Municipal Employees' Pension Plan Actuarial Valuation as at December 31, 2015

Management Valuation

May 6, 2016

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Executive Summary

An actuarial valuation has been prepared for the Municipal Employees' Pension Plan (the "Plan") as at December 31, 2015 to meet the requirements of a Funding Policy adopted by the Municipal Employees' Pension Commission (the “Commission”) to provide a framework for the sound financial management of the Plan and to assist the Commission in its decision-making process, its development of recommendations to the Minister of Finance and its communication with stakeholders. This section provides an overview of the important results and the key valuation assumptions which have had a bearing on these results. The next actuarial valuation for the purposes of developing funding requirements should be performed no later than as at December 31, 2017.

Summary of Principal Results

Defined Benefit Portion

	December 31, 2015		December 31, 2014	
	Management	**Solvency**	**Management**	**Solvency**
Assets	$ 1,936,122,000	$ 2,102,267,000	$ 1,779,119,000	$ 1,969,520,000
Liabilities & Reserves	1,808,943,000	2,470,970,000	1,657,233,000	2,275,494,000
Surplus/(Deficit)	**$ 127,179,000**	**$ (368,703,000)**	**$ 121,886,000**	**$ (305,974,000)**
Funded Ratio	107.0%	85.1%	107.4%	86.6%

Overall Results – Defined Benefit Portion plus Annuities

	December 31, 2015		December 31, 2014	
	Management	**Solvency**	**Management**	**Solvency**
Assets	$ 1,956,203,000	$ 2,121,984,000	$ 1,800,408,000	$ 1,990,426,000
Liabilities & Reserves	1,826,185,000	2,493,513,000	1,675,482,000	2,298,557,000
Surplus/(Deficit)	**$ 130,018,000**	**$ (371,529,000)**	**$ 124,926,000**	**$ (308,131,000)**
Funded Ratio	107.1%	85.1%	107.5%	86.6%

Current Service Cost

The current service cost as a percentage of salary and as dollar amounts with effect for the first plan year following December 31, 2015, along with the previous year's current service cost from the December 31, 2014 management valuation, are as follows:

	December 31, 2015	December 31, 2014
Total current service cost	$ 91,864,000	$ 85,366,000
Expected member contributions	47,370,000	45,308,000
Expected employer contributions	47,370,000	45,308,000
Excess contributions / (Funding deficiency)	2,876,000	5,250,000
Total estimated payroll	**$ 571,840,000**	**$ 547,221,000**

	% of payroll	% of payroll
Total current service cost	16.1%	15.6%
Expected member contributions	8.3%	8.3%
Expected employer contributions	8.3%	8.3%
Excess contributions / (Funding deficiency)	0.5%	1.0%

Key Assumptions

The principal assumptions to which the valuation results are most sensitive are outlined in the following table.

	December 31, 2015		December 31, 2014	
	Going Concern	**Solvency**	**Going Concern**	**Solvency**
Discount rate	6.00%	Annuity purchases: 3.10% Transfers: 2.10% for 10 years, 3.70% thereafter	6.20%	Annuity purchases: 2.70% Transfers: 2.50% for 10 years, 3.80% thereafter
Inflation rate	2.25%	n/a	2.50%	n/a
Pensionable earnings	3.00%	n/a	3.50%	n/a
Mortality table	Males: 115% of CPM Private Females: 100% of CPM Private	CPM Combined	Males: 115% of CPM Private Females: 100% of CPM Private	UP94 with generational projection
Retirement rates – General Members	• 10% if eligible to retire but less than 80 points, 20% with 80 points, remainder at age 65 • 12.5% elect lump sum transfer	n/a	10% if eligible to retire but less than 80 points, 20% with 80 points, remainder at age 65	n/a
Retirement rates – Emergency Members	• 100% at earliest unreduced date • 50% elect lump sum transfer	n/a	100% at earliest unreduced date	n/a

Respectfully submitted,

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May 6, 2016

Section 1: Introduction

Purpose and Terms of Engagement

We have been engaged by the Public Employees Benefits Agency and the Municipal Employees' Pension Commission, and hereafter collectively referred to as the “Commission”, to conduct a management valuation of the Plan as at December 31, 2015 in accordance with the Plan’s funding policy, based on the actuarial assumptions and methods summarized herein. More specifically, the purposes of the management valuation are to:

- Determine the financial position of the Plan on a best estimate going concern basis as at December 31, 2015;
- Determine the financial position of the Plan on a solvency basis as at December 31, 2015; and
- Determine the best estimate funding requirements of the Plan as at December 31, 2015.

The results of this report may not be appropriate for accounting or regulatory filing purposes or any other purposes not listed above.

While we have been engaged by the Commission to conduct this actuarial valuation, we note that the users of our work may well extend to parties external to the Commission. Out of respect for the Commission’s confidentiality, however, we shall not undertake to communicate the terms of our engagement or results of our work with such other users unless so directed by the Commission.

An actuarial valuation as at December 31, 2014 was filed with the regulatory authorities. The next required valuation for regulatory filing purposes will be as at December 31, 2017.

Summary of Changes Since the Last Valuation

The last such management valuation in respect of the Plan was performed as at December 31, 2014. Since the time of the last management valuation, we note that the following best estimate assumptions have changed:

- The discount rate has changed from 6.20% to 6.00%;
- The interest rate credited to employee contributions has changed from 3.50% to 2.25%;
- The inflation rate has changed from 2.50% to 2.25%;
- The salary, YMPE and maximum pension increase assumptions have changed from 3.50% to 3.00%;
- The discount rate for lump sum transfers has changed from 3.4% to 3.5%;
- The retirement assumption has changed to assume that 50% of emergency members and 12.5% of general members will take a lump sum transfer at retirement;
- The mortality table for lump sum transfers was changed from the CPM Private mortality table (with male rates increased by 15%) to the CPM Combined mortality table (unadjusted);

- The assumption for the proportion of female members who are married at retirement has changed from 70% to 80%; and
- The assumed age difference between males and females has changed from 4 years to 3 years.

Information and Inputs

In order to prepare our valuation, we have relied upon the following information:

- Membership data compiled as at December 31, 2015 by the Public Employees Benefits Agency (PEBA);
- Asset data taken from the Plan's audited financial statements; and
- A copy of the act and regulations governing the Plan.

Furthermore, the actuarial assumptions and methods have been chosen to reflect our understanding of the Commission's desired funding objectives with due respect to accepted actuarial practice in Canada and the Plan's funding policy.

Subsequent Events

As of the date of this report, we have not been made aware of any subsequent events which would have an effect on the results of this valuation. However, the following points should be noted in this regard:

- Actual experience deviating from expected after December 31, 2015 will result in gains or losses which will be reflected in the next actuarial valuation report; and
- To the best of our knowledge, the results contained in this report are based on the regulatory and legal environment in effect at the date of this report and do not take into consideration any potential changes that may be currently under review. To the extent that actual changes in the regulatory and legal environment transpire, any financial impact on the Plan as a result of such changes will be reflected in future valuations.

Section 2: Management Valuation Results

Financial Position of the Plan under Management Valuation

The management valuation provides an assessment of the Plan's financial position at the valuation date on the premise that the Plan continues on into the future indefinitely.

The selection of the best estimate actuarial assumptions and methods used for the management valuation reflect the Plan's funding objectives, as communicated by the Commission, actuarial standards of practice, and pension standards.

On the basis of the funding policy, plan provisions, membership data, best estimate assumptions and methods, and asset information described in the Appendices, the financial position of the Plan under the management valuation as at December 31, 2015 is shown in the following table. The results as at December 31, 2014 are also shown for comparison purposes.

Financial Position under Management Valuation

	December 31, 2015	December 31, 2014
Market Value of Assets	$ 2,109,755,000	$ 1,976,799,000
Asset smoothing adjustment	(173,633,000)	(197,680,000)
Actuarial Value of Assets	**$ 1,936,122,000**	**$ 1,779,119,000**
Going Concern Liabilities		
Active General members	$ 913,198,000	$ 853,748,000
Active Emergency	79,538,000	63,106,000
Disabled members	14,431,000	14,528,000
Retired members	617,542,000	559,560,000
Survivors	46,053,000	42,261,000
Deferred members	53,661,000	51,290,000
Pending terminations	56,559,000	49,970,000
Pending payouts	4,512,000	3,756,000
Transfer deficiency holdbacks	13,029,000	9,475,000
Former plan and AVC	189,000	186,000
Total Liabilities	**$ 1,798,712,000**	**$ 1,647,880,000**
Reserves		
Liability reserve (future disabled accruals)	$ 10,231,000	$ 9,353,000
Total Liabilities and Reserves	**$ 1,808,943,000**	**$ 1,657,233,000**
Surplus/(Unfunded Liability)	**$ 127,179,000**	**$ 121,886,000**
Management funded ratio	**107.0%**	**107.4%**

Change in Financial Position

During the period from December 31, 2014 to December 31, 2015, the management financial position of the Plan changed from a surplus of $121,886,000 to a surplus of $127,179,000. The major components of this change are summarized in the following table.

Reconciliation of the Financial Position under Management Valuation
For the Period from December 31, 2014 to December 31, 2015

Surplus/(Unfunded Liability) as at December 31, 2014	**$**	**121,886,000**
Expected interest on surplus (unfunded liability)		7,557,000
Expected Surplus/(Unfunded Liability) as at December 31, 2015	**$**	**129,443,000**
Change in liabilities due to experience gains/(losses)		
Gain due to actuarial return on assets greater than expected		57,105,000
Gain due to contributions greater than current service cost		4,427,000
Gain due to salary increases less than expected		2,187,000
Gain on disability experience		460,000
Gain due to interest on contributions less than expected		130,000
Loss on pensioner mortality experience		(4,289,000)
Loss on retirement experience		(2,812,000)
Loss on termination experience		(818,000)
Surplus/(Unfunded Liability) as at December 31, 2015	**$**	**185,833,000**
Change in mortality assumption for lump sum transfers		(1,039,000)
Change in interest rate for lump sum transfers		1,041,000
Change in salary, YMPE and maximum pension limit assumption		25,746,000
Change in proportion married and spousal age assumptions		741,000
Change in retirement assumptions		(45,889,000)
Change in discount rate assumption		(41,267,000)
Change in interest on employee contributions		2,013,000
Surplus/(Unfunded Liability) as at December 31, 2015	**$**	**127,179,000**

Going Concern Valuation Sensitivity Results

In accordance with the Canadian Institute of Actuaries Standards of Practice specific to pension plans, the table below presents the sensitivity of the going concern liabilities and the total normal cost of using a discount rate 1% lower than that used for the going concern valuation.

	Valuation Basis December 31, 2015	Based on Rate of 1% Lower	Effect $	Effect %
Management liabilities	$ 1,808,943,000	$ 2,069,940,000	$ 260,997,000	14.4%
Current service cost	$ 91,864,000	$ 109,903,000	$ 18,039,000	19.6%

Note that using a discount rate 1% higher than that assumed would result in a comparable reduction in the Plan's liabilities and current service cost.

Discount Rate Analysis

The determination of the valuation discount rate involves the analysis of 1,000 scenarios of future asset returns for every asset class in which the Plan is invested. It is understood in the actuarial community that there is a range of assumptions that could be considered to be best estimate, and this range can include results that fall between the 40th and 60th percentile of all analyzed scenarios.

Note that a discount rate at the 60th percentile implies that of the 1,000 scenarios, 600 produced a 30-year return that was below the given discount rate (i.e. 60% chance that the actual 30-year return will be less than the discount rate and 40% chance that the actual 30-year return will be greater than the discount rate). A discount rate chosen at the 60th percentile would be on the aggressive end of the Best Estimate Range, while a discount rate chosen at the 40th percentile would be on the conservative end. The discount rate of 6.0% chosen for this valuation is at the 55th percentile.

To illustrate this, the table below provides the various discount rates that could be considered within this range.

Nominal Discount Rate	Real Discount Rate	Percentile
6.20%	3.95%	60th
6.00%	3.75%	55th
5.85%	3.60%	50th
5.65%	3.40%	45th
5.45%	3.20%	40th

Alternate Assumption Analysis

The following table outlines the impact of using alternate assumptions for discount rate, inflation rate and the lump sum assumption for retirement. Each scenario is independent of the others.

Management Results	Liabilities ($000s)	Funded Status ($000s)	Funded Ratio (%)	Current Service Cost (%)
Base Results	$ 1,808,943	$ 127,179	107.0%	16.1%
6.20% Discount Rate[1]	$ 1,767,676	$ 168,446	109.5%	15.6%
5.45% Discount Rate[2]	$ 1,931,982	$ 4,140	100.2%	17.5%
2.00% Inflation	$ 1,848,538	$ 87,584	104.7%	16.4%
Remove retirement lump sum assumption for all members after three years[3]	$ 1,790,305	$ 145,817	108.1%	15.8%
Remove retirement lump sum assumption for members not eligible to retire in three years[3]	$ 1,804,765	$ 131,357	107.3%	15.9%
1 year increase in life expectancy	$ 1,829,748	$ 106,374	105.8%	16.2%

[1] A discount rate of 6.20% represents the 60th percentile of the distribution of discount rates, which implies that the plan is expected to earn at least this rate of return over 30 years 40% of the time.
[2] A discount rate of 5.45% represents the 40th percentile of the distribution of discount rates, which implies that the plan is expected to earn at least this rate of return over 30 years 60% of the time
[3] Also includes a reduction in the lump sum discount rate from 3.5% to 3.0% to reflect short-term interest rate expectations.

Section 3: Solvency Valuation Results

Solvency Financial Position of the Plan

The solvency valuation is a financial assessment of the Plan that is required by the Plan's funding policy and is performed in accordance with requirements prescribed by *The Pension Benefits Act, 1992* (Saskatchewan) (the "Act"). It is intended to provide an assessment of the Plan's financial position at the valuation date on the premise that certain obligations as prescribed by the Act are settled on the valuation date for all members.

On the basis of the plan provisions, membership data, solvency assumptions and methods and asset information described in the Appendices, as well as the requirements of the Act, the solvency financial position of the Plan as at December 31, 2015 is shown in the following table. The solvency financial position of the Plan as at December 31, 2014 is shown for comparison purposes.

Solvency Financial Position

	December 31, 2015	December 31, 2014
Assets		
Solvency assets	$ 2,109,755,000	$ 1,976,799,000
Estimated wind up expenses	(7,488,000)	(7,279,000)
Total Assets	**$ 2,102,267,000**	**$ 1,969,520,000**
Solvency Liabilities		
Active general members	$ 1,249,785,000	$ 1,169,126,000
Active emergency members	91,901,000	80,441,000
Disabled members	18,439,000	19,184,000
Retired members	843,712,000	768,050,000
Survivors	58,437,000	52,247,000
Deferred members	91,766,000	86,443,000
Pending terminations	99,200,000	86,586,000
Pending payouts	4,512,000	3,756,000
Transfer deficiency holdbacks	13,029,000	9,475,000
Former plan and AVC	189,000	186,000
Total Liabilities	**$ 2,470,970,000**	**$ 2,275,494,000**
Solvency Surplus/(Deficiency)	**$ (368,703,000)**	**$ (305,974,000)**
Solvency Ratio	**85.1%**	**86.6%**

Solvency Ratio

The solvency ratio is the lesser of 1.0 or the ratio of the solvency assets (excluding wind-up expenses and present value of special payments) to the solvency liabilities (including wind-up expenses). If the solvency ratio is less than 1.0, certain conditions and restrictions, as prescribed by the Act, must be applied to the transfer of the commuted value of benefits from the Plan. Essentially, a transfer equal to the solvency ratio times the total commuted value can be made. The residual amount cannot be transferred out until either:

(a) a special payment (over the amounts being paid in to the Plan to amortize the solvency deficiency) in the amount of the residual has been made to the Plan;

(b) a subsequent valuation of the Plan discloses a solvency ratio of 1.0; or

(c) five years have elapsed.

If the residual amount is less than 5% of the YMPE ($54,900 x 5% = $2,745.00 for 2016) and the total of all such residual amounts is less than 5% of the market value of assets, then the above restrictions do not apply.

The solvency ratio is determined as follows:

	$
Market value of assets, less wind-up expenses	2,102,267,000
Solvency liabilities	2,470,970,000
Ratio	0.851

Since the ratio of the solvency assets to the solvency liabilities is less than 1.0 as at December 31, 2015, the above restrictions on transfers would apply if the valuation were to be filed with the regulatory authorities.

Solvency Valuation Sensitivity Results

In accordance with the Canadian Institute of Actuaries Standards of Practice specific to pension plans, the table below presents the sensitivity of the solvency liabilities to using a discount rate of 1% lower than that used for the solvency valuation.

	Valuation Basis December 31, 2015	**Based on Rate of 1% Lower**	**Effect $**	**Effect %**
Solvency liabilities	$ 2,470,970,000	$ 2,901,091,000	$ 430,121,000	17.4%

Note that using a discount rate 1% higher than that assumed would result in a comparable reduction in the solvency liabilities.

Incremental Cost on a Solvency Basis

The incremental cost on a solvency basis represents the present value at December 31, 2015 of the expected aggregate change in the solvency liabilities between December 31, 2015 and the next calculation date, which is December 31, 2016. Appendix E gives more details on the calculation methodology and on assumptions.

Based on this methodology and on these assumptions, the incremental cost on a solvency basis, for the period from December 31, 2015 to December 31, 2016, is $127.5 million.

Note that the incremental cost does not form part of the contribution requirements of the Plan.

Section 4: Contribution Requirements

Contribution Requirements in Respect of the Normal Cost

The annual going concern cost of benefits in respect of service accruing after the valuation date is known as the normal cost. The following table sets out:

- The development of the rule to determine the normal cost until the next actuarial funding recommendation is certified;
- An estimate of the normal cost for the year following the valuation date; and
- The portion of the current service cost that is to be paid by the members.

	General Members	Emergency Members	Total
Current Service Cost			
Total current service cost	$ 85,867,000	$ 5,997,000	$ 91,864,000
Expected member contributions	44,559,000	2,811,000	47,370,000
Expected employer contributions	44,559,000	2,811,000	47,370,000
Excess contributions / (Funding deficiency)	$ 3,251,000	$ (375,000)	$ 2,876,000
Total pensionable earnings	$ 547,075,000	$ 24,765,000	$ 571,840,000
	% of payroll	**% of payroll**	**% of payroll**
Total current service cost	15.7%	24.2%	16.1%
Expected member contributions	8.15%	11.35%	8.3%
Expected employer contributions	8.15%	11.35%	8.3%
Excess contributions / (Funding deficiency)	0.6%	(1.5%)	0.5%

Contribution Requirements from Funding Policy

The funding policy for the Plan provides a minimum funding target equal to the sum of the following:

1. 100% of the current service cost; plus
2. Special payments sufficient to amortize any shortfall of the actuarial value of assets relative to 110% of the best estimate liabilities of the Plan.

The table on the following page details the calculation of this requirement.

	10% Margin	8.4% Margin[4]
Actuarial value of assets	1,936,122,000	1,936,122,000
Best Estimate Liabilities plus Margin	1,989,837,000	1,960,894,000
Shortfall in assets	53,715,000	24,772,000
Amortization of shortfall (as a % of payroll)	1.1%	0.5%
100% of Best Estimate current service cost	16.1%	16.1%
Total funding requirements per Funding Policy	17.2%	16.6%
Actual total contribution rate	16.6%	16.6%
Excess/(Shortfall) in current contributions	**(0.6%)**	**0.0%**

[4] This margin level was chosen such that the shortfall in the current contributions would equal 0.0%.

Appendix A: Glossary of Terms

- The **actuarial value of assets** is the asset value used for going concern valuation purposes. In this valuation report, smoothing methods are used to smooth investment gains and losses over a certain period.

- The **estimated wind up expenses** is an estimate of the administrative and other expenses expected to be charged against the pension fund if the Plan were to terminate on the valuation date.

- The **management liabilities** are the actuarial present value of benefits earned in respect of service prior to the valuation date. The management liabilities are calculated using the best estimate going concern assumptions and methods summarized in Appendix D of this report.

- The **management financial position** is the difference between the actuarial value of assets and the management liabilities.

- **Solvency assets** are the market value of pension fund assets adjusted to reflect contributions, benefit payments, transfers and fees/expenses in-transit at the valuation date plus the present value of 5 years of future special payments to be contributed to the Plan to amortize unfunded liabilities and solvency deficiencies of the Plan.

- The **solvency liabilities** are the actuarial present value of benefits earned in respect of service prior to the valuation date determined as if the Plan were wound up on the valuation date. The solvency liabilities are calculated using the solvency valuation assumptions summarized in Appendix E of this report.

- The **solvency ratio** compares the solvency assets, excluding the present value of any special payments, to the solvency liabilities, including estimated wind-up expenses.

- The **solvency surplus/(deficiency)** is the difference between the solvency assets (net of estimated wind up expenses and including the present value of special payments) and the solvency liabilities.

- The **surplus/(unfunded liability)** is the difference between the actuarial value of assets and the management liabilities.

- The **total normal cost** is the actuarial present value of benefits expected to be earned in respect of service for each year starting on the valuation date. The total normal cost is calculated using the best estimate going concern valuation assumptions and methods summarized in Appendix D of this report.

Appendix B: Assets

Market Value of Assets – Defined Benefit Portion

The following is a summary of the composition of the Plan's assets by asset type. This has been taken from the Plan's unaudited financial statements.

	December 31, 2015	
	$	**%**
Cash and short term	$ 78,105,000	3.7%
Bonds	538,253,000	25.5%
Equities	531,141,000	25.2%
Private equity	37,262,000	1.8%
Infrastructure	152,921,000	7.2%
Pooled Funds	774,779,000	36.7%
Net accounts payable and receivables	(2,706,000)	(0.1)%
Total Invested Assets	**$ 2,109,755,000**	**100.0%**

Target Asset Mix

The target asset mix of the fund, upon which the December 31, 2015 discount rate assumption has been based, is provided in the following table. This has been taken from the Plan's Statement of Investment Policies and Procedures dated November 2015.

	Minimum	**Target**	**Maximum**
Canadian Bonds – Corporate	7%	10%	13%
Canadian Bonds – Core Plus	7%	10%	13%
Canadian Bonds – Long-term Core Plus	7%	10%	13%
Canadian Bonds – Short Term	0%	5%	10%
Canadian Equities	10%	15%	20%
U.S. Equities (Large Capitalization)	2%	4%	6%
U.S. Equities (Small Capitalization)	2%	4%	6%
Non-North American Equities	2%	4%	6%
Global Equities	13%	18%	23%
Private Equity	1%	5%	8%
Infrastructure	4%	10%	13%
Real Estate	3%	5%	8%
		100%	

Reconciliation of Total Market and Actuarial Value of Assets

The following table reconciles changes in the market and smoothed values of assets between January 1, 2011 and December 31, 2015 for the total fund, including annuities.

(in thousands)	2011	2012	2013	2014	2015
Reported Market value at beginning of year	1,397,047	1,392,223	1,556,437	1,677,600	1,998,088
Employee contributions	34,966	36,778	42,853	44,929	46,842
Employer contributions	34,904	36,787	42,673	44,839	46,698
Transfers-in	923	833	772	2,041	1,153
Arrears contributions	149	322	210	81	154
Interest and Dividend Income	39,733	48,084	53,736	55,422	75,424
Change in market value of assets	(33,366)	143,533	99,952	290,180	90,179
Pensions	(48,461)	(51,411)	(54,796)	(59,046)	(63,666)
Termination / death payments	(23,645)	(33,111)	(40,624)	(33,201)	(41,280)
Investment expenses	(5,105)	(12,707)	(18,616)	(10,193)	(7,621)
Administration expenses	(4,922)	(4,894)	(4,997)	(14,564)	(16,135)
Reported market value at end of year	1,392,223	1,556,437	1,677,600	1,998,088	2,129,836
Net Rate of Return[5] – Market value	0.09%	12.92%	8.38%	19.13%	7.12%
Expected actuarial return	5.75%	5.00%	6.50%	6.50%	6.20%
Investment Income Net of Expenses[5]	1,262	178,910	130,075	320,845	141,847
Expected Actuarial Investment Income	80,155	69,244	100,879	109,032	123,568
Excess/(Shortfall)	(78,893)	109,666	29,196	211,813	18,279
80% of current year excess/(shortfall)	(63,114)	87,733	23,357	169,450	14,623
60% of current year, less 1 excess/(shortfall)	32,779	(47,336)	65,800	17,518	127,088
40% of current year, less 2 excess/(shortfall)	37,296	21,853	(31,557)	43,866	11,679
20% of current year, less 3 excess/(shortfall)	(63,086)	18,648	10,926	(15,779)	21,933
Total Asset Fluctuation Reserve	**(56,125)**	**80,898**	**68,526**	**215,055**	**175,323**
Actuarial value at beginning of year	1,429,066	1,448,348	1,475,539	1,609,074	1,798,279
Total Contributions	69,870	73,565	85,526	89,768	93,540
Net transfers	1,072	1,155	982	2,122	1,307
Investment Income[5]	25,368	41,887	142,447	174,315	166,333
Total benefit payments	(72,106)	(84,522)	(95,420)	(92,247)	(104,946)
Administration expenses	(4,922)	(4,894)	-	-	-
Actuarial value at end of year	1,448,348	1,475,539	1,609,074	1,783,032	1,954,513
Corridor adjustment[6]	-	-	-	15,247	-
Actuarial value at end of year (after corridor)	1,448,348	1,475,539	1,609,074	1,798,279	1,954,513
Net Rate of Return[5] (after corridor)	1.78%	2.91%	9.68%	11.78%	9.28%
% of Market Value	104.03%	94.80%	95.92%	90.00%	91.77%

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[5] Prior to December 31, 2012, this is net of investment expenses. Starting January 1, 2013, this is net of all expenses.
[6] Prior to 2012, the actuarial value of assets was restricted to be no less than 95% or more than 105% of the market value of assets. Starting in 2012, the actuarial value of assets is restricted to be no less than 90% or more than 110% of the market value of assets.

Appendix C: Membership Data

Source of Data

Data as to the membership of the Plan was compiled as at December 31, 2015 and provided by the Public Employees Benefits Agency. The relevant data required as of December 31, 2015 to carry out this valuation was extracted from these records. The data was checked for consistency with the previous valuation, general reasonableness, internal consistency and reconciled with the previous valuation's membership data. Data testing did not include an independent audit from source records to test for completeness and accuracy.

Data checks included, but were not limited to, a review of changes to annual pensions, review of salary increases, personal data (i.e. birth dates, dates of hire, etc.) from the previous valuation to this valuation, service accrual and any duplicate records. The checks were reviewed with the plan administrator and appropriate adjustments were made.

Membership Reconciliation

	General	Emergency	Disabled	Pensioner	Survivor	Deferred	Pending	Total
December 31, 2014	**14,527**	**263**	**205**	**4,124**	**920**	**1,516**	**2,707**	**24,262**
New	1,812	19	4	-	-	-	215	2,050
Data Changes	-	-	-	-	1	1	-	2
To General	254	-	(29)	-	-	-	(225)	-
To Emergency	-	1	-	-	-	-	(1)	-
To LTD	(82)	-	84	-	-	-	(2)	-
To Pensioner	(236)	(5)	(7)	306	-	(25)	(34)	(1)[7]
To Survivor	(2)	-	(2)	(76)	83	-	-	3
To Deferred	(36)	-	(1)	-	-	129	(92)	-
To Pending	(731)	(6)	(14)	-	-	-	751	-
Benefits ended	-	-	-	(11)	(9)	-	-	(20)
Death, no survivor	-	-	-	(40)	(42)	-	-	(82)
Paid out	(641)	(5)	(21)	-	-	(116)	(470)	(1,253)
December 31, 2015	**14,865**	**267**	**219**	**4,303**	**953**	**1,505**	**2,849**	**24,961**

[7] One member who previously had a General Active record and a Deferred record retired during 2015 and now has one Pensioner record.

Membership Data – Defined Benefit Provision

Active Members – General

	December 31, 2014	December 31, 2015
Membership	14,527	14,865
Average age	47.1 years	47.1 years
Average eligibility service	8.1 years	8.0 years
Percent female	66.3%	66.4%
Average full-time equivalent earnings	$41,678	$42,879
Average employee required contributions with interest	$27,458	$27,130

Active Members – Emergency

	December 31, 2014	December 31, 2015
Membership	263	267
Average age	41.0 years	41.1 years
Average eligibility service	11.2 years	11.3 years
Percent female	11.4%	11.2%
Average full-time equivalent earnings	$86,966	$90,472
Average employee required contributions with interest	$108,363	$110,143

Disabled

	December 31, 2014	December 31, 2015
Membership	205	219
Average age	53.4 years	54.0 years
Average eligibility service	9.7 years	8.7 years
Percent female	59.0%	58.9%
Average fulltime equivalent earnings	$37,990	$38,948

Deferred Pensioners

	December 31, 2014	December 31, 2015
Membership	1,516	1,505
Average age	50.0 years	50.3 years
Average monthly accrued pension	$359	$368
Average monthly bridge	$12	$12
Total excess employee contributions	$6,940,000	$6,014,000

Pending

	December 31, 2014	December 31, 2015
Membership	2,707	2,849
Average age	43.7 years	43.9 years
Average monthly accrued pension	$214	$220
Average monthly bridge	$11	$11
Total refund of contributions	$2,397,000	$2,435,000

Pensioners

	December 31, 2014	December 31, 2015
Membership	4,124	4,303
Average age	70.9 years	71.0 years
Average monthly lifetime pension	$997	$1,027
Average monthly bridge	$323[8]	$343[9]
Average period since retirement	9.9 years	9.9 years

[8] For 1,105 pensioners receiving a bridge payment.
[9] For 1,154 pensioners receiving a bridge payment.

Survivors

	December 31, 2014	December 31, 2015
Membership	920	953
Average age	78.0 years	77.7 years
Average monthly lifetime pension	$489	$508
Average monthly bridge	$260[10]	$247[11]
Average period since retirement	20.7 years	21.0 years

General Active Members – Age/Service Distribution

Age		Years of Credited Service Under 5 ($)	5-9.99 ($)	10-14.99 ($)	15-19.99 ($)	20-24.99 ($)	25-29.99 ($)	30-34.99 ($)	35 or more	Total ($)
Under 20	Number	77	0	0	0	0	0	0	0	**77**
	Average Salary	35,751	0	0	0	0	0	0	0	**35,751**
20 to 24	Number	464	1	0	0	0	0	0	0	**465**
	Average Salary	36,958	43,492	0	0	0	0	0	0	**36,972**
25 to 29	Number	712	109	2	0	0	0	0	0	**823**
	Average Salary	40,272	49,779	65,322	0	0	0	0	0	**41,592**
30 to 34	Number	907	250	56	0	0	0	0	0	**1,213**
	Average Salary	41,133	52,565	55,232	0	0	0	0	0	**44,140**
35 to 39	Number	1,014	395	183	41	0	0	0	0	**1,633**
	Average Salary	38,642	48,875	50,794	51,151	0	0	0	0	**42,793**
40 to 44	Number	1,004	444	270	113	35	4	0	0	**1,870**
	Average Salary	37,646	42,200	49,020	53,001	63,477	63,873	0	0	**41,837**
45 to 49	Number	850	534	369	149	69	60	11	0	**2,042**
	Average Salary	41,342	41,954	40,084	48,766	61,302	59,320	63,993	0	**43,141**
50 to 54	Number	768	541	477	309	168	134	85	6	**2,488**
	Average Salary	41,673	41,548	39,682	42,185	52,035	60,615	64,482	72,788	**43,902**
55 to 59	Number	693	439	418	273	167	145	75	39	**2,249**
	Average Salary	42,069	44,174	40,023	43,968	47,368	52,616	61,021	60,840	**44,361**
60 to 64	Number	425	310	233	166	90	93	45	27	**1,389**
	Average Salary	40,632	42,587	40,910	42,764	48,911	48,390	54,040	65,692	**43,347**
Over 64	Number	231	126	106	50	26	34	18	25	**616**
	Average Salary	37,755	39,900	36,346	42,155	42,317	38,929	49,948	49,396	**39,395**
TOTAL	**Number**	**7,145**	**3,149**	**2,114**	**1,101**	**555**	**470**	**234**	**97**	**14,865**
	Average Salary	**39,909**	**44,190**	**42,378**	**45,048**	**51,543**	**54,022**	**60,223**	**59,980**	**42,879**

[10] For 22 survivors receiving a bridge payment.
[11] For 22 survivors receiving a bridge payment.

Appendix D: Management Assumptions and Methods

Assumptions and Methods

A member's entitlements under a pension plan are generally funded during the period over which service is accrued by the member. The cost of each member's benefits is allocated in some fashion over the member's service. An actuarial valuation provides an assessment of the extent to which allocations relating to periods prior to a valuation date (often referred to as the actuarial liabilities) are covered by the plan's assets.

The going concern valuation provides an assessment of a pension plan on the premise that the plan continues on into the future indefinitely based on assumptions in respect of future events upon which a plan's benefits are contingent and methods that effectively determine the way in which a plan's costs will be allocated over the members' service. The true cost of a plan, however, will emerge only as experience develops, investment earnings are received, and benefit payments are made.

This appendix summarizes the going concern assumptions and methods that have been used for the management valuation of the Plan at the valuation date. The going concern assumptions and methods have been chosen to reflect our understanding of the Plan's funding objectives with due respect to accepted actuarial practice and regulatory constraints. For greater certainty: the assumptions used for this valuation have been selected as best estimate assumptions, containing no margins for adverse deviations of experience from the assumptions.

Summary

The actuarial assumptions and methods used in the current and previous valuations are summarized below and described on the following pages.

	December 31, 2015	**December 31, 2014**
Economic Assumptions		
Discount rate – regular	6.00%	6.2%
Discount rate – lump sum transfers	3.50%	3.4%
Inflation rate	2.25%	2.5%
Increases in pensionable earnings – base	3.00%	3.5%
Increases in pensionable earnings – merit and promotion	Variable by service (Table A following)	Same
Increases in year's maximum pensionable earnings ("YMPE")	3.00%	3.5%
Increases in maximum pension limit	In accordance with *Income Tax Act*, then 3.00%	In accordance with *Income Tax Act*, then 3.5%
Interest on member contributions	2.25%	3.5%
Investment expenses	Included in discount rate	Same

	December 31, 2015	**December 31, 2014**
Non-investment expenses	Included in discount rate	Same
Margin for adverse deviation	None	Same
Demographic Assumptions		
Mortality – regular	Males: 115% of CPM Private Females: 100% of CPM Private	Same
Mortality – lump sum transfers	CPM Combined	Males: 115% of CPM Private Females: 100% of CPM Private
Retirement – General Members	• 10% if eligible to retire but less than 80 points, 20% with 80 points, remainder at age 65 • 12.5% elect lump sum transfer	• 10% if eligible to retire but less than 80 points, 20% with 80 points, remainder at age 65 • No lump sum transfers
Retirement – Emergency members	• 100% at earliest unreduced date • 50% elect lump sum transfer	• 100% at earliest unreduced date • No lump sum transfers
Termination of employment	• Variable by age (Table B following) • 50% elect lump sum transfer	Same
Disability	None	Same
Proportion married:		
Non-retired proportion with spouse	90% for males, 80% for females	90% for males, 70% for females
Non-retired spousal age differential	Males three years older	Males four years older
Retired members	Actual marital status and ages are used	Same
Margin for adverse deviation	None	Same
Methods		
Actuarial cost method	Projected unit credit	Same
Asset valuation method	5-year smoothed value with 10% corridor	Same

Economic Assumptions

Discount Rate

A discount rate of 6.0% has been used for this valuation. This discount rate is based on the following information:

The overall best estimate expected annual rate of return on assets is 6.00%. This is based on an assumed inflation rate of 2.25%, yielding a real rate of return on the pension fund assets of 3.75% per annum. This best-estimate rate of return on the assets was developed using best-estimate returns for each major asset class in which the pension fund is invested. In addition, certain adjustments, such as expected additional return from the interest rate overlay strategy, asset mix rebalancing and diversification, have been included to reflect the Plan's overall investment policy.

A specific provision has been included for investment management fees, which is made up of a component for passive management and a component for active management. PEBA has provided input on the level of expected active management fees. The assumption for active management fees anticipates an increase from historical levels due to expected changes in the investment policy.

The previous valuation used a discount rate net of investment expenses of 6.20% per annum.

For greater clarity: the following has been incorporated in the adjustments used to establish the best estimate discount rate for this valuation.

Development of Best Estimate Discount Rate				
Expected return on assets – before expenses and adjustments				6.40%
Non-investment expenses				(0.40)%
Investment expenses				
Passive	(1)	(0.03)%		
Actively managed	(2)	(0.60)%		
			(1)+(2)	(0.63)%
Additional returns due to active management				0.60%
Interest rate overlay				(0.00)%[12]
Unrounded Discount Rate				**5.97%**

[12] It is worth noting that there is an expected additional return of roughly 0.2%-0.5% due to the effect of the leveraged position of the plan as a result of the interest rate overlay. However, as there is some uncertainty as to its exact impact, we have not added any additional expected return from the overlay at this point. This component of the discount rate will continue to be monitored in future valuations.

Therefore, we have arrived at a discount rate of 5.97% per year, which has been rounded to 6.00%. This assumption is best estimate and therefore contains no margins for adverse deviation.

Inflation Rate

The inflation rate is assumed to be in the range of 2% to 3% per annum. For the purpose of this valuation a point estimate of 2.25% per year has been used. This reflects the current best estimate of future inflation considering current and future economic and financial market conditions. The inflation rate used in the previous valuation was 2.5%.

Increases in Pensionable Earnings

We have assumed future salary increases will be 3.00% per year, plus a merit and promotion scale that varies by service, as shown in the following Table A. The assumption reflects an assumed rate of inflation of 2.25% per year plus an allowance of 0.75% per year for the effect of productivity growth. The previous valuation assumed that salaries would increase at the rate of inflation of 2.50% plus 1.00% per year for productivity growth.

Table A – Merit and Promotion Rates

The rates for increases in pensionable earnings due to merit and promotion used in this valuation and the previous valuation are shown in the following table:

Year of service	General Members	Emergency Members
≤5	2.0%	3.0%
6-10	1.5%	2.0%
11-15	1.0%	1.0%
16-20	0.5%	0.5%
>20	0.0%	0.0%

Increases in Year's Maximum Pensionable Earnings

As the benefits paid to a member from the Plan are dependent to a small degree on the future Year's Maximum Pensionable Earnings ("YMPE"), it is necessary to make an assumption regarding the future increases in the YMPE.

The YMPE was assumed to increase up until the time the member retires, dies or terminates from active employment at 3.00% per year. This is comprised of an annual increase of 2.25% on account of inflation, plus 0.75% on account of productivity, which is consistent with historical real economic growth. The previous valuation assumed that the YMPE would increase at the rate of inflation of 2.50% plus 1.00% per year for productivity growth.

Increases in the Maximum Pension Limit

Pensions are limited to the maximum limits under the *Income Tax Act*. The maximum lifetime annual pension per year of pensionable service payable under the *Income Tax Act* is $2,818.89 in 2015 and $2,890.00 in 2016. It is assumed that the maximum limit will increase at 3.00% per year commencing in 2017. This is comprised of an annual increase of 2.25% on account of inflation, plus 0.75% on account of productivity. The previous valuation assumed the maximum lifetime pension would increase at 3.5% per year from $2,770.00 in 2014.

Interest on Member Contributions

Effective January 1, 2015, interest is credited on member contributions at the minimum rate prescribed by the Act. We have assumed that this rate will be equal to the long-term rate of inflation of 2.25% per year. The previous valuation assumed interest to be credited at the long-term rate of inflation plus 1.00%, or 3.50% per year.

Expenses

Since the discount rate has been established net of all expenses, no explicit assumption is required for expenses. This is unchanged from the previous valuation.

Demographic Assumptions

Mortality

During 2014, a mortality study was performed for a number of municipal defined benefit pension plans in Saskatchewan, including MEPP. The results of the study indicated that MEPP experiences statistically different mortality than other Saskatchewan municipal plans.

The results of the study indicate that a best estimate of the current mortality of the plan members is the 2014 Canadian Pensioner Mortality (CPM) Private Sector Mortality Table, with base mortality rates adjusted as follows:

- Males: Base rates increased by 15% (i.e. 115% of base rates)
- Females: No adjustment (i.e. 100% of base rates)

In order to estimate future improvements in life expectancy, future mortality improvements have been estimated through the use of the unadjusted CPM-B projection scale, applied on a generational basis.

The previous valuation used the same mortality assumption.

For the current valuation, we have incorporated the CPM Combined Mortality Table in cases where a member is expected to receive a Commuted Value transfer upon termination or retirement instead of a monthly pension. This table is consistent with the table used for the calculation of Commuted Values effective October 1, 2015. The previous valuation used the adjusted CPM Private mortality table for both regular pensioners and commuted value transfers.

Generational mortality rates depend on the year of birth of a member and vary by age. For example, the mortality rate at age 80 for a member age 70 at the valuation date (e.g. 41.70 expected deaths per 1,000 lives for males in the table below) will be higher than the mortality rate at age 80 for a member age 60 (e.g. 38.03 expected deaths per 1,000 lives for males in the table below) at the valuation date. The mortality rates decline due to projected mortality improvements over time.

Mortality rates per 1,000 lives at selected ages are as follows:

CPM Private Mortality per 1,000 lives – Male, increased by 15%

	Mortality per 1,000 lives at each future age				
Current age	**80**	**85**	**90**	**95**	**100**
60	38.03	73.05	139.81	259.55	381.44
70	41.70	78.21	146.70	268.54	393.07
80	50.52	86.42	154.35	277.84	405.06
90	n/a	n/a	166.26	285.16	416.76

CPM Private Mortality per 1,000 lives – Female, unadjusted

	Mortality per 1,000 lives at each future age				
Current age	**80**	**85**	**90**	**95**	**100**
60	23.67	45.66	91.34	176.50	286.35
70	25.80	48.89	95.85	182.61	295.08
80	29.51	53.85	100.85	188.94	304.08
90	n/a	n/a	108.62	193.91	312.86

Retirement

Retirement rates are typically developed taking into account the past experience of the Plan.

General active members are assumed to retire at the rate of 10% per year if eligible to retire but have not attained 80 points (age plus service), 20% per year if they have 80 points, with the remainder assumed to retire at age 65. This assumption is unchanged from the rates used in the previous valuation. For the current valuation, we have assumed that 12.5% of general active members will elect a lump sum transfer of their entitlement upon retirement and 87.5% will elect a monthly pension. For those members who elect a lump sum transfer, we have used a discount rate of 3.5% and the CPM Combined mortality table. The previous valuation assumed that all members would receive a monthly pension upon retirement.

Emergency active members and disabled members are assumed to retire at their earliest unreduced retirement date, which is the same assumption used in the previous valuation. For the current valuation, we have assumed that 50% of emergency active members will elect a lump sum transfer of their entitlement upon retirement and 50% will elect a monthly pension. For those members who elect a lump sum transfer, we have used a discount rate of 3.5% and the CPM Combined mortality table. The previous valuation assumed that all members would receive a monthly pension upon retirement.

Deferred and pending members are assumed to retire at their earliest reduced or unreduced date, with any applicable reductions. These dates and pension amounts were included in the data. This assumption is unchanged from the previous valuation.

Termination of Employment

A member's benefit entitlement under the Plan is affected by whether the member terminates employment prior to retirement for reasons other than death. In order to account for this in the calculation of the actuarial liability, an assumption regarding the probability that a member will terminate employment for reasons other than death has been made.

The termination rates are summarized in Table B below. Note that termination rates for emergency members are assumed to be 75% of those for general active members. Disabled members are assumed not to terminate membership prior to retirement.

Table B – Termination Rates

Sample rates used in this valuation and the previous valuation are shown in the following table:

Age	General Members	Emergency Members
20	20.5%	15.4%
25	15.5%	11.6%
30	10.5%	7.9%
35	6.5%	4.9%
40	4.8%	3.6%
45	4.3%	3.2%
50	3.2%	2.4%
55	1.2%	0.9%
>57	0.0%	0.0%

In addition, we have assumed that, upon termination, 50% of members will elect a deferred retirement benefit and 50% will elect a lump sum transfer. For those members electing a transfer, we have assumed a discount rate of 3.5% and the CPM Combined mortality table will be used to determine such values.

The termination rates and proportion electing a lump sum transfer are unchanged from the previous valuation; however, the previous valuation used an interest rate of 3.4% and the CPM Private mortality table (with male rates increased by 15%) to determine lump sum transfer values.

Disability

If an active Plan member becomes disabled, contributory service continues to accrue until unreduced pension commencement age, but employee contributions are waived. Since this benefit is substantially the same as the benefit that accrues to an active member, no assumption has been made for future disabilities.

For those members that are currently disabled, we have assumed that members will continue to earn full credited service each year in the future until retirement at the earliest unreduced age. The liability associated with the future service accrual for disabled members has been held as a liability reserve.

The same assumption was used in the previous valuation.

Proportion of Members with Spouses and Spousal Age Differential

These assumptions are relevant to the valuation of benefits since there is a subsidized joint and survivor benefit available for members with a spouse. It has been assumed that 90% of male members and 80% of female members will have a spouse at retirement, and males are assumed to be 3 years older than females. The previous valuation assumed that 90% of male members and 70% of female members had spouses at retirement and that males were 4 years older than females.

Other

Actuarial Cost Method

An actuarial cost method is a technique used to allocate in a systematic and consistent manner the expected cost of a pension plan over the years of service during which plan members earn benefits under the Plan. By funding the cost of a pension plan in an orderly and rational manner, the security of benefits provided under the terms of the plan in respect of service that has already been rendered is significantly enhanced.

The projected accrued benefit actuarial cost method has been used for this valuation. Under this method, the actuarial present value of benefits in respect of service prior to the valuation date, but based on pensionable earnings projected to retirement, is compared with the actuarial asset value, revealing either a surplus or an unfunded actuarial liability.

With respect to service after the valuation date, the expected value of benefits for service in the year following the valuation date (i.e., the current service cost) is expressed as a percentage of the expected value of participating payroll for that year.

When calculating the actuarial present value of benefits at the valuation date, the present value of all retirement, withdrawal and preretirement death benefits are included. For each member, the retirement, withdrawal and pre retirement death benefits for a particular period of service are first projected each year into the future taking into account future vesting, early retirement entitlements and pension entitlements. These projected benefits for each future year are then capitalized, multiplied by the probability of the member leaving the Plan in that year and discounted with interest and survivorship to the valuation date.

The actuarial present value of benefits for the particular period of service is then determined by summing the present values of these projected benefits.

The pattern of future contributions necessary to pre fund future benefit accruals for any one particular individual will increase gradually as a percentage of their pensionable earnings as the individual approaches retirement. For a stable population (i.e., one where the demographics of the group remain constant from year to year), the normal cost will remain relatively level as a percentage of payroll.

Asset Valuation Method

The actuarial value of assets (AVA) methodology shown in Appendix A was used in accordance with the funding policy, with the goal of moderating fluctuations in contribution rates. The method used tracks the market value of assets, and would approach market value if rates of return matched assumptions. The method chosen does not deviate materially from market value, and additionally, we have set a corridor for the method to produce actuarial values within plus or minus 10% of market value should the method produce an AVA outside of this range. The method does not have undue influence on investment transactions, (i.e., sale of an asset will not have an impact on the AVA). A 5-year period of averaging was chosen, which is within the typical range of an economic cycle. There is no bias in the method, as we believe there is an equal probability of the AVA being higher or lower than the market value of assets.

Appendix E: Solvency Assumptions and Methods

Valuation Assumptions

	December 31, 2015	December 31, 2014
Economic Assumptions		
Discount Rate		
Transfer value basis	2.10% for 10 years; 3.70% thereafter	2.50% for 10 years; 3.80% thereafter
Annuity purchase basis	3.10%	2.70%
Demographic Assumptions		
Post-retirement mortality rates	2014 Canadian Pensioner Mortality Combined Table with CPM-B projection scale	1994 Uninsured Pensioner Mortality Table with fully generational projection scale AA (sex-distinct rates)
Withdrawal rates	Not Applicable	Same
Retirement age		
Active and disabled members	Age that produces the highest lump-sum value	Same
Deferred vested members	Age that produces the highest lump-sum value	Same
Retired members and beneficiaries	Not applicable	Same
Termination of employment	Terminate with full vesting	Same
Marital status		
Non-retired spousal proportion	90% for males, 80% for females	90% for males, 70% for females
Non-retired spousal age differential	Males three years older	Males four years older
Retired members	Actual marital status and ages are used	Same
Other		
Wind up expenses	$300 per member	No change
Actuarial cost method	Unit credit	No change
Asset valuation method	Market value of assets adjusted to reflect in-transit items as of the valuation date	No change
Solvency Incremental Normal Cost		
Increases in pensionable earnings	3.00% + merit and promotion	3.50% + merit and promotion
Increases in YMPE	3.00%	3.50%
Increases in maximum pension limit	In accordance with *Income Tax Act*, then 3.00%	In accordance with *Income Tax Act*, then 3.50%
Inflation Rate	2.25%	2.50%

Based on the Canadian Institute of Actuaries' Guidance and information such as pension legislation, Plan provisions and Plan experience, we have made the following assumptions regarding how the Plan's benefits would be settled on Plan wind up, which is unchanged from the previous valuation:

	Percent of Liability Assumed to be Settled By Purchase of Annuities	**Percent of Liability Assumed to be Settled By Lump-Sum Transfer**
Members not currently receiving a pension		
Less than age 53.5	0%	100%
At least age 53.5	100%	0%
Members currently receiving a pension	100%	0%

Estimated Wind Up Expenses

Plan wind up expenses would normally include such items as fees related to preparation of the actuarial wind up report, fees imposed by a pension supervisory authority, legal fees, administration, custodial and investment management expenses. We have assumed these fees would amount to $300 per member. This assumption is unchanged from the previous valuation.

Actuarial Cost Methods

Unit credit (accrued benefit) cost method as prescribed.

Asset Valuation Method Considerations

Assets for solvency purposes have been determined using market value.

Incremental Cost on a Solvency Basis

The incremental cost on a solvency basis represents the present value, at the calculation date (time 0), of the expected aggregate change in the solvency liabilities between time 0 and the next calculation date (time t), adjusted upwards for expected benefit payments between time 0 and time t.

An educational note was published in December 2010 by the Canadian Institute of Actuaries' Committee on Pension Plan Financial Reporting to provide guidance for actuaries on the calculation of this information.

The calculation methodology can be summarized as follows:

- The present value at time 0 of expected benefit payments between time 0 and time t, discounted to time 0,

  plus

- A projected hypothetical wind up or solvency liabilities at time t, discounted to time 0, allowing for, if applicable to the pension plan being valued:
  - expected decrements and related changes in membership status between time 0 and time t,
  - accrual of service to time t,

  - expected changes in benefits to time t,
  - a projection of pensionable earnings to time t,

  minus

- The hypothetical wind up or solvency liabilities at time 0.

The projection calculations take into account the following assumptions and additional considerations:

- The assumptions for the expected benefit payments and decrement probabilities, service accruals, and projected changes in benefits and/or pensionable earnings would be consistent with the best estimate assumptions used in the management valuation.
- The assumptions used to calculate the projected liability at time t are consistent with the assumptions for the solvency liabilities at time 0, assuming that interest rates remain at the levels applicable at time 0, that the select period is reset at time t for interest rate assumptions that are select and ultimate and that the Standards of Practice for the calculation of commuted values and the guidance for estimated annuity purchase costs in effect at time 0 remain in effect at time t.
  - Active and inactive plan members as of time 0 and assumed new entrants over the period between time 0 and time t are considered in calculating the incremental cost.

Appendix F: Summary of Plan Provisions

The following is a summary of the main provisions of the Plan which are relevant to the valuation. For complete details, reference should be made to the official Plan documents.

Effective Date

The effective date of the Plan is November 1, 1973.

Eligibility

Permanent employees, who are employees employed on an ongoing basis (full-time, part-time and seasonal) join the Plan on the date they become an employee.

Non-permanent employees may join the Plan on the date of hire and must join the Plan if the employee works at least 700 hours in two consecutive years. Once an employee has joined the Plan, he/she remains a member even if the hours of work reduce to less than 700 hours in a year.

Plan members who move from one participating employer to another, must immediately participate with the second employer regardless of the terms of employment with the second employer.

Emergency members are those designated by their employers.

Normal Retirement

The normal retirement date for members is the first day of the month immediately following the attainment of age 65. The normal retirement date for emergency workers is the first day of the month immediately following the attainment of age 60.

Early Retirement Date

General Members

General members can retire any time after satisfying the rule of 80 (age plus years of continuous service = 80 or more) with an unreduced pension. They can also retire after having attained age 55 with a minimum of 15 years of continuous service but in that event, the pension is reduced by 3% for each year prior to the date when the member would satisfy the rule of 80 assuming service had continued, or would reach normal retirement age, if earlier.

Emergency Members

Emergency members can retire with an unreduced pension at any time after satisfying any of:

- age 55,
- rule of 75, or
- 25 years of continuous service.

They can also retire after age 45 on satisfying the rule of 70 but in that event, the pension in respect of service after 1991 is reduced by 3% for each year prior to the date when the member would satisfy the rule of 75 assuming that service had continued, or would reach normal retirement age, if earlier. The pension in respect of service prior to 1992 is not reduced for early retirement.

Employee Contributions

Effective January 1, 2013, general members contribute 8.15% and emergency members 11.35% of earnings. Earnings include regular remuneration and commissions, but exclude overtime pay and bonuses.

Effective January 1, 2015, the interest rate credited on member contributions is minimum rate prescribed by the Act.

Employer Contributions

The participating employers shall contribute to the Plan such amounts equal to the required employee contributions.

Amount of Pension

Upon retirement, a member is entitled to a retirement benefit based on the member's highest average salary and contributory service, where the highest average salary is the total salary of the member during the three years of highest salary divided by three, as follows:

1. For benefits payable before age 65:
   All members are entitled to a pension of 2% of the highest average salary multiplied by the number of years or contributory service.

2. For benefits payable on and after age 65:
   a) General members with a date of entry on or after January 1, 1993:
      - Are entitled to a pension of 1.5% of the highest average salary multiplied by the number of years of contributory service excluding the years 2001 to 2005; plus
      - A pension of 1.8% of the highest average salary multiplied by the number of years of contributory service between January 1, 2001 and December 31, 2005.

   b) Emergency members with a date of entry on or after January 1, 1993:
      - Are entitled to a pension of 1.7% of the highest average salary multiplied by the number of years of contributory service, excluding the years 2001 to 2005; plus
      - A pension of 2% of the highest average salary multiplied by the number of years of contributory service between January 1, 2001 and December 31, 2005.

   c) General members with a date of entry prior to January 1, 1993:
      - With respect to service prior to January 1, 1990 and service between January 1, 2001 and December 31, 2005, are entitled to a pension for each year of contributory service equal to the greater of:
        (i) 1.3% times the highest average salary not in excess of the three year average YMPE plus 2% times the highest average salary in excess of the three year average YMPE, and
        (ii) 1.8% times the highest average salary.
      - With respect to service on or after January 1, 1990, but excluding years 2001 to 2005, are entitled to a pension for each year of contributory service equal to the greater of:
        (i) 1.3% times the highest average salary not in excess of the three year average YMPE plus 2% times the highest average salary in excess of the three year average YMPE, and
        (ii) 1.5% times the highest average salary.

d) Emergency members with a date of entry prior to January 1, 1993:

- With respect to service prior to January 1, 1990 and service between January 1, 2001 and December 31, 2005 are entitled to a pension for each year of contributory service equal to 2% times the highest average salary:
- With respect to service on or after January 1, 1990, but excluding years of 2001 to 2005, are entitled to a pension for each year of contributory service equal to the greater of:
  - (i) 1.3% times the highest average salary not in excess of the three year average YMPE plus 2% times the highest average salary in excess of the three year average YMPE, and
  - (ii) 1.7% of the highest average salary.

Pre-Retirement Death Benefits

Upon the death of a member prior to retirement, an amount equal to the sum of the member's additional contribution account, the member's annuity and annuity surplus account, the employer additional contribution account and the employer annuity account, plus the commuted value of the defined benefit pension is paid to the member's spouse, beneficiary or estate. The spouse also has the option to receive a monthly lifetime pension based on the total value of the death benefit.

Post-Retirement Death Benefits

If a retired member who has a spouse at retirement dies, 100% of the pension payable to the member is guaranteed to be paid for five years from the retired member's date of retirement. After the guaranteed payments are made, 60% of the pension to which the retired member was entitled shall be paid to the surviving spouse for life. In the event of death of both the retired member and retired member's spouse, the 60% allowance will be payable to the designated dependents named at retirement (up to age 18).

If the member does not have a spouse at retirement, a single life annuity with a guarantee period of 15 years is payable.

Optional forms of pension are provided on an actuarial equivalent basis.

Termination Benefits

An employee who has been a member of the Plan or employed by an employer participating in the Plan for a continuous period of at least 2 years, on termination of employment prior to retirement, would receive an immediate or deferred pension. In lieu of part of the pension an employee may elect to receive a lump sum that does not exceed one half of the member's accumulated contributions with interest as at December 31, 1993.

Upon termination, the pension benefit may be commuted.

Indexation Benefits

For pensions in respect of service accrued before 1999, and subject to there being funds available to provide it, the Plan provides for future indexation equivalent to the lesser of 2% per year or the increase in the Saskatchewan Consumer Price Index (CPI) with the excess of 2% over the increases in the CPI carried forward on a cumulative basis. Indexing on post-1998 benefits may also be provided if funds permit, but this is a decision of the Commission and does not happen automatically. The 2% increase for benefits in respect of pre-1999 service was paid at January 1, 2007 and 2008 – no increase was provided for benefits in respect of post-1998 service at these times.

The Commission cancelled the automatic provision of 2% indexing on pre-1999 benefits effective June 1, 2009.

Disability

A member who is totally and permanently disabled and who has been away from work for a 2 year period may, on application, continue to accrue credited service without employee or employer contribution. In this event, the salary on which the pension is based will be increased from the date of disability based on the increase in the average Canadian salaries and wages. The waiver will cease on the member's unreduced retirement date.

Appendix G: Summary of Funding Policy

The following is a summary of the provisions of the Plan's funding policy, effective November 20,2015, which are relevant to the valuation. For complete details, reference should be made to the official funding policy document.

Valuations

The funding policy requires the preparation of the following three valuations:

- Management valuation
- Solvency valuation
- Filing valuation

Management Valuation

The management valuation is the primary source of information upon which the Commission will base its decisions or recommendations regarding contribution rates and additional benefits. The management valuation shall be prepared annually using best estimate economic and demographic assumptions.

The management valuation shall include reserves for accruals for disabled members equal to the present value of all future accruals for presently disabled members.

The actuarial value of assets will be determined using a smoothing method over no more than 5 years and the actuarial value of assets will be limited to not more than 110% nor less than 90% of the market value of assets.

The discount rate used for the management valuation shall be best estimate and shall include a provision for future investment management and administration expenses.

Solvency Valuation

The solvency valuation provides a minimum funding target for the Plan and shall be prepared in accordance with requirements of *The Pension Benefits Act, 1992* (Saskatchewan).

The market value of assets on an accrual basis will be used to determine the solvency financial position.

Filing Valuation

The filing valuation is required to be prepared at least triennially to comply with the requirements of *The Pension Benefits Act, 1992* (Saskatchewan) and the *Income Tax Act*. The filing valuation shall be filed with the Financial and Consumer Affairs Authority of Saskatchewan and the Canada Revenue Agency with respect to the decisions or recommendations of the Commission with respect to contribution rates and benefits.

Appendix H: Administrator Certification

With respect to the Municipal Employees' Pension Plan, forming part of the actuarial report as at December 31, 2015, I hereby certify that, to the best of my knowledge and belief:

- The asset data contained in Appendix B of this report is complete and accurate;
- The membership data summarized in Appendix C of this report form a complete and accurate description of all persons who are entitled to benefits under the terms of the Plan in respect of service up to the date of the valuation;
- The summary of the Plan provisions contained in Appendix F is an accurate summary of the current Plan provisions; and
- The actuary has been notified of all relevant events subsequent to the valuation measurement date.

Date May 6, 2015

Signed

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Aon Hewitt is the global leader in human capital consulting and outsourcing solutions. The company partners with organizations to solve their most complex benefits, talent and related financial challenges, and improve business performance. Aon Hewitt designs, implements, communicates and administers a wide range of human capital, retirement, investment management, health care, compensation and talent management strategies. With more than 30,000 professionals in 90 countries, Aon Hewitt makes the world a better place to work for clients and their employees.

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