
Provision for adverse deviations in respect of the current service cost (based on the percentage defined in Appendix A)		
• As a dollar amount per year	\$119	\$124
• As a percentage of members' required contributions	25%	25%
University's current service cost and provision for adverse deviations in respect of total current service cost		
• As a dollar amount per year	\$721	\$763
• As a percentage of members' required contributions	151%	156%

The key factors that have caused a change in the University's current service cost, excluding the provision for adverse deviations, since the previous valuation are summarized in the following table:

University's current service cost as at previous valuation	131%
Demographic changes	(1%)
Increase in member contribution rates	(1%)
Changes in assumptions	(3%)
University's current service cost as at current valuation	126%

## Discount Rate Sensitivity

The following table summarizes the effect on the going concern liabilities and current service cost shown in this report of using a discount rate that is 1% lower than that used in the valuation. The effect of a change in the discount rate on the provision for adverse deviations is not reflected.

Scenario (\$000's)	Valuation Basis	Reduce Discount Rate by 1%
<b>Going concern funding liabilities</b>	\$57,202	\$64,121
<b>Current service cost</b>		
• Total current service cost	\$1,081	\$1,263
• Estimated members' required contributions	(\$479)	(\$479)
Estimated University's current service cost	\$602	\$784

## Plausible Adverse Scenarios

The financial impact on the going concern results of plausible adverse scenarios that would pose threats to the Plan's future financial condition is presented in Appendix G.

## 4

# Valuation Results – Hypothetical Wind-up

### Financial Position

When conducting a hypothetical wind-up valuation, we determine the relationship between the respective values of the Plan's assets and its liabilities assuming the Plan is wound up and settled on the valuation date, assuming benefits are settled in accordance with the Act and under circumstances consistent with the hypothesized scenario on the valuation date. More details on such scenario are provided in Appendix D.

The hypothetical wind-up financial position as of the valuation date, compared with that at the previous valuation, is as follows:

(\$000's)	01.01.2020	01.07.2019
<b>Assets</b>		
Market value of assets	\$68,265	\$61,541
Termination expense provision	(\$180)	(\$180)
Wind-up assets	\$68,085	\$61,361
<b>Present value of accrued benefits for:</b>		
• Active and suspended members	\$34,284	\$35,127
• Pensioners and survivors	\$40,007	\$41,054
• Deferred pensioners	\$1,924	\$1,744
Total wind-up liability	\$76,215	\$77,925
Wind-up excess (shortfall)	(\$8,130)	(\$16,564)

## Wind-up Incremental Cost

The wind-up incremental cost is an estimate of the present value of the projected change in the hypothetical wind-up liabilities from the valuation date until the next scheduled valuation date, adjusted for the benefit payments expected to be made in that period.

The hypothetical wind-up incremental cost determined in this valuation, compared with the corresponding value determined in the previous valuation, is as follows:

(\$000's)	01.01.2020	01.07.2019
Number of years covered by report	3 years	3 years
Total hypothetical wind-up liabilities at the valuation date (A)	\$76,215	\$77,925
Present value at the valuation date of projected hypothetical wind-up liability at the next required valuation (including expected new entrants) plus expected benefit payments until the next required valuation (B)	\$80,159	\$82,064
Hypothetical wind-up incremental cost (B – A)	\$3,944	\$4,139

The incremental cost is not an appropriate measure of the contributions that would be required to maintain the windup position of the Plan even if actual experience is exactly in accordance with the going concern valuation assumptions. For example, the expected return on plan assets (based on the going concern assumptions) is greater than the discount rate used to determine the hypothetical wind-up liabilities.

## Discount Rate Sensitivity

The following table summarizes the effect on the hypothetical wind-up liabilities shown in this report of using a discount rate that is 1% lower than that used in the valuation:

Scenario (\$000's)	Valuation Basis	Reduce Discount Rate by 1%
Total hypothetical wind-up liability	\$76,215	\$86,720

## 5

# Valuation Results – Solvency

### Overview

The Act also requires the financial position of the Plan to be determined on a solvency basis. The financial position on a solvency basis is determined in a similar manner to the Hypothetical Wind-up Basis, except for the following:

Exceptions	Reflected in valuation based on the terms of engagement
The circumstance under which the Plan is assumed to be wound up could differ for the solvency and hypothetical wind-up valuations.	The same circumstances were assumed for the solvency valuation as were assumed for the hypothetical wind-up valuation.
Certain benefits can be excluded from the solvency financial position. These include: <ul style="list-style-type: none"> <li>(a) any escalated adjustment (e.g. indexing),</li> <li>(b) certain plant closure benefits,</li> <li>(c) certain permanent layoff benefits,</li> <li>(d) special allowances other than funded special allowances,</li> <li>(e) consent benefits other than funded consent benefits,</li> <li>(f) prospective benefit increases,</li> <li>(g) potential early retirement window benefit values, and</li> <li>(h) pension benefits and ancillary benefits payable under a qualifying annuity contract.</li> </ul>	No benefits were excluded from the solvency liabilities shown in this valuation.
The financial position on the solvency basis needs to be adjusted for any Prior Year Credit Balance.	Not applicable.

Exceptions	Reflected in valuation based on the terms of engagement
The solvency financial position can be determined by smoothing assets and the solvency discount rate over a period of up to 5 years.	Smoothing was not used.
The benefit rate increases coming into effect after the valuation date can be reflected in the solvency valuation.	Not applicable.

## Financial Position

The financial position on a solvency basis is the same as the financial position on the Hypothetical Wind-up basis shown in the previous section. The transfer ratio is 90%, compared to 79% at the previous valuation.

## 6 Minimum Funding Requirements

The Act prescribes the minimum contributions that the University must make to the Plan. The minimum contributions in respect of a defined benefit component of a pension plan are comprised of going concern current service cost, the provision for adverse deviations in respect of the current service cost, and special payments to fund any funding shortfall or solvency shortfall that exceeds the level as set out under the Act.

On the basis of the assumptions and methods described in this report, no special payments are required. However, since the available actuarial surplus is zero, the Act requires the employer to contribute the current service cost including the provision for adverse deviations. The determination of the provision for adverse deviations is shown in Appendix A. On the basis of the assumptions and methods described in this report, the rule for determining the minimum required employer monthly contributions, as well as an estimate of the employee and employer contributions, from the valuation date until the next required valuation are as follows:

Period beginning	UNIVERSITY'S CONTRIBUTION RULE	
	Monthly current service cost <sup>2</sup>	Provision for adverse deviations
January 1, 2020	126%	25%
January 1, 2021	110%	23%
January 1, 2022	113%	23%

Period beginning	Employee Contribution	Estimated University's contributions		
		Provision for adverse deviations	Monthly current service cost	Minimum monthly contributions
January 1, 2020	\$39,917	\$9,909	\$50,167	\$60,076
January 1, 2021	\$44,917	\$10,390	\$49,535	\$59,925
January 1, 2022	\$46,417	\$10,894	\$52,616	\$63,510

<sup>2</sup> Expressed as a percentage of members' required contributions. Reducing in future years due to increases in member contribution rates.

The estimated contribution amounts above are based on projected members' required contributions. Therefore, the actual University's current service cost and provision for adverse deviations in respect of the current service cost may be different from the above estimates and, as such, the contribution requirements should be monitored closely to ensure contributions resume in accordance with the Act.

Appendix A includes details on the determination of the provision for adverse deviations.

## **Other Considerations**

### **Differences between Valuation Bases**

There is no provision in the minimum funding requirements to fund the difference between the hypothetical wind-up and reduced solvency shortfalls, if any.

In addition, although minimum funding requirements do include a requirement to fund the going concern current service cost and a provision for adverse deviations in respect of the current service cost, there is no requirement to fund the expected growth in the hypothetical wind-up or solvency liability after the valuation date, which could be greater.

### **Timing of Contributions**

Funding contributions are due on a monthly basis. Contributions for current service cost and the provision for adverse deviations must be made within 30 days following the month to which they apply. Special payment contributions must be made in the month to which they apply.

### **Retroactive Contributions**

The University must contribute the excess, if any, of the minimum contribution recommended in this report over contributions actually made in respect of the period following the valuation date. This contribution, along with an allowance for interest, is due no later than 60 days following the date this report is filed.

### **Payment of Benefits**

The Act imposes certain restrictions on the payment of lump sums from the Plan when the transfer ratio revealed in an actuarial valuation is less than one. If the transfer ratio shown in this report is less than one, the plan administrator should ensure that the monthly special payments are sufficient to meet the requirements of the Act to allow for the full payment of benefits, and otherwise should take the prescribed actions.

Additional restrictions are imposed when:

- The transfer ratio revealed in the most recently filed actuarial valuation is less than one and the administrator knows or 'ought to know' that the transfer ratio of the Plan has declined by 10% or more since the date the last valuation was filed.

- The transfer ratio revealed in the most recently filed actuarial valuation is greater than or equal to one and the administrator knows or 'ought to know' that the transfer ratio of the Plan has declined to less than 0.9 since the date the last valuation was filed.

As such, the administrator should monitor the transfer ratio of the Plan and, if necessary, take the prescribed actions.

### **Letters of Credit**

Minimum funding requirements in respect of required solvency special payments that otherwise require monthly contributions to the pension fund may be met, in the alternative, by establishing an irrevocable letter of credit subject to the conditions established by the Act. Required solvency special payments in excess of those met by a letter of credit must be met by monthly contributions to the pension fund.

## 7

# Maximum Eligible Contributions

The *Income Tax Act* (the “ITA”) limits the amount of employer contributions that can be remitted to the defined benefit component of a registered pension plan. For purposes of this section on maximum eligible contributions only, any reference to the current service cost includes the provision for adverse deviations in respect of the current service cost.

In accordance with Section 147.2 of the ITA and *Income Tax Regulation* 8516, for a plan that is underfunded on either a going concern or on a hypothetical wind-up basis, the maximum permitted contributions are equal to the University’s current service cost, including the explicit expense allowance if applicable, plus the greater of the going concern funding shortfall and hypothetical wind-up shortfall.

For a plan that is fully funded on both going concern and hypothetical wind-up bases, the employer can remit a contribution equal to the University’s current service cost, including the explicit expense allowance if applicable, as long as the surplus in the plan does not exceed a prescribed threshold. Specifically, in accordance with Section 147.2 of the ITA, for a plan that is fully funded on both going concern and hypothetical wind-up bases, the plan may not retain its registered status if the employer makes a contribution while the going concern funding excess exceeds 25% of the going concern funding target.

Notwithstanding the above, any contributions that are required to be made in accordance with pension benefits legislation are eligible contributions in accordance with Section 147.2 of the ITA and can be remitted.

## Schedule of Maximum Contributions

The University is permitted to fully fund the greater of the going concern and hypothetical wind-up shortfalls (\$amount), as well as make current service cost contributions. The portion of this contribution representing the payment of the hypothetical wind-up shortfall can be increased with interest at 2.83% per year from the valuation date to the date the payment is made, and must be reduced by the amount of any deficit funding made from the valuation date to the date the payment is made.

Assuming the University contributes the greater of the going concern and the hypothetical wind-up shortfall of \$8,130,000 as of the valuation date, the rule for determining the estimated maximum eligible annual contributions, as well as an estimate of the maximum eligible contributions until the next valuation, are as follows:

Year beginning	University's contribution rule	Estimated University's contributions	
	Monthly current service cost including provision for adverse deviations <sup>3</sup>	Deficit Funding	Monthly current service cost
January 1, 2020	151%	n/a	\$60,076
January 1, 2021	133%	n/a	\$59,925
January 1, 2022	136%	n/a	\$63,510

The University's current service cost in the above table was estimated based on projected members' required contributions. The actual University's current service cost will be different from these estimates and, as such, the contribution requirements should be monitored closely to ensure compliance with the ITA.

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<sup>3</sup> Expressed as a percentage of members' required contributions.

# 8 Actuarial Opinion

In our opinion, for the purposes of the valuations,

- The membership data on which the valuation is based are sufficient and reliable.
- The assumptions are appropriate.
- The methods employed in the valuation are appropriate.

This report has been prepared, and our opinions given, in accordance with accepted actuarial practice in Canada. It has also been prepared in accordance with the funding and solvency standards set by the Pension Benefits Act of Ontario.



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**Chad Spence**  
Fellow of the Society of Actuaries  
Fellow of the Canadian Institute of Actuaries



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**Bill Watson**  
Fellow of the Society of Actuaries  
Fellow of the Canadian Institute of Actuaries

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September 22, 2020  
Date

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September 22, 2020  
Date

# Appendix A

## Prescribed Disclosure

### Definitions

The Act defines a number of terms as follows:

Defined Term	Description	Result
Going concern assets	Total smoothed value of assets plus the sum of the following:	\$66,202,000
	(a) the present value of special payments in respect of any past service unfunded liability identified in a previously filed report	\$0
	(b) the present value of special payments in respect of any plan amendment that increases going concern liabilities	\$0
	(c) present value of special payments in respect of going concern unfunded liabilities identified in a previously filed report that are scheduled for payment within one year of the date of this report	\$0
Going concern excess / (unfunded liability)	The Going Concern Assets minus the sum of the following:	\$2,708,000
	a. the going concern liabilities	
	(i) liabilities excluding the value of escalated adjustments	\$57,202,000
	(ii) liabilities in respect of escalated adjustments	\$0
	b. the provision for adverse deviations in respect of the going concern liabilities excluding the value of escalated adjustments	\$6,292,000
	c. Prior Year Credit Balance	\$0

Defined Term	Description	Result
Going concern funded ratio	The ratio of: (a) Total smoothed value of assets (excluding letters of credit) less the Prior Year Credit Balance; to (b) going concern liabilities	1.16
Transfer Ratio	The ratio of: (a) Solvency Assets minus the lesser of the Prior Year Credit Balance and the minimum required employer contributions including the provision for adverse deviations until the next required valuation; to (b) the sum of the Solvency Liabilities and liabilities for benefits, other than benefits payable under qualifying annuity contracts that were excluded in calculating the Solvency Liabilities.	0.90
Solvency Ratio	The ratio of: (a) Solvency Assets related to defined benefits and ancillary benefits plus the total amount of any letters of credit minus the Prior Year Credit Balance (b) the sum of the Solvency Liabilities related to defined benefits and ancillary benefits	0.90
Prior Year Credit Balance	Accumulated sum of contributions made to the pension plan in excess of the minimum required contributions (note: only applies if the University chooses to treat the excess contributions as a Prior Year Credit Balance).	\$0
Solvency Assets	Market value of assets including accrued or receivable income and excluding the value of any qualifying annuity contracts.	\$68,265,000

Defined Term	Description	Result
Solvency Asset Adjustment	The sum of:	
	(a) the difference between smoothed value of assets and the market value of assets	\$0
	(b) the present value of going concern special payments required to liquidate any past service unfunded liability	\$0
	(c) the present value of going concern special payments identified in July 1, 2019 valuation and scheduled for payment in 2019/2020	\$0
	(d) the present value of going concern special payments (identified in this report) that are scheduled for payment within 6 years following the valuation date	\$0
	(e) the present value of any previously scheduled solvency special payments (excluding those identified in this report)	\$3,083,000
	(f) the total value of all letters of credit in respect of the special payments due before the valuation date, subject to the limit of 15% of solvency liabilities	\$0
	\$3,083,000	
Solvency Liabilities	Liabilities determined as if the plan had been wound up on the valuation date, including liabilities for plant closure benefits or permanent layoff benefits that would be immediately payable if the University's business were discontinued on the valuation date of the report, but, if elected by the plan sponsor, excluding liabilities for,	\$76,215,000
	(a) any escalated adjustment,	
	(b) excluded plant closure benefits,	
	(c) excluded permanent layoff benefits,	
	(d) special allowances other than funded special allowances,	
	(e) consent benefits other than funded consent benefits,	
	(f) prospective benefit increases,	
	(g) potential early retirement window benefit values, and	
	(h) pension benefits and ancillary benefits payable under a qualifying annuity contract.	

Defined Term	Description	Result
Solvency Liability Adjustment	The amount by which Solvency Liabilities are adjusted as a result of using a solvency valuation interest rate that is the average of market interest rates calculated over the period of time used in the determination of the smoothed value of assets.	\$0
Solvency Deficiency	The amount, if any, by which the sum of:	
	(a) the Solvency Liabilities	\$76,215,000
	(b) the Solvency Liability Adjustment	\$0
	(c) the Prior Year Credit Balance	\$0
		<hr/>
		\$76,215,000
	Exceeds the sum of	
	(d) the Solvency Assets net of estimated termination expenses <sup>4</sup>	\$68,085,000
	(e) the Solvency Asset Adjustment	\$3,083,000
		<hr/>
	\$71,168,000	
	<hr/>	
	\$5,047,000	
Reduced Solvency Deficiency / (Solvency Excess)	The sum of:	
	(a) 85% of the Solvency Liabilities	\$64,783,000
	(b) 85% of the Solvency Liability Adjustment	\$0
	(c) the Prior Year Credit Balance	\$0
		<hr/>
		\$64,783,000
	minus the sum of:	
	(d) the Solvency Assets net of estimated termination expenses <sup>8</sup>	\$68,085,000
	(e) the Solvency Asset Adjustment	\$3,083,000
		<hr/>
	\$71,168,000	
	<hr/>	
	(\$6,385,000)	

<sup>4</sup> In accordance with accepted actuarial practice, for purposes of determining the financial position, the market value of plan assets was reduced by a provision for estimated termination expenses payable from the Plan's assets that may reasonably be expected to be incurred in terminating the Plan and to be charged to the Plan.

## Provision for Adverse Deviations

The provision for adverse deviations has been established in accordance with regulations taking into account the following parameters:

Defined Amount		Results				
Fixed Income Component (L)	The sum of the Plan's target allocation of assets (excluding those allocated to annuity contracts and meeting the minimum rating requirement) as described in the regulations according to the investment policy applicable at the valuation date:	45.0%				
	<table border="1"> <thead> <tr> <th>Investment</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Canadian Bonds and debentures</td> <td>45.0%</td> </tr> </tbody> </table>	Investment	Target	Canadian Bonds and debentures	45.0%	
Investment	Target					
Canadian Bonds and debentures	45.0%					
Alternative Investment Component (M)	The sum of the Plan's target allocation of assets (excluding those allocated to annuity contracts) meeting requirements as described in the regulations according to the investment policy applicable at the valuation date	0.0%				
Investment Component (N)	Plan's target asset allocation for mutual, pooled or segregated funds	0.0%				
Investment Component Fixed Income % (P)	Portion of Investment Component (N) that is allocated to investment categories accounted for in Fixed Income Component (L)	N/A				
Investment Component Alternative Investment % (Q)	Portion of Investment Component (N) that is allocated to investment categories accounted for in Alternative Income Component (M)	N/A				
Annuity Contract Allocation (R)	Annuity contracts that have been purchased from an insurance company and excluded from the Fixed Income Component (L) and Alternative Investment Component (M)	0.0%				

### Combined Target Asset Allocation for Fixed Income Assets (J)

Sum of

• Fixed Income Component (L)	45.0%	
• $0.5 \times$ Alternative Investment Component ( $0.5 \times M$ )	0.0%	
• Investment Component $\times$ Investment Component Fixed Income % ( $N \times P$ )	0.0%	
• $0.5 \times$ Investment Component $\times$ Investment Component Alternative Investment % ( $0.5 \times N \times Q$ )	0.0%	
	45.0%	

Divided by

• 100% - Annuity Contract Allocation (100% - R)	100.0%	
---	--------	--

**Combined Target Asset Allocation for Fixed Income Assets 45.0%**

### Combined Target Asset Allocation for Non-Fixed Income Assets (K)

100% - Combined **Target** Asset Allocation for Fixed Income Assets (100% - J) **55.0%**

### Duration of going concern liabilities at valuation date

=  $(F - G) / (G \times 0.01)$  **12.10**

where,

G = going concern liabilities at valuation date established using the discount rate  
determined for this valuation \$57,202,000

F = going concern liabilities established using the discount rate minus 1% \$64,121,000

### Benchmark Discount Rate (E)

Base rate 0.50%

Effective yield from CANSIM Series V39056 (H) 1.76%

1.5% x Combined <b>Target</b> Asset Allocation for Fixed Income Assets (1.5% × J)	0.68%
5.0% x Combined <b>Target</b> Asset Allocation for Non-Fixed Income Assets (5.0% × K)	2.75%
<b>Benchmark Discount Rate</b>	<b>5.69%</b>

#### Provision for Adverse Deviations

i.	5.0% for a closed plan and 4.0% for a Plan that is not a closed plan	5.00%
ii.	Provision based on Combined Target Asset Allocation for Non-Fixed Income Assets	6.00%
iii.	Greater of zero and the	
	• Duration of going concern liabilities at valuation date	12.10
	Multiplied by:	
	– Going concern valuation gross discount rate net of active investment management fees (D), less	5.16%
	– Benchmark Discount Rate (E)	5.69%
		0.00%
	<b>Provision for Adverse Deviations (A + B + C)</b>	<b>11.00%</b>

The available actuarial surplus that may be used according to the Act is established as follows:

#### Available actuarial surplus

Excess of			
	• Assets determined on basis of going concern valuation including accrued and receivable income but excluding the value of any letters of credit		\$66,202,000
Over			
	• Going concern liabilities	\$57,202,000	
	• Provision for adverse deviations in respect of the going concern liabilities	\$6,292,000	
	• Prior Year Credit Balance	\$0	
			<u>\$63,494,000</u>

	\$2,708,000	(a)
Excess of		
<ul style="list-style-type: none"> <li>Solvency assets excluding the value of any letters of credits and lesser of Prior Year Credit Balance and minimum required employer contributions, including the provision for adverse deviations until the next required valuation</li> </ul>	\$68,265,000	
Over		
<ul style="list-style-type: none"> <li>Wind-up liabilities × 105%</li> </ul>	\$80,026,000	
	\$0	(b)
The available actuarial surplus = the lesser of a) and b) above	\$0	

## Timing of Next Required Valuation

In accordance with the Act the next valuation of the Plan would be required at an effective date within one year of the current valuation date if:

- The ratio of solvency assets to solvency liabilities is less than 85%.
- The employer elected to exclude plant closure or permanent lay-off benefits under Section 5(18) of the regulations, and has not rescinded that election.

Otherwise, the next valuation of the Plan would be required at an effective date no later than three years after the current valuation date.

Accordingly, the next valuation of the Plan will be required as of January 1, 2023.

## Special Payments

The present values as at July 1, 2019 of the monthly special payments determined in the previous valuation are as follows:

**Present Value of Monthly Special Payments  
Determined as at 01.07.2019**

Type of Deficit	Start Date	Special Payment	End date	Present Value of Remaining Payments as at 01.01.2020	
				Going Concern Basis <sup>5</sup>	Solvency Basis <sup>6</sup>
Going concern	July 1, 2020	\$32,629	June 30, 2030	\$3,040,000	\$1,782,000
Solvency	July 1, 2017	\$60,819	June 30, 2024		\$3,083,000
Total		\$93,448		\$3,040,000	\$4,865,000

As the Plan has a funding excess, going concern special payments revealed in the previous valuation are no longer required.

Since the solvency excess of \$6,385,000, as outlined in the Definitions section of this appendix, is greater than or equal to the present value of the special payments set out in the prior valuation report to fund any reduced solvency deficiency, consolidated prior solvency deficiencies, or solvency deficiency including those where Options 3, 5 or 7 as described in the Regulations were elected (\$0), the solvency special payments revealed in the previous valuation are no longer required.

### **Pension Benefits Guarantee Fund (PBGF) Assessment**

A PBGF assessment is required to be paid under Section 37 of the Act. The PBGF assessment base is derived as follows:

Solvency assets	\$68,265,000	(a)
PBGF liabilities	\$76,215,000	(b)
Solvency liabilities	\$76,215,000	(c)
Ontario asset ratio	100%	(d) = (b) ÷ (c)
Ontario portion of the fund	\$68,265,000	(e) = (a) × (d)

<sup>5</sup> Calculation only considers going concern special payments and is based on a going concern discount rate.

<sup>6</sup> Calculation considers both solvency and going concern special payments (six years only) and is based on the average solvency discount rate.

PBGF assessment base	\$7,950,000	(f) = max(0, (b) – (e))
Amount of additional liability for plant closure and/or permanent layoff benefits which is not funded and subject to the 2% (3% for years after 2018) assessment pursuant to s.37(4)	\$0	(g)

## Appendix B

# Plan Assets

The pension fund is held by CIBC Mellon. In preparing this report, we have relied upon fund statements prepared by CIBC Mellon without further audit. Customarily, this information would not be verified by a plan's actuary. We have reviewed the information for internal consistency and we have no reason to doubt its substantial accuracy.

### Reconciliation of Market Value of Plan Assets

The pension fund transactions since the last valuation are summarized in the following table:

(\$000's)	2019
July 1	\$61,561
PLUS	
Members' contributions	\$227
University's contributions	\$906
Investment earnings	\$701
Net capital gains (losses)	\$1,662
	\$3,496
LESS	
Pensions paid	\$1,416
Lump-sums paid	\$29
Administration and investment fees	\$231
	\$1,676
December 31	\$63,381

(\$000's)	2019
Gross rate of return <sup>7</sup>	3.9%
Rate of return net of expenses <sup>7</sup>	3.5%

The market value of assets shown in the above table is adjusted to reflect in-transit amounts as follows:

(\$000's)	Current Valuation	Previous Valuation
Market value of invested assets	\$63,381	\$61,561
In-transit amounts		
• Members' contributions	\$36	\$34
• University's contributions	\$4,848	\$146
• Expenses	(\$0)	(\$1)
• Benefit payments	(\$0)	(\$199)
Market value of assets adjusted for in-transit amounts	\$68,265	\$61,541

We have tested the pensions paid, the lump-sums paid, and the contributions for consistency with the membership data for the Plan members who have received benefits or made contributions. The results of these tests were satisfactory.

## Investment Policy

The plan administrator has adopted a statement of investment policy and procedures. This policy is intended to provide guidelines for the manager(s) as to the level of risk that is consistent with the Plan's investment objectives. A significant component of this investment policy is the asset mix.

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<sup>7</sup> Assuming mid-period cash flows.

The plan administrator is solely responsible for selecting the Plan's investment policies, asset allocations, and individual investments.

The constraints on the asset mix and the actual asset mix at the valuation date are provided for information purposes:

	Investment Policy			Actual asset Mix as at January 1, 2020
	Minimum	Target	Maximum	
Canadian equities	10%	20%	30%	20.9%
US equities	8%	18%	28%	21.3%
Non-North American equities	7%	17%	27%	20.4%
Total equities <sup>8</sup>		55%		62.6%
Bonds	25%	45%	65%	37.0%
Cash and cash equivalents	0%	0%	10%	0.4%
Total fixed income <sup>9</sup>		45%		37.4%
		100%		100.0%

Because the Plan's assets (which are invested in accordance with the above investment policy) are not matched to the Plan's liabilities (which tend to behave like long bonds), the Plan's financial position will fluctuate over time. These fluctuations could be significant and could cause the Plan to become underfunded or overfunded even if the University contributes to the Plan based on the funding requirements presented in this report.

<sup>8</sup> The total allocations to equities is subject to a minimum of 35% and a maximum of 70%.

<sup>9</sup> The total allocations to fixed income is subject to a minimum of 30% and a maximum of 65%.

## Appendix C

# Methods and Assumptions – Going Concern

### Valuation of Assets

For this valuation, we have continued to use an adjusted market-value method to determine the smoothed value of assets. Under this method, realized and unrealized capital gains (losses) arising during a given year are spread on a straight-line basis over 3 years.

The asset values produced by this method are related to the market value of the assets, with the advantage that, over time, the market-related asset values will tend to be more stable than market values. To the extent that more capital gains than losses will arise over the long term, the smoothed value will tend to be lower than the market value.

The smoothed value of the assets at January 1, 2020 was derived as follows:

(\$000's)	2018	2019
Market value of assets at January 1	\$57,696	\$56,378
Payments into Plan	\$2,244	\$2,270
Payments out of Plan <sup>10</sup>	(\$2,684)	(\$2,969)
Expected interest	\$2,874	\$2,731
Investment experience gains (losses)	(\$3,752)	\$4,971
Market value of assets at December 31	\$56,378	\$63,381

<sup>10</sup> Other than administration fees.

Market value of assets		\$63,381
LESS		
Investment experience gains (losses)	2019: \$4,971 x 66.67% =	\$3,314
	2018: (\$3,752) x 33.33% =	(\$1,251)
		\$2,063
Smoothed value of assets		\$61,318

The smoothed value of assets shown in the above table is adjusted to reflect in-transit amounts as follows:

(\$000's)	Current Valuation	Previous Valuation
Smoothed value of assets	\$61,318	\$60,945
In-transit amounts		
• Members' contributions	\$36	\$34
• University's contributions	\$4,848	\$146
• Expenses	(\$0)	(\$1)
• Benefit payments	\$0	(\$199)
Smoothed value of assets, adjusted for in-transit amounts	\$66,202	\$60,925

## Going Concern Funding Target

Over time, the real cost to the employer of a pension plan is the excess of benefits and expenses over member contributions and investment earnings. The actuarial cost method allocates this cost to annual time periods.

For purposes of the going concern valuation, we have continued to use the projected unit credit actuarial cost method. Under this method, we determine the present value of benefit cash flows expected to be paid in respect of service accrued prior to the valuation date, based on projected final average earnings. This is referred to as the funding target.

The funding excess or funding shortfall, as the case may be, is the difference between the market or smoothed value of assets and the funding target. A funding excess on a market value basis indicates that the current market value of assets and expected investment earnings are expected to be sufficient to meet the cash flows in respect of benefits accrued to the valuation date as well as expected expenses – assuming the plan is maintained indefinitely. A funding shortfall on a market value basis indicates the opposite – that the current market value of the assets is not expected to be sufficient to meet the plan's cash flow requirements in respect of accrued benefits, absent additional contributions.

As required under the Act, a funding shortfall (including the prior year credit balance) and the provision for adverse deviations must be amortized over no more than 10 years through special payments beginning one year after the valuation date. A funding excess may, from an actuarial standpoint, be applied immediately to reduce required employer current service contributions unless precluded by the terms of the plan or by legislation.

The actuarial cost method used for the purposes of this valuation produces a reasonable matching of contributions with accruing benefits. Because benefits are recognized as they accrue, the actuarial cost method provides an effective funding target for a plan that is maintained indefinitely.

## Current Service Cost

The current service cost is the present value of projected benefits to be paid under the plan with respect to service expected to accrue during the period until the next valuation.

The University's current service cost is the total current service cost reduced by the members' required contributions. The University's current service cost has been expressed as a percentage of the members' required contributions to provide an automatic adjustment in the event of fluctuations in membership and/or pensionable earnings.

Under the projected unit credit actuarial cost method, the current service cost for an individual member will increase each year as the member approaches retirement. Therefore, the current service cost of the entire group, expressed as a percentage of the members' required contributions, can be expected to increase as long as the average age distribution of the closed active population increases.

## Actuarial Assumptions – Going Concern Basis

The present value of future benefit payment cash flows is based on economic and demographic assumptions. At each valuation we determine whether, in our opinion, the actuarial assumptions are still appropriate for the purposes of the valuation, and we revise them, if necessary. Emerging experience will result in gains or losses that will be revealed and considered in future actuarial valuations.

The table below shows the various assumptions used in the current valuation in comparison with those used in the previous valuation.

Assumption	Current valuation	Previous valuation
Discount rate:	4.85%	4.75%
Inflation:	2.00%	2.00%
ITA limit / YMPE increases:	3.00%	3.00%
Pensionable earnings increases:	3.25%	3.25%
Post-retirement pension increases:	0.00% per year	0.33% on January 1, 2020, 0.00% per year thereafter
Interest on employee contributions:	4.85%	4.75%
Retirement rates:	20% where first eligible for an unreduced pension, remainder at age 64	20% where first eligible for an unreduced pension, remainder at age 64
Termination rates:	None	None
Mortality rates:	115% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)	115% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)

Assumption	Current valuation	Previous valuation
Mortality improvements:	Fully generational using CPM Improvement Scale B (CPM-B)	Fully generational using CPM Improvement Scale B (CPM-B)
Disability rates:	None	None

The assumptions are best-estimates and do not include a margin for adverse deviations.

### Pensionable Earnings

The benefits ultimately paid will depend on each member's final average earnings. To calculate the pension benefits payable upon retirement, death, or termination of employment, we have taken the July 1, 2019 rate of pay and assumed that such pensionable earnings will increase at the assumed rate.

### Rationale for Assumptions

A rationale for each of the assumptions used in the current valuation is provided below.

Discount Rate
<p>We have discounted the expected benefit payment cash flows using the expected investment return on the market value of the fund net of fees and less a margin for adverse deviations. Other bases for discounting the expected benefit payment cash flows may be appropriate, particularly for purposes other than those specifically identified in this valuation report.</p> <p>The discount rate is comprised of the following:</p> <ul style="list-style-type: none"> <li>• An <b>assumed investment return</b> based on estimated return for each major asset class that are consistent with market conditions on the valuation date modified to include a provision for increases in market interest rates to a level higher than current historically low levels, on the expected time horizon over which benefits are expected to be paid, and on the target asset mix specified in the Plan's investment policy. Consistent with market observable and available data, the assumed investment return is a gross return for all asset classes.</li> <li>• An <b>assumed passive investment management expense provision</b> which represents the hypothetical fees for passive investment management of assets based on estimated fees charged by index managers for balanced mandates.</li> <li>• An <b>implicit non-investment management expense provision</b> determined as the average rate of non-investment expenses paid from the fund over the last 3 years. These would include all fees payable from the fund (administration, custodial, audit, consulting, etc.) except those payable to investment</li> </ul>

managers, to the extent that these fees are not covered in an explicit provision for expenses added to the current service cost

The discount rate was developed as follows:

Assumed investment return	5.16%
Assumed passive investment management expense provision	(0.07%)
Implicit non-investment management expense provision	(0.24%)
Rounding to nearest 5 basis points	(0.00%)
Net discount rate	4.85%

### **Inflation**

The inflation assumption is based on the mid-point of the Bank of Canada's inflation target range of between 1% and 3%.

### **Income Tax Act Pension Limit and Year's Maximum Pensionable Earnings**

The assumption is based on historical real economic growth and the underlying inflation assumption.

### **Pensionable Earnings**

The assumption is based on general wage growth assumptions increased by our best estimate of future merit and promotional increases over general wage growth, considering the University's expectations.

### **Post-Retirement Pension Increases**

The assumption is based on the Plan formula and inflation assumption above.

## Retirement Rates

The assumption is based on the Plan provisions and our experience with similar plans and employee groups.

## Termination Rates

Use of a different assumption would not have a material impact on the valuation.

## Mortality Rates

The assumption for the mortality rates is based on the Canadian Pensioners' Mortality (CPM) study published by the Canadian Institute of Actuaries in February 2014.

Due to the size of the Plan, specific data on plan mortality experience is insufficient to determine the mortality rates. The CPM mortality rates from the public sector have been adjusted after considering plan-specific characteristics, such as the type of employment, the industry experience, the pension and employment income for the plan members, and data in the CPM study.

There is broad consensus among actuaries and other longevity experts that mortality improvement will continue in the future, but the degree of future mortality improvement is uncertain. Two mortality improvement scales were recently published by the Canadian Institute of Actuaries (CIA) and may apply to Canadian pension valuations:

- The Canadian Pensioners Mortality (CPM) study published in February 2014 included CPM Improvement Scale B (CPM-B) which is also used for commuted value calculations.
- A report released by the Task Force on Mortality Improvement on September 20, 2017 includes an analysis of the rate of mortality improvement for the Canadian population and provides for mortality improvement scale MI-2017 to be considered for the purpose of reflecting future mortality improvement in Canadian actuarial work, while acknowledging that it might be appropriate to use alternative mortality improvement assumptions to reflect the nature of the work.

The CIA Committee on Pension Plan Financial Reporting published a revised version of the Educational Note on the Selection of Mortality Assumptions for Pension Plan Valuations on December 21, 2017. The Educational Note indicates that given the recent publication of the CPM-B and MI-2017 improvement scales and the similar data sets used in their development, it may be appropriate to use either scale in the absence of credible information to the contrary, such as the publication of a successor scale by the CIA.

For the present valuation, we have continued to use the CPM-B scale, which is a reasonable outlook for future mortality improvement.

Based on the assumption used, the life expectancy of a member age 65 at the valuation date is 22.0 years for males and 23.8 years for females.

### **Interest on Employee Contributions**

The assumption is based on Plan terms and the underlying investment return assumption.

## Appendix D

# Methods and Assumptions – Hypothetical Wind-Up and Solvency

### Hypothetical Wind-up Basis

The Canadian Institute of Actuaries requires actuaries to report the financial position of a pension plan on the assumption that the plan is wound up on the effective date of the valuation, with benefits determined on the assumption that the pension plan has neither a surplus nor a deficit.

To determine the actuarial liability on the hypothetical wind-up basis, we have valued those benefits that would have been paid had the Plan been wound up on the valuation date, with all members fully vested in their accrued benefits.

The Standards of Practice of the Canadian Institute of Actuaries require that the scenario upon which the hypothetical wind-up valuation is based be postulated. However, there are no benefits under the Plan contingent upon the circumstances of the plan wind-up or contingent upon other factors. Therefore, it was not necessary to postulate a scenario upon which the hypothetical wind-up valuation is made. No benefits payable on plan wind-up were excluded from our calculations. The plan wind-up is assumed to occur in circumstances that maximize the actuarial liability.

Upon plan wind-up, members are given options for the method of settling their benefit entitlements. The options involve either a lump sum transfer or an immediate or deferred pension.

The value of benefits assumed to be settled through a lump sum transfer is based on the assumptions described in Section 3500 – *Pension Commuted Values* of the Canadian Institute of Actuaries' Standards of Practice applicable for January 1, 2020.

Benefits provided as an immediate or deferred pension are assumed to be settled through the purchase of annuities based on an estimate of the cost of purchasing annuities.

The Educational Note provides guidance on estimating the cost of annuity purchases assuming a typical group of annuitants. That is, no adjustments for sub- or super-standard mortality are considered. However, it is expected that insurers will consider plan experience and certain plan-specific characteristics when determining the mortality basis for a particular group. The Educational Note states that the actuary would be expected to

make an adjustment to the regular annuity purchase assumptions where there is demonstrated substandard or super-standard mortality or where an insurer might be expected to assume so. In such cases, the actuary would be expected to make an adjustment to the mortality assumption in a manner consistent with the underlying annuity purchase basis. Given the uncertainty surrounding the actual mortality basis that would be typical of a group annuity purchase, it is reasonable to assume that there is a range of bases that can be expected not to be materially different from the actual mortality basis. Therefore, an adjustment to the regular annuity purchase assumptions would be warranted when the plan's assumed basis falls outside that range.

In this context, we have determined that no adjustment to the mortality rates used in the regular annuity purchase assumptions is required.

We have not included a margin for adverse deviations in the solvency and hypothetical wind-up valuations.

The assumptions are as follows:

<b>Form of Benefit Settlement Elected by Member</b>	
Lump sum:	70% of active and deferred vested members under age 55, and 50% of active and deferred vested members over age 55, elect to receive their benefit entitlement in a lump sum
Annuity purchase:	All remaining members are assumed to elect to receive their benefit entitlement in the form of a deferred or immediate pension. These benefits are assumed to be settled through the purchase of deferred or immediate annuities from a life insurance company.
<b>Basis for Benefits Assumed to be Settled through a Lump Sum</b>	
Mortality rates:	100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) with fully generational improvements using CPM Scale B blending 50% male mortality and 50% female mortality
Interest rate:	2.50% per year for 10 years, 2.60% per year thereafter
<b>Basis for Benefits Assumed to be Settled through the Purchase of an Annuity</b>	
Mortality rates:	100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) with fully generational improvements using CPM Scale B
Adjustment to mortality rates:	No adjustment
Interest rate:	2.96% per year, based on a duration of 11.07 years determined for the liabilities assumed to be settled through the purchase of an annuity

<b>Retirement Age</b>	
Maximum value:	Members are assumed to retire at the age that maximizes the value of their entitlement from the Plan, based on the eligibility requirements that have been met at the valuation date
Grow-in:	The benefit entitlement and assumed retirement age of Ontario members whose age plus service equals at least 55 at the valuation date reflect their entitlement to grow into early retirement subsidies
<b>Other Assumptions</b>	
Special payments:	Discounted at the average interest rate of 2.83% per year
Final average earnings:	Based on actual pensionable earnings over the averaging period
Family composition:	Same as for going concern valuation
Maximum pension limit:	\$3,092.22
Termination expenses:	\$180,000

To determine the hypothetical wind-up position of the Plan, a provision has been made for estimated termination expenses payable from the Plan's assets in respect of actuarial and administration expenses that may reasonably be expected to be incurred in terminating the Plan and to be charged to the Plan.

In addition, termination expenses also include a provision for transaction fees related to the liquidation of the Plan's assets and for expenses that may reasonably be expected to be paid by the pension fund under the postulated scenario between the wind-up date and the settlement date. It was assumed for this purpose that the termination process would extend over a two-year period. Because the settlement of all benefits on wind-up is assumed to occur on the valuation date and is assumed to be uncontested, the provision for termination expenses does not include custodial, investment management, auditing, consulting, and legal expenses that would be incurred between the wind-up date and the settlement date or due to the terms of a wind-up being contested.

Expenses associated with the distribution of any surplus assets that might arise on an actual wind-up are also not included in the estimated termination expense provisions.

In determining the provision for termination expenses payable from the Plan's assets, we have assumed that the plan sponsor would be solvent on the wind-up date. We have also assumed, without analysis, that the Plan's terms as well as applicable legislation and court decisions would permit the relevant expenses to be paid from the Plan.

Although the termination expense assumption is a best estimate, actual fees incurred on an actual plan wind-up may differ materially from the estimates disclosed in this report.

## **Incremental Cost**

In order to determine the incremental cost, we estimate the hypothetical wind-up liabilities at the next valuation date. We have assumed that the cost of settling benefits by way of a lump sum or purchasing annuities remains consistent with the assumptions described above. Since the projected hypothetical wind-up liabilities will depend on the membership in the Plan at the next valuation date, we must make assumptions about how the Plan membership will evolve over the period until the next valuation.

We have assumed that the Plan membership will evolve in a manner consistent with the going concern assumptions as follows:

- Members terminate, retire, and die consistent with the termination, retirement, and mortality rates used for the going concern valuation.
- Pensionable earnings, the Income Tax Act pension limit, and the Year's Maximum Pensionable Earnings increase in accordance with the related going concern assumptions.
- Active members accrue pensionable service in accordance with the terms of the Plan.
- Cost of living adjustments are consistent with the inflation assumption used for the going concern valuation.

## **Solvency Basis**

In determining the financial position of the Plan on the solvency basis, we have used the same assumptions and methodology as were used for determining the financial position of the Plan on the hypothetical wind-up basis.

The solvency position is determined in accordance with the requirements of the Act.

## Appendix E

# Membership Data

### Analysis of Membership Data

The actuarial valuation is based on membership data as at January 1, 2020, provided by the University.

We have applied tests for internal consistency, as well as for consistency with the data used for the previous valuation. These tests were applied to membership reconciliation, basic information (date of birth, date of hire, date of membership, gender, etc.), pensionable earnings, credited service, contributions accumulated with interest, and pensions to retirees and other members entitled to a deferred pension. Contributions, lump sum payments, and pensions to retirees were compared with corresponding amounts reported in financial statements. The results of these tests were satisfactory.

If the data supplied are not sufficient and reliable for its intended purpose, the results of our calculation may differ significantly from the results that would be obtained with such data. Although Mercer has reviewed the suitability of the data for its intended use in accordance with accepted actuarial practice in Canada, Mercer has not verified or audited any of the data or information provided.

Plan membership data are summarized below. For comparison, we have also summarized corresponding data from the previous valuation.

	01.01.2020	01.07.2019
<b>Active Members</b>		
Number	141	145
Total pensionable earnings	\$6,913,116	\$7,137,650
Average pensionable earnings	\$49,029	\$49,225
Average years of credited service	18.9	18.6
Average age	56.2	55.8

<b>Suspended Members<sup>11</sup></b>		
Number	3	4
Total pensionable earnings	\$134,954	\$172,043
Average pensionable earnings	\$44,985	\$43,011
Average years of credited service	6.3	8.4
Average age	50.6	49.2
<b>Deferred Pensioners<sup>12</sup></b>		
Number	54	51
Total annual pension	\$136,978	\$122,293
Average annual pension	\$2,537	\$2,398
Average age	55.7	55.4
<b>Pensioners and Survivors</b>		
Number	292	292
Total annual pension	\$2,803,790	\$2,775,504
Average annual pension	\$9,602	\$9,505
Average age	74.8	74.7

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<sup>11</sup> Refers to members that have moved to salaried positions at McMaster but retain frozen pensions in the Plan.

<sup>12</sup> In addition to the deferred pensioners included here, there are 3 former members entitled to a refund of excess contributions with interest only. The cumulative amount of the excess contributions is \$629 at January 1, 2020.

The membership movement for all categories of membership since the previous actuarial valuation is as follows:

	<b>Actives</b>	<b>Suspended Members</b>	<b>Deferred Pensioners</b>	<b>Pensioners and Survivors</b>	<b>Total</b>
<b>Total at 01.07.2019</b>	<b>145</b>	<b>4</b>	<b>51</b>	<b>292</b>	<b>492</b>
Terminations:					
• transfers/refunds					0
• pending termination					0
• deferred pensions		(1)	1		0
Suspended					0
Deaths				(6)	(6)
Retirements	(4)			4	0
Beneficiaries				2	2
Data Corrections			2		2
Rehire					0
<b>Total at 01.01.2020</b>	<b>141</b>	<b>3</b>	<b>54</b>	<b>292</b>	<b>490</b>

The distribution of the active member headcount and average pensionable earnings by age and pensionable service cohort as at the valuation date is summarized as follows:

Age	Years of Pensionable Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30 +	
Under 30								
30 to 34			1					1
			*					*
35 to 39		2		2				4
		38,508		54,276				46,392
40 to 44			1	2				3
			*	57,229				52,519
45 to 49		1	5	5	2	1		14
		*	64,405	48,730	47,148	*		52,697
50 to 54	1	2	7	12	3	4	1	30
	*	38,508	52,846	45,853	51,531	51,594	*	48,200
55 to 59		3	8	21	1	6	7	46
		38,508	54,790	43,872	*	44,953	51,144	46,569
60 to 64		6	1	9	3	7	5	31
		38,508	*	47,297	42,591	49,519	68,738	50,362
65 +			1	5	1	1	4	12
			*	54,453	*	*	42,807	49,705
<b>Total</b>	<b>1</b>	<b>14</b>	<b>24</b>	<b>56</b>	<b>10</b>	<b>19</b>	<b>17</b>	<b>141</b>
	<b>*</b>	<b>38,508</b>	<b>57,695</b>	<b>47,074</b>	<b>45,523</b>	<b>49,326</b>	<b>54,251</b>	<b>49,029</b>

\* Not shown to protect member confidentiality.

The distribution of the inactive members headcount and average annual pension by age cohort as at the valuation date is summarized as follows:

Age	Deferred Pensioners		Pensioners and Survivors	
	Number	Average Annual Pension	Number	Average Annual Pension
35 – 39	2	2,973		
40 – 44	3	5,197		
45 – 49	11	3,113		
50 – 54	14	3,197	4	12,238
55 – 59	9	1,748	13	11,540
60 – 64	7	2,050	28	11,732
65 – 69	3	1,111	54	13,333
70 – 74	3	172	57	10,242
75 – 79	2	1,254	48	9,507
80 – 84			36	6,932
85 – 89			27	5,838
90 – 94			21	4,534
95 +			4	3,461
<b>Total</b>	<b>54</b>	<b>2,537</b>	<b>292</b>	<b>9,602</b>

## Appendix F

# Summary of Plan Provisions

Mercer has used and relied on the plan documents, including amendments and interpretations of plan provisions, supplied by the University. If any plan provisions supplied are not accurate and complete, the results of any calculation may differ significantly from the results that would be obtained with accurate and complete information. Moreover, plan documents may be susceptible to different interpretations, each of which could be reasonable, and the results of estimates under each of the different interpretations could vary.

This valuation is based on the plan provisions in effect on January 1, 2020. Since the previous valuation, the Plan has been amended to make certain housekeeping changes to promote clarity. The Plan text was also restated to consolidate previous amendments.

The following is a summary of the main provisions of the Plan in effect on January 1, 2020. This summary is not intended as a complete description of the Plan.

<b>Background</b>	The Plan became effective July 1, 1962. Benefits are based on a set formula and are partially paid for by the University.
<b>Eligibility for Membership</b>	The Plan was completely closed to new entrants on March 15, 2010.

Employee Contributions	Class of Member	Period Beginning	Employee Contribution Rate on Annual Earnings	
			Up to YMPE	In Excess of YMPE
Operations and Maintenance		July 15, 2018	7.00%	10.00%
		November 29, 2020	8.00%	11.00%
Hospitality Services		July 15, 2018	7.00%	10.00%
		April 7, 2019	8.00%	11.00%
Parking and Transit Services		July 15, 2018	7.00%	10.00%
		July 14, 2019	8.00%	11.00%
Machinists and Operating Engineers		July 15, 2018	7.00%	10.00%
		May 14, 2023	8.00%	11.00%
Special Constables		July 15, 2018	7.00%	10.00%
		October 2, 2022	8.00%	11.00%

### Retirement Dates

#### Normal Retirement Date

- The normal retirement date is the first day of the month coincident with or next following the member's 65<sup>th</sup> birthday.

#### Special Early Retirement Date

- A member whose age plus Continuous Service equals or exceeds 80 points may retire early without any reduction for early retirement.

#### Early Retirement Date

- A member may retire early with a reduced pension at any time during the 10-year period preceding the member's normal retirement date. The pension payable will be reduced by 0.25% for each month between age 60 and 65 and 0.50% for each month prior to age.

#### Postponed Retirement Date

- A member may postpone the actual retirement and commencement of pension (with University consent prior to December 12, 2006), but in any event the member's pension shall commence no later than the 1<sup>st</sup> of December of the year of attainment of age 71. The member will continue to make contributions and benefits under the Plan and will continue to accrue benefits until such postponed retirement date.

<b>Normal Retirement Pension</b>	<p>a) Service prior to July 1, 1979, the greater of:</p> <ul style="list-style-type: none"><li>I. 1.0% of 1978 earnings multiplied by years of Plan membership, or</li><li>II. the benefit accrued to June 30, 1979</li></ul> <p style="text-align: center;">PLUS</p> <p>b) Service from July 1, 1979 to December 31, 1985, 40% of member contributions in each year</p> <p style="text-align: center;">PLUS</p> <p>c) One-third of the benefits accrued under (a) and (b) above</p> <p style="text-align: center;">PLUS</p> <p>d) 20% of the benefits accrued under (a), (b) and (c) above</p> <p style="text-align: center;">PLUS</p> <p>e) 8% of the benefits accrued under (a), (b), (c) and (d) above</p> <p style="text-align: center;">PLUS</p> <p>f) 20% of the benefits accrued under (a), (b), (c), (d) and (e) above</p> <p style="text-align: center;">PLUS</p> <p>g) 1.5% of the benefits accrued under (a), (b), (c), (d), (e) and (f) above</p> <p style="text-align: center;">PLUS</p> <p>h) Service after December 31, 1985, 1.4% of Final Five Year Average Earnings up to the Average Year's Maximum Pensionable Earnings and 2.0% of Final Five Year Average Earnings in excess of the Average Year's Maximum Pensionable Earnings multiplied by years of Credited Service earned after December 31, 1985.</p> <p>Average Year's Maximum Pensionable Earnings is calculated using the average YMPE for the final three-year period of a member's participation in the Plan.</p> <p>The amount by which the member's required contributions with interest exceed 50% of the commuted value of the member's benefit shall be paid to the member.</p>
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**Bridge Benefits** A member who retires early on or after July 1, 2001 is eligible to receive a bridge benefit equal to \$12.00 per month per year of credited service accrued to July 1, 2001. Such bridge benefit will be payable commencing on the member's early retirement date or age 60, if later. The bridge benefit ceases at age 65 or death, if earlier. Such bridge will be reduced by 0.25% per month for each month commencement occurs prior to 65. If the member has attained 80 points at the early retirement date, the bridge benefit will be unreduced.

All pensioners who retired prior to July 1, 2001 and who had not yet attained age 65 at July 1, 2001, will receive a bridge benefit of \$12.00 per month per year of credited service accrued to July 1, 1999. The bridge benefit ceases at age 65 or death, if earlier.

**Annual Pension Increase** Pensions in payment are increased from January 1st each year on a pro-rated basis (using the number of months the pensioner has been retired in the twelve months) by the excess over 6% of the 5-year average rate of return earned on the market value of the fund, subject to a maximum of the previous calendar year's rate of increase in the Consumer Price Index.

**Maximum Pension** The total annual pension payable from the Plan upon retirement, death or termination of employment cannot exceed the lesser of:

- 2% of the average of the best three consecutive years of total compensation paid to the member by the University, multiplied by total credited service; and
- \$3,025.56 or such other maximum permitted under the Income Tax Act, multiplied by the member's total credited service.

**Death Benefits** Pre-retirement:

- The death benefit payable is equal to the commuted value of benefits accrued under the Plan.
- The amount by which twice the member's required contributions with interest exceeds the commuted value shall be paid to the member's spouse or if no spouse exists, to the member's designated beneficiary.

Post retirement:

- The normal form of payment is a lifetime pension guaranteed for ten years. However, the member may elect to receive an optional form of pension on an actuarial equivalent basis.

**Disability  
Benefits**

If a member becomes totally and permanently disabled, the member shall continue to accrue benefits on the basis of their earnings in the twelve-month period preceding the onset of disability.

A disabled member shall not be required to contribute to the Plan.

**Termination  
Benefits**

If a member terminates employment prior to retirement, the member may elect to receive one of the following:

- a) A refund of the member's required contributions, with Net Interest on the Fund if the member has not participated in the Plan for at least 2 years.
- b) A transfer of the commuted value of the member's pension.
- c) A deferred pension, payable at Normal Retirement Date, equal to the pension earned to the date of termination.

In addition to the benefit payable above, the amount by which twice the member's required contributions with interest exceeds the commuted value of the member's benefit shall be paid to the member.

With respect to (b) and (c) above, the transfer must be made to another retirement arrangement or pension plan in the form and manner prescribed by the Canada Revenue Agency and the amounts so transferred must be locked-in to provide retirement benefits commencing no earlier than the member's early retirement date under the Plan.

## Appendix G

# Plausible Adverse Scenarios

In this Appendix, the financial impact on the Plan's going concern results (i.e., going concern financial position at the valuation date and current service cost from the valuation date to the next valuation date) of plausible adverse scenarios that would pose threats to the Plan's future financial condition is illustrated for the following risks:

- Interest rate risk, the potential that interest rates will be lower than expected;
- Deterioration of asset values; and
- Longevity risk, the potential that pension plan members will live longer than expected.

The following table summarizes the going concern results, where we assumed for:

- Interest rate risk, an immediate parallel decrease in market interest rates of 100 basis points
- Deterioration of asset values, an immediate decrease of 15% in the market value of non-fixed income assets; and
- Longevity risk, that life expectancy from the valuation date at age 65 for a male and a female would increase by 1.5 years and 1.3 years, respectively.

Scenario	GOING CONCERN VALUATION RESULTS AS AT 01.01.2020	PLAUSIBLE ADVERSE SCENARIO RESULTS AS AT 01.01.2020		
		INTEREST RATE RISK	DETERIORATION OF ASSET VALUES	LONGEVITY RISK
<b>Market value of assets</b>	\$68,265	\$70,570	\$63,036	\$68,265
<b>Going Concern Financial Status</b>				
Smoothed value of assets	\$66,202	\$66,970	\$64,459	\$66,202
Going concern funding target	\$57,202	\$60,218	\$57,202	\$58,934
Provision for Adverse Deviations	\$6,292	\$6,624	\$6,292	\$6,483
Funding excess (shortfall)	\$2,708	\$128	\$965	\$785

Scenario	GOING CONCERN VALUATION RESULTS AS AT 01.01.2020	PLAUSIBLE ADVERSE SCENARIO RESULTS AS AT 01.01.2020		
		INTEREST RATE RISK	DETERIORATION OF ASSET VALUES	LONGEVITY RISK
<b>Estimated University's Current Service Cost including Provision for Adverse Deviations</b>				
January 1, 2020	\$721	\$809	\$721	\$765
January 1, 2021	\$719	\$805	\$719	\$765
January 1, 2022	\$762	\$846	\$762	\$811

The balance of this Appendix provides details of the plausible adverse scenarios selected and the determination of the impact on the going concern results.

## Interest Rate Risk

The purpose of this scenario is to illustrate the sensitivity of the Plan's going concern results to the potential that interest rates will be lower than expected. For this purpose, we have assumed an immediate parallel decrease in market interest rates underlying fixed income investments, where fixed income investments include the following categories as shown in the investment policy summarized in Appendix B.

Using a methodology consistent with the one used to determine the going concern discount rate, we have determined that a parallel decrease in market interest rates of 100 basis points would have a non-trivial probability (between 1 in 10 and 1 in 20) of occurring within the year following the valuation date. For purpose of this scenario, we have assumed that such a decrease in market interest rates would occur immediately on the valuation date and would have the following impact on the value of assets and going concern assumptions:

Defined Term	Description
Market value of assets	The decrease in market interest rates has been assumed to affect only the market value of the fixed income investments. The decrease is assumed to have occurred immediately on the valuation date.

Defined Term	Description
Smoothed value of assets	For purposes of determining the smoothed value of assets, 33% of the change in the market value of asset has been recognized in the smoothed value of assets.
Discount rate assumption	It was assumed that the decrease in market interest rates affects only the expected return on assets for the fixed income portion of assets. The discount rate assumption was therefore decreased from 4.85% to 4.40%.
Other assumptions	Except for the interest rate on member's contributions, all other assumptions used were the same as those used for this valuation. In particular, the discount rate used to value benefits assumed to be settled through a lump sum was not changed.
Provision for Adverse Deviations	The above decrease in market interest rates decreases the Discount Rate, which in turn increases the Provision for Adverse Deviations by \$332,000.

## Deterioration of Asset Values

The purpose of this scenario is to illustrate the sensitivity of the Plan's going concern results to a deterioration of asset values. For this purpose, we assumed an immediate reduction in the market value of the Plan's non-fixed income assets, where non-fixed income investments include the following categories as shown in the investment policy summarized in Appendix B.

Using a methodology consistent with the one used to determine the going concern discount rate, we have determined that a decrease of 15% in the market value of value of non-fixed income assets would have a non-trivial probability (between 1 in 10 and 1 in 20) of occurring within the year following the valuation date. For purpose of this scenario, we have assumed that such a decrease would occur immediately on the valuation date and would have the following impact on the value of assets and going concern assumptions:

Market value of assets	The decrease in the market value of the non-fixed income portion of assets is assumed to have occurred immediately on the valuation date.
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Smoothed value of assets For purposes of determining the smoothed value of assets, 33% of the change in the market value of assets has been recognized in the smoothed value of assets.

Going concern assumptions This scenario is assumed to have no impact on the assumptions used for this valuation.

## Longevity Risk

The purpose of this scenario is to illustrate the sensitivity of the Plan's going concern results to the potential that pension plan members will live longer than expected. For this purpose, we have determined that a plausible adverse scenario would be to assume that future mortality improvements<sup>13</sup> will be in line with the average improvements experienced by the Canadian population over the most recent 15-year period available, with uniform improvement rates for all future years but varying by age<sup>14</sup> and gender.

The table below summarizes the improvement rates under the plausible adverse scenario compared to those currently assumed under the CPM-B scale and is based on Canadian population experience from the Human Mortality Database (HMD) from 2002 to 2016.

Age	Males				Females			
	CPM-B			Adverse Scenario	CPM-B			Adverse Scenario
	2020	2025	2030+		2020	2025	2030+	
20	1.59%	1.20%	0.80%	1.68%	0.98%	0.89%	0.80%	1.47%
30	1.88%	1.34%	0.80%	1.68%	0.98%	0.89%	0.80%	1.47%
40	1.80%	1.30%	0.80%	1.68%	1.17%	0.98%	0.80%	1.47%
50	1.17%	0.98%	0.80%	1.76%	0.98%	0.89%	0.80%	1.34%
55	1.47%	1.13%	0.80%	1.67%	1.11%	0.96%	0.80%	1.14%
60	1.77%	1.28%	0.80%	1.75%	1.24%	1.02%	0.80%	1.34%

<sup>13</sup> i.e. starting one year after the valuation in this context

<sup>14</sup> improvement rates below age 45 are set to those at age 45

Age	Males				Females			
	CPM-B			Adverse Scenario	CPM-B			Adverse Scenario
	2020	2025	2030+		2020	2025	2030+	
65	2.06%	1.43%	0.80%	2.11%	1.36%	1.08%	0.80%	1.65%
70	2.06%	1.43%	0.80%	2.48%	1.36%	1.08%	0.80%	1.77%
75	2.01%	1.41%	0.80%	2.66%	1.36%	1.08%	0.80%	1.93%
80	1.96%	1.38%	0.80%	2.63%	1.36%	1.08%	0.80%	2.03%
85	1.38%	1.03%	0.68%	2.32%	1.31%	0.99%	0.68%	1.98%
90	0.75%	0.62%	0.48%	1.68%	0.75%	0.62%	0.48%	1.60%
95	0.16%	0.25%	0.34%	1.04%	0.16%	0.25%	0.34%	1.12%
100	0.14%	0.22%	0.30%	0.64%	0.14%	0.22%	0.30%	0.80%
105	0.14%	0.22%	0.30%	0.38%	0.14%	0.22%	0.30%	0.55%

# Appendix H

## Employer Certification

With respect to the Report on the Actuarial Valuation for Funding Purposes as at January 1, 2020 of the Contributory Pension Plan for Hourly-Rated Employees of McMaster University including McMaster Divinity College, I hereby certify that, to the best of my knowledge and belief:

- The valuation reflects the terms of the University’s engagement with the actuary described in Section 2 of this report, particularly the requirement to not reflect a margin for adverse deviations in the going concern valuation and the University’s decisions in regards to determining the going concern and solvency funding requirements.
- A copy of the official Plan documents and of all amendments made up to January 1, 2020 was provided to the actuary and is reflected appropriately in the summary of plan provisions contained herein.
- The determination of the fixed income component for purposes of establishing the provision for adverse deviations reflects the Plan’s asset mix.
- The asset information summarized in Appendix B is reflective of the Plan’s assets.
- The membership data provided to the actuary included a complete and accurate description of every person who is entitled to benefits under the terms of the Plan for service up to January 1, 2020.
- All events subsequent to January 1, 2020 that may have an impact on the Plan have been communicated to the actuary.

2020-Sep-22

Original signed by VP Admin

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signed

Roger Couldrey  
Vice-President (Administration)

\_\_\_\_\_  
Name

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