



# THE CORPORATION OF THE CITY OF YORK EMPLOYEE PENSION PLAN REPORT ON THE ACTUARIAL VALUATION FOR FUNDING PURPOSES AS AT DECEMBER 31, 2016 AUGUST 2017

Financial Services Commission of Ontario Registration Number: 0320622  
Canada Revenue Agency Registration Number: 0320622



**Note to reader regarding actuarial valuations:**

This valuation report may not be relied upon for any purpose other than those explicitly noted in the Introduction, nor may it be relied upon by any party other than the parties noted in the Introduction. Mercer is not responsible for the consequences of any other use. A valuation report is a snapshot of a plan's estimated financial condition at a particular point in time; it does not predict a pension plan's future financial condition or its ability to pay benefits in the future. If maintained indefinitely, a plan's total cost will depend on a number of factors, including the amount of benefits the plan pays, the number of people paid benefits, the amount of plan expenses, and the amount earned on any assets invested to pay the benefits. These amounts and other variables are uncertain and unknowable at the valuation date. The content of the report may not be modified, incorporated into or used in other material, sold or otherwise provided, in whole or in part, to any other person or entity, without Mercer's permission. All parts of this report, including any documents incorporated by reference, are integral to understanding and explaining its contents; no part may be taken out of context, used, or relied upon without reference to the report as a whole.

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 key actuarial assumptions, the discount rate. 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 the Pension Benefits Act (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

	<b>31.12.2016</b> <b>(\$000's)</b>	<b>31.12.2013</b> <b>(\$000's)</b>
<b>Asset Values</b>		
Market value of assets	41,753	47,197
Rate of return during the year, market values (net)	8.06%	12.86%
<b>Going-Concern Financial Position</b>		
Actuarial value of assets	41,093	44,774
Actuarial liability	37,725	44,493
Funding excess (deficiency)	3,368	281
<b>Wind-up Financial Position</b>		
Market value of assets (net of termination expenses)	41,678	47,122
Wind-up liability	40,920	46,696
Wind-up excess/(deficiency)	758	426
Transfer Ratio	102%	101%
<b>Solvency Financial Position</b>		
Solvency assets	41,678	47,122
Asset smoothing adjustment	(1,783)	(3,340)
Smoothed assets	39,895	43,782
Solvency liability	40,920	46,696
Solvency liability adjustment	(909)	15
Adjusted solvency liability	40,011	46,711
Solvency excess (shortfall)	(116)	(2,929)
<b>Plan Membership</b>		
	<b>31.12.2016</b>	<b>31.12.2015</b>
§ Active	0	0
§ Suspended or disabled	0	0
§ Retired members in receipt of pensions	95	123
§ Surviving spouses in receipt of pensions	82	84
Total membership	177	207

<b>Funding Requirements based on this report (annualized)</b>	<b>2017</b>	<b>2014</b>
Minimum Employer contribution (per PBA, Reg. 5.1(e))	\$116,000	\$1,036,692
Maximum Employer contribution (per ITA, Reg. 8516(3))	\$116,000	\$1,036,692
Maximum Employer contribution (per CRA, Q&A) **	\$0	\$0
Next valuation date, not later than	31.12.2019	31.12.2016

<b>Schedule of Employer Contributions based on this report</b>	<b>2017</b>	<b>2018*</b>	<b>2019*</b>
Current Service Cost	\$0	\$0	\$0
Unfunded Liability	0	0	0
Solvency Deficiency***	\$0	\$0	\$0
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

\* Subject to change if a valuation is prepared as at December 31, 2017

\*\* RPP consultation session – Questions from industry November 22, 2000 Q&A, question 1.

\*\*\* Since there is no going-concern or windup deficiency, no contributions are permitted as per the CRA Q&A.

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## Introduction

### To York Employees' Pension and Benefits Committee

At the request of the York Employees' Pension and Benefits Committee ("the Committee"), we have conducted an actuarial valuation of The Corporation of the City of York Employee Pension Plan (the "Plan"), sponsored by the City of Toronto (the "Employer"), as at the valuation date, December 31, 2016. 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 December 31, 2016 on going concern, hypothetical wind-up, and solvency bases;
- The minimum required funding contributions from January 1, 2017, in accordance with the *Pension Benefits Act* (the "Act"); and
- The maximum permissible funding contributions from January 1, 2017, in accordance with the *Income Tax Act* ("ITA").

The information contained in this report was prepared for the internal use of the Pension Committee and the Employer, and for filing with the Financial Services Commission of Ontario ("FSCO") and with the Canada Revenue Agency, in connection with our actuarial valuation of the Plan. This report will be filed with the FSCO and with the CRA. 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 December 31, 2019, or as at the date of an earlier amendment to the Plan.

### Terms of Engagement

In accordance with our terms of engagement with the Committee, 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 Committee, we have reflected a margin for adverse deviations in our going concern valuation, through the use of a conservative mortality table. More information concerning the mortality assumption is found in Appendix C.

- We have reflected the Committee’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 four year smoothed basis.

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

## Events since the Last Valuation at December 31, 2013

### ***Pension Plan***

A Post Retirement Adjustment of 0.12% effective July 1, 2016 was granted. There have been no other special events since the last valuation date.

This valuation reflects the provisions of the Plan as at December 31, 2016. The Plan has not been amended since the date of the previous valuation, and 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:	4.60%	5.50%

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 which impact the funding of the Plan.

### ***Subsequent Events***

It has been discovered that, in respect of members who retired since January 1, 1987, the 50% rule refund of excess contributions amount, if any, may not have been processed. The issue is under investigation and a resolution has not yet been reached. At this time, the impact of the above, if any, is not known and cannot as yet be quantified, however it is not expected to be material.

After checking with representatives of the Employer, to the best of our knowledge there have been no events subsequent to the valuation date which, in our opinion, would have a material

impact on the results of the valuation. 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 aware of any partial plan wind-up having been declared in respect of the Plan where the Monsanto decision may apply. In preparing this actuarial valuation, we have therefore assumed that all the Plan's assets are available to cover the Plan's liabilities presented in this report.

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## Valuation Results – Going Concern

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

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:

	31.12.2016 (\$000s)	31.12.2013 (\$000s)
<b>Assets</b>		
Market value of assets	41,753	47,197
Asset smoothing adjustment	(660)	(2,423)
Smoothed value of assets	41,093	44,774
<b>Going concern funding target</b>		
• Retired members' pensions	27,551	35,119
• Spouses and other survivor pensions	10,174	9,374
• Post retirement adjustment reserve	0	0
Total	37,725	44,493
Funding excess (shortfall)	3,368	281

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

Funding excess (shortfall) as at 31.12.2013		281
Interest on funding excess (funding shortfall) at 5.50% per year		49
Employer's special payments, with interest		196
Expected funding excess (funding shortfall)		526
Net experience gains (losses)		
• Net Investment return	4,000	
• Mortality	1,076	
Total experience gains (losses)	5,076	5,076
Change in assumptions		(2,188)
Data corrections		(214)
Net impact of other elements of gains and losses		168
Funding excess (shortfall) as at 31.12.2016		3,368

## Discount Rate Sensitivity

The following table summarizes the effect on the going concern funding target shown in this report of using a discount rate which is 1% lower than that used in the valuation.

Scenario	Valuation Basis (\$000s)	Reduce Discount Rate by 1% (\$000s)
Going concern funding target	37,725	40,213

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## Valuation Results – Hypothetical Wind-up

### Financial Position (\$000s)

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 producing the maximum wind-up liabilities on the valuation date. However, to the extent permitted by law, the actuary may disregard:

- Benefits that would not be payable under the hypothesized scenario.
- Plan member earnings after the valuation date.

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

	31.12.2016 (\$000s)	31.12.2013 (\$000s)
<b>Assets</b>		
Market value of assets	41,753	47,197
Termination expense provision	(75)	(75)
Wind-up assets	41,678	47,122
<b>Present value of accrued benefits for:</b>		
• Retired members’ pensions	29,903	36,900
• Surviving spouse pensions	11,017	9,796
Total wind-up liability	40,920	46,696
Wind-up excess (shortfall)	758	426

### Wind-up Incremental Cost to December 31, 2019

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 is \$0. There are no active members accruing benefits and no changes are expected to future pensioner benefits except for increases to be provided based on the Post Retirement Adjustment (“PRA”) as described in Appendix G. Assuming future investment returns of 4.60% until December 31, 2019 and assuming 50% of investment gains are realized gains, we expect the 3 year cumulative PRA to be 0%.

## Discount Rate Sensitivity

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

<b>Scenario</b>	<b>Valuation Basis</b>	<b>Reduce Discount Rate by 1%</b>
Total hypothetical wind-up liability	40,920	43,822

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## 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.
<p>Certain benefits can be excluded from the solvency financial position. These include:</p> <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.
The solvency financial position can be determined by smoothing assets and the solvency discount rate over a period of up to 5 years.	Solvency assets and liabilities were smoothed over 4 years.
The benefit rate increases coming into effect after the valuation date can be reflected in the solvency valuation.	Not applicable.

## Financial Position (000's)

The financial position on a solvency basis, compared with the corresponding figures from the previous valuation, is as follows:

	31.12.2016 (\$000s)	31.12.2013 (\$000s)
<b>Assets</b>		
Market value of assets	41,753	47,197
Termination expense provision	(75)	(75)
Net assets	41,678	47,122
<b>Liabilities</b>		
Total hypothetical wind-up liabilities	40,920	46,696
Difference in circumstances of assumed wind-up	0	0
Value of excluded benefits	0	(0)
Liabilities on a solvency basis	40,920	46,696
Surplus (shortfall) on a market value basis	758	426
Liability smoothing adjustment	909	(15)
Asset smoothing adjustment	(1,783) <sup>1</sup>	(3,340) <sup>2</sup>
Surplus (shortfall) on a solvency basis	(116)	(2,929)
Transfer ratio	102%	101%

<sup>1</sup> Averaging method adjustment = 75% of investment gains from 2016 (\$1,288,000), plus 50% of investment gains from 2015 (\$6,000), plus 25% of investment gains from 2014 (\$489,000).

<sup>2</sup> Averaging method adjustment = 75% of investment gains from 2013, (\$2,898,000), plus 50% of investment gains from 2012, (\$860,000), less 25% of investment losses from 2011 (\$418,000).

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## Minimum Funding Requirements

The Act prescribes the minimum contributions that City of Toronto 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 and special payments to fund any going concern or solvency shortfalls.

On the basis of the assumptions and methods described in this report, the rule for determining the minimum required employer monthly contributions under the Act (before considering Income Tax Act restrictions), as well as an estimate of the employer contributions, from the valuation date until the next required valuation are as follows:

Period beginning	Employer's contribution rule			Estimated employer's contributions	
	Monthly current service cost	Explicit monthly expense allowance	Minimum monthly special payments	Monthly current service cost including expense allowance	Minimum monthly contributions
January 1, 2017	0	0	\$41,089 <sup>3</sup>	0	\$41,089 <sup>3</sup>
January 1, 2018	0	0	\$0	0	\$0
January 1, 2019	0	0	\$0	0	\$0

As discussed in Section 7, the Canada Revenue Agency does not permit contributions to be made when the Plan is fully funded on a going-concern and windup basis as per the "Questions from Industry November 22, 2000 Q&A, question 1". **Consequently, based on this report, no contributions are to be made to the Plan.**

The development of the minimum special payments is summarized in Appendix A.

### 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 solvency shortfalls, if any.

<sup>3</sup> Two full payments (January and February 2017) and one payment of the residual solvency deficit (March 2017).

<sup>3</sup> Two full payments (January and February 2017) and one payment of the residual solvency deficit (March 2017).

### ***Timing of Contributions***

Funding contributions are due on a monthly basis. Special payment contributions must be made in the month to which they apply.

### ***Retroactive Contributions***

The Employer 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.

### ***Letters of Credit***

Minimum funding requirements in respect of solvency deficiencies 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.

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## 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. However, notwithstanding the limit imposed by the ITA, for plans which are not 'Designated' as defined in the ITA, in general, the minimum required contributions under the Act can be remitted.

In accordance with Section 147.2 of the ITA and *Income Tax Regulation 8516*, for a plan which is underfunded on either a going concern or on a hypothetical wind-up basis, the maximum permitted contributions are equal to the employer'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 which is fully funded on both going concern and hypothetical wind-up bases, the employer can remit a contribution equal to the employer'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 which 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.

Contributions that are required to be made in accordance with pension benefits legislation are generally considered eligible contributions in accordance with Section 147.2 of the ITA and can be remitted. However, based on the November 22, 2000 Q&A, the CRA does not permit past service contributions in excess of the wind-up and going-concern deficit.

## Schedule of Maximum Contributions

The Employer is permitted to fully fund the greater of the going concern and hypothetical wind-up shortfalls; which are nil, as well as make current service cost contributions, which are nil. Therefore the total maximum contributions to the Plan are nil.

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## 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 (Ontario)*.



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**Armando Fernandes**

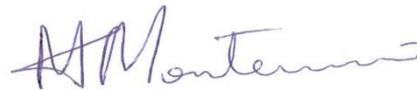
Fellow of the Society of Actuaries

Fellow of the Canadian Institute of Actuaries

August 31, 2017

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Date



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**Manuel Monteiro**

Fellow of the Society of Actuaries

Fellow of the Canadian Institute of Actuaries

August 31, 2017

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Date

# APPENDIX A

## Prescribed Disclosure

### Definitions

The Act defines a number of terms as follows:

Defined Term	Description	Result
Transfer Ratio	The ratio of: (a) Solvency Assets minus the lesser of the Prior Year Credit Balance and the minimum required employer contributions 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.	1.02
Prior Year Credit Balance	Accumulated excess of contributions made to the pension plan in excess of the minimum required contributions (note: only applies if the Employer 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.	\$41,753,000
Solvency Asset Adjustment	The sum of: (a) the difference between smoothed value of assets and the market value of assets (b) the present value of going concern special payments (including those identified in this report) within 5 years following the valuation date. (c) the present value of any previously scheduled solvency special payments (excluding those identified in this report)	(\$1,783,000) \$0 \$116,000
		<u>(\$1,667,000)</u>

Defined Term	Description	Result																
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 employer's business were discontinued on the valuation date of the report, but, if elected by the plan sponsor, excluding liabilities for, <ul style="list-style-type: none"> <li>(a) any escalated adjustment,</li> <li>(b) excluded plant closure benefits,</li> <li>(c) excluded 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>	\$40,920,000																
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.	(\$909,000)																
Solvency Deficiency	The amount, if any, by which the sum of: <ul style="list-style-type: none"> <li>(a) the Solvency Liabilities</li> <li>(b) the Solvency Liability Adjustment</li> <li>(c) the Prior Year Credit Balance</li> </ul> Exceeds the sum of <ul style="list-style-type: none"> <li>(d) the Solvency Assets net of estimated termination expenses<sup>4</sup></li> <li>(e) the Solvency Asset Adjustment</li> </ul>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="text-align: right;">\$40,920,000</td> </tr> <tr> <td></td> <td style="text-align: right;">(\$909,000)</td> </tr> <tr> <td></td> <td style="text-align: right;">\$0</td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">\$40,011,000</td> </tr> <tr> <td></td> <td style="text-align: right;">\$41,678,000</td> </tr> <tr> <td></td> <td style="text-align: right;">(\$1,667,000)</td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">\$40,011,000</td> </tr> <tr> <td></td> <td style="text-align: right;">\$0</td> </tr> </table>		\$40,920,000		(\$909,000)		\$0		\$40,011,000		\$41,678,000		(\$1,667,000)		\$40,011,000		\$0
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### 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%.

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

<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.

Accordingly, the next valuation of the Plan will be required as at a date not later than December 31, 2019 or as at the date of an earlier amendment to the Plan, in accordance with the minimum requirements of the Act.

## Special Payments

Based on the results of this valuation, the Plan is not fully funded on a solvency basis. In accordance with the Act, any going concern deficits must be amortized over a period not exceeding 15 years, beginning on a date not later than 12 months after December 31, 2016, and any solvency deficits must be amortized over a period not exceeding 5 years, also beginning on a date not later than 12 months after December 31, 2016.

As such, the special payments determined in accordance with the Act (but prior to consideration of tax restrictions) are as follows:

Type of payment	Start date	End date	Monthly Special Payment	Present Value	
				Going Concern Basis <sup>5</sup>	Solvency Basis <sup>6</sup>
Solvency	01.01.2014	31.03.2017	41,089 <sup>7</sup>		116,000
Total			41,089		116,000

The Plan does not have a going concern deficiency at December 31, 2016, therefore no going concern special payments are required.

The present value of the previously scheduled solvency payments exceeds the solvency shortfall. In accordance with the Act, the excess can be used to reduce the period of any solvency special payment schedule. Therefore, we have reduced the period of the solvency special payment schedule established at January 1, 2014. The solvency special payment schedule now ends at March 31, 2017 rather than at December 31, 2018.

## Pension Benefit Guarantee Fund (PBGF) Assessment

In accordance with subsection 47(1) (p.18) of the Regulations under the Pension Benefits Act (Ontario), the pension benefits provided by this Plan are not guaranteed by the Pension Benefits Guarantee Fund (PBGF) and are therefore exempt from the filing of PBGF assessment certificate (subsection 18(7) of the regulations) and payment of an annual PBGF assessment (section 37 of the Regulations).

<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 (five years only) and is based on the average solvency discount rate.

<sup>7</sup> Two full payments (January and February 2017) and one payment of the residual solvency deficit (March 2017).

## APPENDIX B

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### Plan Assets

As at December 31, 2016, the pension fund is held by CIBC Mellon.

In preparing this report, we have relied upon the assets as at December 31, 2016 without further audit including the information reported in the following statements:

- CIBC Mellon statements (\$41,274,323)
- CIBC Business Operating Account Statement provided by the City of Toronto (\$478,661)

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.

The going-concern assets are recorded at an "Actuarial Value" which is determined as follows:

- (1) The market value of total assets at the previous year-end is accumulated, together with the current year's cash flow, with interest at the valuation rate used in previous valuations; and
- (2) The difference between the accumulation in (1) and the market value of total assets at the valuation date is spread over the current year and the three succeeding years in four equal amounts.

The value determined in accordance with the above method is **\$41,093,000** as at December 31, 2016.

The effect of the foregoing is shown below (in \$000s).

<b>Assets of the Pension Fund</b>	<b>Market Value</b>	<b>Actuarial Value</b>
I. Cash and Equivalents		
§ Cash and short-term investments	479	479
II. External Management		
Short-term investments	1,308	1,308
Bonds	16,876	16,876
Canadian equities	9,758	9,758
Foreign equities	13,332	13,332
Subtotal	41,274	41,274
III. Smoothing Adjustment	0	(660)
<b>Total</b>	<b>41,753</b>	<b>41,093</b>
Net amount in-transit	0	0
<b>Total Fund</b>	<b>41,753</b>	<b>41,093</b>

The currently unrecognized elements of the market value of assets will be taken into account in future years in the following amounts (\$000s).

2017	25% of 2014 gain	363	
	25% of 2015 loss	(189)	
	25% of 2016 gain	225	399
2018	25% of 2015 loss	(189)	
	25% of 2016 gain	225	36
2019	25% of 2016 gain	225	225
<b>Total</b>			<b>660</b>

Under this adopted asset valuation method, the Plan's investment rate of return (net of investment expenses) was equal to 8.97% in 2016, 9.27% in 2015, and 8.17% in 2014.

## Reconciliation of Plan Assets

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

	Market Value (\$000s)	Actuarial Value (\$000s)
<b>Value at 31.12.2013</b>	47,197	44,774
PLUS		
Employer's contributions	181	181
Investment income and gains (losses)	4,171	3,634
LESS		
Pensions for Members	3,755	3,755
Pensions for Widows & Others	1,246	1,246
Administration and investment fees	250	250
<b>Value at 31.12.2014</b>	46,298	43,338
PLUS		
Employer's contributions	0	0
Investment income and gains (losses)	1,945	3,956
LESS		
Pensions for Members	3,486	3,486
Pensions for Widows & Others	1,318	1,318
Administration and investment fees	288	288
<b>Value at 31.12.2015</b>	43,151	42,202
PLUS		
Employer's contributions	0	0
Investment income and gains (losses)	3,447	3,736
LESS		
Pensions for Members	3,166	3,166
Pensions for Widows & Others	1,379	1,379
Administration and investment fees	300	300
<b>Value at 31.12.2016</b>	41,753	41,093

We have tested the pensions paid for consistency with the membership data for the Plan members. The results of these tests were satisfactory.

## Investment Policy

The plan administrator has adopted a statement of investment policy and procedures in 2016. 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.

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 December 31, 2016
	Minimum	Target	Maximum	
Canadian Equities	15%	20%	25%	23.4%
Foreign Equities	25%	30%	35%	31.9%
Canadian Universe Bonds	20%	25%	30%	19.9%
Canadian Long Bonds	20%	25%	30%	20.5%
Cash and cash equivalents	0%	0%	10%	4.3%
		100%		100.0%

Because of the mismatch between the Plan's assets (which are invested in accordance with the above investment policy) and 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 Employer contributes to the Plan based on the funding requirements presented in this report.

### ***Historical Fund Performance***

Annual rates of return, net of investment expenses, for the last 18 years are provided below on both a market value and actuarial value bases.

	Year-end Market Value	Market Value Rate of Return	Year-end Actuarial Value	Actuarial Value Rate of Return
2016	\$41,753,000	8.06%	\$41,093,000	8.97%
2015	\$43,151,000	4.06%	\$42,202,000	9.27%
2014	\$46,298,000	8.93%	\$43,338,000	8.17%
2013	\$47,197,000	12.86%	\$44,774,000	7.71%
2012	\$46,028,000	8.34%	\$45,870,000	7.41%
2011	\$46,429,000	1.36%	\$46,665,000	2.25%
2010	\$50,012,000	8.39%	\$49,828,000	2.11%
2009	\$50,543,000	11.40%	\$53,327,000	2.16%
2008	\$48,040,000	-9.90%	\$54,984,000	2.85%
2007	\$57,156,000	2.12%	\$57,046,000	7.57%
2006	\$58,764,000	9.33%	\$55,755,000	9.46%
2005	\$56,236,000	10.61%	\$53,424,000	4.78%
2004	\$53,087,000	8.93%	\$53,292,000	0.42%
2003	\$51,524,000	11.27%	\$55,969,000	0.61%
2002	\$46,557,000	-8.38%	\$55,899,000	0.10%
2001	\$57,408,000	-5.64%	\$62,147,000	4.60%
2000	\$67,243,000	8.12%	\$65,496,000	7.65%
1999	\$68,313,000	9.22%	\$66,974,000	7.18%

### ***Historical Updates to Pensions In-Payment***

Annual post retirement adjustments (PRA) for the last 21 years, applicable to pensions that have been in payment for at least one year on the effective date, are provided below.

<b>Effective Date</b>	<b>Maximum PRA Update*</b>	<b>PRA Update limited to CPI Increase**</b>
July 1, 1996	1.16%	1.16%
July 1, 1997	2.91%	1.58%
July 1, 1998	3.59%	1.62%
July 1, 1999	4.41%	0.99%
July 1, 2000	4.79%	1.73%
July 1, 2001	4.01%	2.73%
July 1, 2002	0.00%	0.00%
July 1, 2003	0.00%	0.00%
July 1, 2004	0.00%	0.00%
July 1, 2005	0.00%	0.00%
July 1, 2006	0.00%	0.00%
July 1, 2007	0.00%	0.00%
July 1, 2008	0.00%	0.00%
July 1, 2009	0.00%	0.00%
July 1, 2010	0.00%	0.00%
July 1, 2011	0.00%	0.00%
July 1, 2012	0.00%	0.00%
July 1, 2013	0.00%	0.00%
July 1, 2014	0.00%	0.00%
July 1, 2015	0.00%	0.00%
July 1, 2016***	0.12%	0.12%

\* The maximum PRA updates indicated are the maximum pension increases determined under the excess yield method.

\*\*For some pensioners, the granted increase may have been limited to the cumulative change in CPI since the last adjustment.

\*\*\* The increase granted on July 1, 2016 was determined using the method that had been in place prior to the 2016 discussions with FSCO.

## APPENDIX C

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### Methods and Assumptions – Going Concern

#### **Valuation of Assets**

For this valuation, we have used an adjusted market-value method to determine the smoothed value of assets. This method is described in Appendix B.

#### **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 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. 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 must be amortized over no more than 15 years through special payments. 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. Since all Plan members are retired and in receipt of a pension, there are no further benefit accruals and therefore no current service cost.

## 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.

<b>Assumption</b>	<b>Current valuation</b>	<b>Previous valuation</b>
Discount rate:	4.60%	5.50%
Explicit expenses:	\$0	\$0
Post-retirement pension increases (used for valuing the post retirement adjustment reserve):	Expected PRA based on 4.60% investment return	Expected PRA based on 5.50% investment return
Retirement rates:	All members are retired	All members are retired
Mortality rates:	100% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)	100% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)
Mortality improvements:	Fully generational using CPM Improvement Scale B (CPM-B)	Fully generational using CPM Improvement Scale B (CPM-B)
Eligible spouse at retirement:	Based on actual data	Based on actual data
Allowance for Remarriage:	0.25% of pensioner liability	0.25% of pensioner liability

The assumptions are best-estimate with the exception that the mortality rates include a margin for adverse deviations.

## Rationale for Assumptions

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

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### Discount Rate

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We have discounted the expected benefit payment cash flows using the expected investment return on the market value of the fund. 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.

The discount rate is comprised of the following:

- Estimated returns for each major asset class consistent with market conditions on the valuation date and the target asset mix specified in the Plan's investment policy.
- Additional returns assumed to be achievable due to active equity management (net of related expenses). *We have assumed no additional return due to active equity management.*
- Implicit provision for passive investment expenses based on passive index funds available in the Canadian market for plans of this size. *We have determined an implicit investment management fee to be 0.10%.*
- Implicit provision for expenses determined as the average rate of administrative expenses paid from the fund over the last several years. *On this basis, we have determined an implicit expense provision of 0.15%.*
- No margin for adverse deviations is included in the discount rate. The committee has chosen to include the margin for adverse deviations in the mortality assumption.

The discount rate was developed as follows:

Assumed investment return	4.85%
Additional returns for active management	0.00%
Investment expense provision	(0.10%)
Implicit non-investment expense provision	(0.15%)
Margin for adverse deviation	(0.00%)
Net discount rate	<u>4.60%</u>

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### Post-Retirement Pension Increases

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The assumption is based on the Plan formula and a projection of assets and liabilities using the discount rate.

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### **Mortality Rates**

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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.

There has been no experience study on the plan's mortality experience. However, we are aware of an experience study prepared on a similar municipal employee group which had significantly more membership data than available in this Plan. The experience study produced mortality rates of 120% of the rates of the CPM 2014 Public Sector mortality table. We consider this table to be the best estimate mortality assumption for the Plan since we believe that the types of employment and industry are very similar.

However, the Committee has decided to use the CPM Public mortality rates without adjustment. The use of the 100% CPM 2014 table rather than an adjusted table forms the basis for the margin of adverse deviations chosen by the Committee.

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. The mortality improvement scale published in the CPM study represents one reasonable outlook for future improvement. We have used the CPM mortality improvement scale B without adjustment.

Based on the assumption used, the life expectancy of a member age 65 at the valuation date is 22.8 years for males and 24.7 years for females.

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### **Eligible Spouse**

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Actual status used for retirees.

The survivor benefit assumption is based on actual data provided and an allowance for remarriage of 0.25% of the pensioner liability.

Subject to the entitlement of the prior spouse, if any, the 3-year waiting period specified in the Plan and the requirements under the *Pension Benefits Act (Ontario)*, a spouse acquired after retirement date may be entitled to receive the spousal pension. Based on remarriage rates for older adults in Canada, it was estimated that the additional liability as a result of this provision is approximately 0.25% of the pensioner liability.

## APPENDIX D

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### 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. For the purposes of the hypothetical wind-up valuation, the plan wind-up is assumed to occur in circumstances that maximize the actuarial liability.

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, including benefits that would be immediately payable if the employer's business were discontinued on the valuation date, with all members fully vested in their accrued benefits.

Upon plan wind-up, members are given options for the method of settling their benefit entitlements. The options vary by eligibility and by province of employment, but in general, 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 December 31, 2016.

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.

We have estimated the cost of settlement through purchase of annuities in accordance with the *Canadian Institute of Actuaries Educational Note: Assumptions for Hypothetical Wind-up and Solvency Valuations with Effective Dates Between December 31, 2016 and December 30, 2017 (the "Educational Note")*.

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 an adjustment to the mortality rates used in the regular annuity purchase assumptions is appropriate.

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

## Assumptions

The assumptions for determination of the hypothetical wind-up and solvency liability are as follows:

### Actuarial Assumptions – Windup and Solvency Liability

Mortality rates:	100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) table with fully generational improvements using scale CPM-B
Adjustment to mortality rates:	Above mortality rates increased by 5% to reflect substandard mortality
Interest rate for benefits to be settled through annuity purchase:	2.91% per year
Allowance for re-marriage:	0.25% of pensioner liability
Post retirement cost-of-living increases	0.00%

Assumptions for determination of the solvency liability adjustment are as follows:

### Actuarial Assumptions – Solvency Liability Adjustment

Mortality rates:	100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) table with fully generational improvements using scale CPM-B
Adjustment to mortality rates:	Above mortality rates increased by 5% to reflect substandard mortality
Interest rate for benefits to be settled through annuity purchase:	3.25% per year
Allowance for re-marriage:	0.25% of pensioner liability
Post retirement cost-of-living increases	0.00%

We have used an average of the annuity proxy rates as at December 31, 2013 (4.41% per year), December 31, 2014 (3.00%), December 31, 2015 (2.63%) and December 31, 2016 (2.91%) which produces a rate of 3.25% per year (rounded to the nearest 1/8%). We have adjusted the interest rates prior to this valuation such that the annuity cost is the same at those dates, but the mortality basis being consistent with the assumptions noted above.

Other assumptions are as follows;

**Other Assumptions**

Special payments:	Discounted at the average smoothed interest rate of 3.25% per year
Termination expenses:	\$75,000 (i.e. greater of: \$75,000 and \$250 per pensioner/survivor)

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.

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.

Actual fees incurred on an actual plan wind-up may differ materially from the estimates disclosed in this report.

**Incremental Cost**

There are no active members accruing benefits and no changes are expected to future pensioner benefits except for increases to be provided based on the PRA. For the purposes of projecting the PRA to estimate the incremental cost, we have assumed future investment returns of 4.60% until December 31, 2019 (of which 50% of the returns are realized returns) and mortality experience in accordance with the going-concern assumptions.

**Solvency Basis**

The value of assets used for determining the financial position of the Plan on the solvency basis includes the solvency assets plus a solvency asset adjustment.

The solvency assets are determined as the market value of investments held by the Plan plus any cash balances of the Plan and accrued or receivable income items.

The solvency asset adjustment is determined as (1) the present value at the interest rate used to calculate the solvency liability adjustment of the special payments required to eliminate any going-concern unfunded liability and pre-existing solvency deficiency that are scheduled for

payment within 5 years of the valuation date, plus (2) the amount, positive or negative, by which the value of the solvency assets are adjusted as a result of applying an averaging method that stabilizes short-term fluctuations of the Plan assets.

The value of the liabilities used for determining the financial position of the Plan on the solvency basis includes the solvency liabilities plus a solvency liability adjustment.

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

The solvency liability adjustment is determined as the amount, positive or negative, by which the value of the solvency liabilities are adjusted as a result of using a solvency valuation interest rate that is the average of the market interest rates calculated over a period of 4 years (the same period used for the averaging method used to determine the solvency asset adjustment).

The difference between (1) the sum of the solvency assets and solvency asset adjustment and (2) the sum of the solvency liability and solvency liability adjustment is called the solvency excess or solvency deficiency, as the case may be.

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 October 31, 2016, provided by the City of Toronto.

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, gender, etc.), and pension amounts. 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.

	31.12.2016	31.12.2013
<b>Pensioners</b>		
Number	95	123
Total annual lifetime pension	\$3,157,862	\$3,940,328
Total annual temporary pension	\$0	\$0
Average annual lifetime pension	\$33,241	\$32,035
Average age	82.6	81.0
<b>Spousal Pensioners</b>		
Number	82	84
Total annual lifetime pension	\$1,373,019	\$1,261,290
Total annual temporary pension	\$0	\$0
Average annual lifetime pension	\$16,744	\$15,015
Average age	85.0	84.0

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

	Actives	Pensioners	Survivors	Total
<b>Total at 31.12.2013</b>	<b>0</b>	<b>123</b>	<b>84</b>	<b>207</b>
New entrants				
Deaths				
• Without beneficiaries		(6)	(7)	(13)
• With beneficiaries		(3)	3	
<b>Total at 31.12.2014</b>	<b>0</b>	<b>114</b>	<b>80</b>	<b>194</b>
New entrants				
Deaths				
• Without beneficiaries		(1)	(2)	(3)
• With beneficiaries		(8)	8	
<b>Total at 31.12.2015</b>	<b>0</b>	<b>105</b>	<b>86</b>	<b>191</b>
New entrants				
Deaths				
• Without beneficiaries		(6)	(8)	(14)
• With beneficiaries		(4)	4	
<b>Total at 31.12.2016</b>	<b>0</b>	<b>95</b>	<b>82</b>	<b>177</b>

The distribution of the inactive members by age as at the valuation date is summarized as follows:

Age	Pensioners		Surviving Spouses	
	Number	Average Annual Pension	Number	Average Annual Pension
Under 65			1	*
65 – 69			1	*
70 – 74	9	27,868	5	25,399
75 – 79	26	40,486	15	21,275
80 – 84	30	38,125	17	16,931
85 – 89	21	26,658	21	16,571
90 – 94	8	*	16	13,868
Over 95	1	*	6	5,310
<b>Total</b>	<b>95</b>	<b>\$33,241</b>	<b>82</b>	<b>\$16,744</b>
Males	85	\$35,283	4	\$10,895
Females	10	\$15,878	78	\$17,044

\* Suppressed for confidentiality.

## APPENDIX F

### Summary of By-law Provisions

This valuation is based on the plan provisions in effect on December 31, 2016. Since the previous valuation, the Plan has not been amended.

The following is a summary of the main provisions of the Plan, contained in By-law no. 3001999, which are relevant to the actuarial valuation. For complete details reference should be made to the formal Plan document. This summary is not intended as a complete description of the Plan.

<b>Background</b>	The Plan became effective January 1, 1955. Benefits are based on a set formula and are entirely paid for by the Employer.
<b>Eligibility for Membership</b>	Employees hired before July 1, 1968.
<b>Employee Contributions</b>	<i>Firefighters:</i> 4.4% of Salary up to YMPE, and 6.5% of Salary over YMPE.  <i>All Others:</i> 3.9% of Salary up to YMPE, and 6.0% of Salary over YMPE.  Since all active members had completed 35 years of pensionable service as at December 31, 2003, there are no further contribution requirements after this date.
<b>Employer Contributions</b>	Such amounts as certified by the Actuary in the actuarial valuation reports.
<b>Retirement Dates</b>	Normal Retirement Date <ul style="list-style-type: none"> <li>• Age 60 for firefighters; age 65 for others.</li> </ul>
<b>Disability Retirement</b>	Permitted, with unreduced accrued pension, <ul style="list-style-type: none"> <li>(a) after 10 years, if disability is total and permanent, or</li> <li>(b) after 20 years, if the employee is incapable of continuing in the employer's service.</li> </ul>
<b>Normal Retirement Pension</b>	2% of employee's best consecutive 5-year average earnings MULTIPLIED BY The employee's number of years of service up to a maximum of 35 years MINUS (after 65 or total disability) 0.7% of final 3 year average YMPE MULTIPLIED BY number of years of service after 1.1.66, up to a maximum of 35 years. For years of service after 1990, Revenue Canada restricted pensions to a flat dollar amount per year of service. For 2006, (the year that the last member retired), this amount was 2,111.11.
<b>Pensionable Earnings</b>	Base pay.
<b>Early Retirement Pension</b>	<ul style="list-style-type: none"> <li>• Unreduced pensions upon completion of 30 years of service and attainment of age 55 (age 50 for firefighters).</li> <li>• Otherwise the pension will be actuarially reduced.</li> </ul>
<b>Maximum Pension</b>	All pensions are subject to the maximum limitations imposed by the Municipal Act and the Income Tax Act.

<b>Pre-Retirement Death benefits</b>	The pre-retirement death benefit is equal to five times the annual pension accrued to date of death, less any benefit payments made prior to death, less any benefit payments made prior to date of death. In addition, commencing 5 years after the date of death an eligible widow or widower will receive 50% of the annual pension accrued to date of death, and if there are any surviving children this benefit will be increased by 10% of the accrued pension for each eligible child up to a maximum benefit of 75% of the accrued pension. If there is no surviving widow or widower the 50% benefit will be divided equally among the eligible surviving children. Dependent children's benefits cease on attainment of age 21.
<b>Form of Retirement Pension</b>	The normal form of pension benefit for a member who is not married at retirement is a lifetime pension, guaranteed for 5 years and for a married member is a joint and survivor 60% pension, guaranteed for 5 years. Effective as at January 1, 2002, survivor benefits are provided on post-retirement marriage, after the spouse has completed a 3-year period of marriage or co-habitation in a conjugal relationship.
<b>Withdrawal Benefits</b>	Vested pension, or return of terminated member's pre-1987 contributions plus interest plus the commuted value of the member's post-1986 accrued pension.
<b>Employer Cost-Sharing</b>	Upon termination, death or retirement, the member or his beneficiary is entitled to receive the excess, if any, of the member's post-1986 contributions plus interest over 50% of the commuted value of the pension earned over the same period.
<b>Post-Retirement Adjustments</b>	Each July 1, the monthly income of members in receipt of pensions, survivors in receipt of pensions and terminated vested members entitled to a deferred pension shall be increased, as determined annually by the actuary and subject to Canada Revenue Agency limitations, by a factor calculated as the sum of the inactive lives excess yields calculated for each of the 4 previous calendar years divided by 4. The inactive lives excess yield means the earnings of the pension fund that are in excess of that needed to match the inactive liabilities.

## APPENDIX G

### Post Retirement Adjustments

#### Post Retirement Adjustments at July 1, 2017

The Post Retirement Adjustment (PRA) at July 1, 2017 is based on the average of the Inactive Lives Excess Yields calculated for each of the previous 4 calendar years (i.e. 2013, 2014, 2015, and 2016).

The calculation on the following page indicates that no increase is to be granted to pension benefits as at July 1, 2017.

#### Calculation of PRA at July 1, 2017

The calculation of the PRA as at July 1, 2017 on pensions in payment at December 31, 2016 is as follows:

	2016	2015	2014	2013
MV of assets at Dec. 31	41,753,000	43,151,000	46,298,000	47,197,000
Inactive liability at Dec. 31 based on Jan. 1 benefits	37,725,000	39,650,000	41,155,000	44,493,000
<b>Inactive Lives Reserve</b>				
OILR at Jan. 1	39,650,000	41,155,000	44,493,000	44,508,000
CILR at Dec. 31	37,725,000	39,650,000	41,155,000	44,493,000
<b>Inactive Lives Fund</b>				
OILF at Jan. 1	39,650,000	41,155,000	44,493,000	44,508,000
OILF as % of total fund	92%	89%	94%	97%
Total income and appreciation	3,447,000	1,945,000	4,171,000	5,803,000
Unrealized gains/(losses)	301,000	(1,224,000)	(104,000)	2,268,000
Realized gains/(losses)	3,146,000	3,169,000	4,275,000	3,535,000
Pro-rated realized gains/losses	2,894,000	2,821,000	4,019,000	3,429,000
Pensions paid in year	(4,545,000)	(4,804,000)	(5,001,000)	(5,265,000)
Expenses paid in year	(300,000)	(288,000)	(250,000)	(242,000)
CILF at Dec. 31	37,699,000	38,884,000	43,261,000	42,430,000
<b>Inactive Lives Excess Yield (CILF-CILR)/CILR</b>				
	-0.07%	-1.93%	5.12%	-4.64%
<b>4-Year Average Excess Yield</b>				
	-0.38%			
<b>PRA Adjustment for 2017</b>				
	0.00%			

## Definition of Terms and Current Interpretation

The method for calculating the PRA in this report and the interpretations of the Plan terms shown below were provided by FSCO based on their interpretation of the Plan. This interpretation was presented to the Committee at the December 1, 2016 meeting and confirmed by FSCO in their letter dated December 1, 2016. For the remainder of this section, this interpretation will be referred to as the current interpretation.

**Inactive Lives Excess Yield** (s2.27), means “the earnings of the Fund that are in excess of that needed to match the liabilities established for pensioners, survivors and deferred members. This percentage is calculated annually by the formula:

$$100\% \times (\text{CILF} - \text{CILR})/\text{CILR} \text{ “}$$

**Opening Inactive Lives Reserve (OILR)** (s2.34), means “the liability of the Fund, as determined by the Actuary, with regard to pensioners, deferred members eligible for pensions and survivors in receipt of pension benefits as of each January 1.”

*The current interpretation is the OILR is equal to the going concern inactive liabilities as of each January 1 (i.e. as of December 31 of the previous year).*

**Opening Inactive Lives Fund (OILF)** (s2.33), means “the amount of the Fund set aside to match the OILR. This amount, as determined by the Actuary, will always equal the OILR for the same calendar year.”

*The current interpretation is the OILF is always equal to the OILR.*

**Closing Inactive Lives Reserve (CILR)** (s2.12), means “the liability of the Fund, as determined by the Actuary, with regard to pensioners, deferred members eligible for pensions and survivors in receipt of pension benefits as of each December 31. The reserve shall be calculated using the amounts of pension and recipients utilized in determining the OILR for the same calendar year.”

*The current interpretation is the CILR is equal to the inactive going-concern liabilities as of each December 31, but excluding the liability for any amendments during the year which affected the pension benefits of the inactive members and excluding liability for new retirements.*

**Closing Inactive Lives Fund (CILF)** (s2.11), means “the amount, as determined by the Actuary, of the OILF at the end of the calendar year. This figure is calculated by adjusting the OILF for the investment income, recognized capital gains and losses and expenses on a pro rata basis with the entire Fund, and assuming that all benefits paid to recipients valued in that year’s OILR are paid from the OILF.”

*The current interpretation is the above calculation of the CILF to include interest, dividend income and realized capital gains and losses. In particular the current interpretation does not include unrealized capital gains and losses in the calculation. The pro rata percentage is equal to the ratio of OILF to total Fund at January 1, up to a maximum of 100%. The contributions made to the Fund in a calendar year are not included in the CILF for that year.*

## APPENDIX H

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### York Employees' Pension and Benefits Committee Certification

With respect to the Report on the Actuarial Valuation for Funding Purposes as at December 31, 2016, of the Corporation of the City of York Employee Pension Plan, I hereby certify that, to the best of my knowledge and belief:

- The valuation reflects the terms of the Committee's engagement with the actuary described in Section 2 of this report, particularly the requirement to include a margin for adverse deviations in the mortality rates used to perform the going concern valuation and the Committee's decisions in regards to determining the going-concern and solvency funding requirements.
- The valuation reflects the interpretation of the Post Retirement Adjustment provisions by the Financial Services Commission of Ontario as described in Appendix G.
- A copy of the official plan documents and of all amendments made up to December 31, 2016 was provided to the actuary and is reflected appropriately in the summary of plan provisions contained herein.
- 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 October 31, 2016.
- All events subsequent to December 31, 2016 that may have an impact on the Plan have been communicated to the actuary.

JULY 19, 2017  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Signed

MIKE WISEMAN  
\_\_\_\_\_  
Name  
DIRECTOR, PENSION, PAYROLL  
& EMPLOYEE BENEFITS





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