OPSEU Pension Trust
Fiducie du régime de retraite du SEFPO

January 26, 2017

CONFIDENTIAL / VIA COURIER

Ms. Cindy Veinot
Assitant Deputy Minister & Provincial Controller
Office of the Provincial Controller Division
Treasury Board Secretariat
2nd Floor, Frost Building South
7 Queen's Park Crescent
Toronto, Ontario M7A 1Y7

Dear Ms. Veinot:

Re: Actuarial Information for the OPSEU Pension Plan

In response to the Assistant Deputy Minister Leah Myers' letter dated December 15, 2016, please find attached the requested 2016 yearend financial information related to the OPSEU Pension Plan (the "Plan"). The requested information has been determined as of December 31, 2016 and is contained in the body of this letter and in the attached exhibits.

The calculations for items 1, 3, 5, 9, 10, 11 and 12 have been performed on an accounting basis by Willis Towers Watson using the projected unit credit cost method and the economic assumptions detailed in Ms. Myers' letter. All other requested calculations were compiled by OPSEU Pension Trust ("OPTrust").

Please note the following regarding the attached information:

- Items 1 to 13 are disclosed in Exhibit 1.
- Ms. Myers requested that the actuarial information be prepared using five sets of economic assumptions (Basis 1, 2, 3, 4 and 5). The assumptions used under each basis are described in Exhibit 1.
- The December 31, 2016 calculations are based on December 31, 2016 member data for the Plan, as provided by the OPTrust to Willis Towers Watson and as used in the December 31, 2016 funding valuation of the Plan. A summary of the December 31, 2016 member data for the Plan is contained in the attached Exhibit 2.

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- The information on the market value and actuarial value of the Plan's assets as at December 31, 2016 is preliminary and is subject to change. In particular, the December 31, 2016 valuation for alternative assets will not be complete until after January 26, 2017. As of December 31, 2016 over 30% of the Fund is allocated to alternative assets. As such the total market and actuarial value of assets may materially change once those asset valuations are complete.

- The contribution breakdown in item 4 of the attached Exhibit 1 has been updated to the same level of detail as the Plan's financial statements, as requested by the government.

- The December 31, 2016 liability calculations have been based on the provisions of the Plan as at December 31, 2016. A summary of the applicable provisions is contained in Willis Tower Watson's funding actuarial valuation report for the Plan as at December 31, 2015. There have been no material changes to the Plan provisions since December 31, 2015.

- Except for the economic assumptions noted in Exhibit 1 and the asset valuation method (OPTrust does not use a smoothed value of assets), the December 31, 2016 liability calculations are based on the same preliminary assumptions that are being considered for use in the December 31, 2016 financial statement valuation of the Plan. A description of those preliminary assumptions for the Plan's December 31, 2016 financial statement valuation is contained in Exhibit 3 attached.

As you are aware, the government's best estimate economic assumptions are not those of the OPSEU Pension Trust. These assumptions have not been used in the past for the Plan's funding valuations, or the Plan's financial statement actuarial valuations and, in particular, they have not been used for the most recent December 31, 2016 funding valuation of the Plan, or the December 31, 2016 financial statement valuation of the Plan. We would also note that the obligations of employers to contribute to the Plan are based on the terms of the Plan and the funding actuarial valuations of the Plan.

If you have any questions or require any additional information, please contact me at 416-681-6177.

Yours truly,

Dani Gorsichy
Vice-President, Actuarial Services and Plan Policy

Encls.
cc: Ms. Leah Myers, Ministry of Finance
Mr. Alex Killoch, Ministry of Finance
Mr. Robert Pomykacz, Ministry of Finance
Mr. Ian Markham, Willis Towers Watson
Mr. Hugh O'Reilly, OPSEU Pension Trust
Mr. Reg Swamy, OPSEU Pension Trust

EXHIBIT 1

Economic Assumptions as provided by the Province

	Basis 1	*Basis 2*	*Basis 3*	*Basis 4*	*Basis 5*
Assumptions provided by Province					
Return on investment	6.25%	6.00%	5.90%	5.75%	5.90%
Inflation	2.00%	2.00%	2.00%	2.00%	2.00%
Real Rate of Return	4.25%	4.00%	3.90%	3.75%	3.90%
Salary Escalation Rate					
2017-2019	2.00%	2.00%	1.75%	1.75%	2.00%
2020 onwards	3.00%	3.00%	2.75%	2.75%	3.00%

Other assumptions – Based on the same assumptions used for the December 31, 2016 funding valuation of the Plan as shown in Exhibit 3.

Actuarial Information for the OPSEU Pension Plan as Requested by the Province

	December 31, 2016 (Amounts in $ millions)				
	Basis 1	*Basis 2*	*Basis 3*	*Basis 4*	*Basis 5*
1. Actuarial present value of accrued benefit obligations	15,997	16,495	16,596	16,910	16,702
2. (a) Actuarial value of pension fund assets (preliminary)	18,415	18,415	18,415	18,415	18,415
(b) Market value of pension fund assets (preliminary)	18,904	18,904	18,904	18,904	18,904
3. For the year ended: Actuarial Present Value of Accrued Benefit Obligations as of December 31, 2015	15,557	15,557	15,557	15,557	15,557
a) Interest on accrued benefits	958	958	958	958	958
b) Cost of benefits accrued [i]	436	436	436	436	436
c) Cost of benefit improvements	0	0	0	0	0
d) Changes in assumptions	0	498	610	924	705
e) Benefits paid [ii]	(900)	(900)	(900)	(900)	(900)
f) Experience (Gains)/Loss	(54)	(54)	(65)	(65)	(54)
Actuarial Present Value of Accrued Benefit Obligations as of December 31, 2016	15,997	16,495	16,596	16,910	16,702

EXHIBIT 1 (continued)

Actuarial Information for the OPSEU Pension Plan as Requested by the Province

(Amounts in $ millions)

(i) Includes current period service cost, past service contributions and transfers from other plans made during 2016.

Current Period	393
Past Service	23
Transfers from other Plans	20
	436

(ii) Includes retirement pensions, refunds, commuted value transfers and transfers to other plans. The retirement pensions paid during 2016 were $739 million. Refunds and commuted value transfers were $73 million. Transfers to other plans were $88 million.

4.	For the year ended:	***December 31, 2016***
(a)	Employee contributions:	
	Current Service (include LTIP)	243
	Prior Service	16
		259
(b)	Employer contributions:	
	Current Service (include LTIP)	243
	Prior Service	7
		250
(c)	Transfers from other plans	20

5. Expected average remaining service lifetime of active employees — 12.5 years

6. Economic assumptions used in the Plan's financial statements:

(a)	Return on investment	5.75%
(b)	Inflation	2.00%
(c)	General salary escalation	1.4% for 2017 and 2.75% thereafter
(d)	YMPE increases	2.50%

EXHIBIT 1 (continued)

Actuarial Information for the OPSEU Pension Plan as Requested by the Province

(Amounts in $ millions)

7. The following preliminary schedule provides the composition of the actuarial asset value adjustment as at December 31, 2016:

	Deferred (Gains)/Losses 2016	**Timing of Future Recognition 2017**	**2018**	**2019**	**2020**
2012	0	-	-	-	-
2013	(134)	(134)	-	-	-
2014	(322)	(161)	(161)	-	-
2015	(153)	(51)	(51)	(51)	-
2016	120	30	30	30	30
Total	**(489)**	**(316)**	**(182)**	**(21)**	**30**

The actuarial asset value adjustment reflects the portion of gains or losses not yet recognized for purposes of determining the value of actuarial assets. The actuarial asset value adjustment provides for the smoothing of gains and losses. -

The actuarial value of investments as at the reporting dates has been determined using a formula that smoothes out the effects of the changes in market values over a five-year period. The approach recognizes differences between the actual and management's best estimate of the return on investments in income evenly over the current and following four years. Management's best estimate of investment return is 5.75% for 2016, 6.1% for 2015, 6.4% for 2014 and 6.5% for 2013 financial statement purposes.

8. For the year ended December 31, 2016:

(a)	Number of Active Members	43,575
(b)	Number of Inactive Members	
	Pensioners and Survivors	36,409
	Deferred pensioners	5,786
	Special deferred pensioners	2,272
	Former members with unprocessed benefits	1,500
	Total	45,967

EXHIBIT 1 (continued)

Actuarial Information for the OPSEU Pension Plan as Requested by the Province

(Amounts in $ millions)

9. The following provides a breakdown of the experience gains and losses for 2016:

	Basis 1	*Basis 2*	*Basis 3*	*Basis 4*	*Basis 5*
Salary (Gain)/Loss	(88)	(88)	(99)	(99)	(88)
Other Experience (Gain)/Loss	34	34	34	34	34
	(54)	(54)	(65)	(65)	(54)

10. The 2017 current service cost for each basis is as follows:

Basis 1	*Basis 2*	*Basis 3*	*Basis 4*	*Basis 5*
421	441	437	450	449

11. Please see the breakdown in item 9 above.

12. Actuarial Present Values on Open Group Basis

	Basis 1	*Basis 2*	*Basis 3*	*Basis 4*	*Basis 5*
Future current service accruals	12,943	14,685	13,881	14,992	15,480
Future required employee contributions	7,712	8,355	7,936	8,333	8,643

13. We will provide the 2016 financial statements as soon as they are available.

EXHIBIT 2

Summary of Plan Member Data at December 31, 2016

The membership data at December 31, 2016 was used for the Plan's December 31, 2016 funding valuation and was provided to Willis Towers Watson by the OPSEU Pension Trust. A summary of the data follows.

Active Members	
Number	43,575
Average Credited Service	11.4
Average Age	45.1
Average Salary[1]	$62,988
Pensioners and Survivors	
Number	36,409
Average Age	70.3
Average Annual Lifetime Pension[2]	$19,571
Deferred Pensioners	
Number	5,786
Average Age	47.8
Average Annual Lifetime Pension[2]	$5,755
Special Deferred Pensioners[3]	
Number	2,272
Average Age	53.2
Average Annual Lifetime Pension[2]	$6,893
Former Members with Unprocessed Benefits[4]	
Number	1,500
Average Age	49.8
Average Annual Lifetime Pension[2]	$7,256

[1] The average salary is based on the assumed salaries as at January 1, 2017.

[2] The average annual pension is based on the pension as at January 1, 2017.

[3] Former Plan members whose membership terminated as a result of a divestment.

[4] Former members who ceased Plan participation prior to December 31, 2016 but who have not elected a benefit entitlement option.

EXHIBIT 3

Preliminary Actuarial Assumptions Used in Plan's December 31, 2016 Financial Statements

Investment Return

The assumed rate of return on investments is 5.75% per annum. This rate is net of expected investment-related expenses.

Inflation Rate

The inflation rate as measured by increases in the Consumer Price Index is assumed to be 2.00% per annum.

Salary Scale

The rate of salary increase consists of two components:

(a) Economic Increases

A rate of 1.40% per annum for 2017 and 2.75% per annum thereafter has been assumed for increases in salary related to inflation and productivity.

(b) Promotion Increases

A salary promotion scale based on years of service has been assumed and is presented in Appendix "A".

Rate of Increase in the Year's Maximum Pensionable Earning ("YMPE") under the Canada Pension Plan

It is assumed that the YMPE will increase at a rate of 2.50% per annum.

Income Tax Act Maximum Pension Limit

It is assumed that the maximum annual pension limit of $2,914.44 per year of pensionable service will increase at a rate of 2.50% per annum, starting in 2018.

Interest on Employee Contributions

It is assumed that employee contributions will be credited with interest at the rate of 3.00% per annum.

Mortality Rates

It has been assumed that the mortality of members before and after retirement will be represented by 108% of CPM2014 Private Sector mortality table, with generational projection using projection scale CPM-B.

Withdrawal Rates

It is assumed that members will terminate their employment in accordance with rates based on member age. Sample rates are shown in Appendix "B".

EXHIBIT 3 (continued)

Transfer Value Take-up Rate and Transfer Value Basis

It is assumed that 70% of members terminating will elect a transfer value option. Lump sum transfer values determined for this group were calculated using a discount rate of 2.0% real. Mortality was assumed to be represented by the 2014 Canadian Pensioner Mortality Table (CPM2014) projected with the mortality improvement scale CPM-B.

Retirement Rates

It is assumed that members will retire in accordance with the rates of retirement shown in Appendix "C". Three sets of retirement rates are used in the valuation. The "reduced" early retirement rates are applied until the member qualifies for unreduced benefits under the 90-point rule where age plus service total 90 years, or the age 60 and 20 years of service rule. Thereafter, either the 60/20 or the 90-point retirement rates are used.

Disability

No provision has been made for disability in recognition of the continuation of pension accrual and contributions under the Plan.

Marital Status

It has been assumed that 85% of male members and 60% of female members are married at the time a benefit commences to be paid.

It has been assumed that the spouse of a male member is three years younger than the member and the spouse of a female member is two years older than the member.

Expenses

A provision for administrative expenses equal to the present value of the estimated future costs attributable to administering the accrued pension benefits.

Special Deferred Pensioners

For special deferred pensioners, it was assumed that mortality, withdrawal and retirement rates subsequent to divestment will be the same as the rates for active members of the OPSEU Plan. Salaries and the YMPE for these members are assumed to increase at the rate of 2.00% annum to account for the indexation of their accrued pensions.

APPENDIX "A"

Rates of Promotional Salary Increase

Years of Service	Increase
1	4.00%
2	3.60%
3	3.20%
4	2.60%
5	2.10%
6	1.80%
7	1.60%
8	1.40%
9	1.20%
10	1.00%
11	0.80%
12	0.60%
13	0.60%
14	0.50%
15	0.50%
16	0.50%
17	0.50%
18	0.30%
19	0.30%
20	0.30%
21 and over	0.00%

APPENDIX "B"

Sample Withdrawal Rates

Attained Age	Rate
20	0.077
25	0.063
30	0.051
35	0.041
40	0.033
45	0.027
50	0.022
55	0.000

APPENDIX "C"

Retirement Rates

Attained Age	Reduced Early	90-Point	60/20
50		0.40	
51		0.40	
52		0.40	
53		0.40	
54		0.40	
55	0.046	0.40	
56	0.020	0.40	
57	0.023	0.40	
58	0.026	0.40	
59	0.029	0.40	
60	0.058		0.30
61	0.059		0.20
62	0.061		0.20
63	0.062		0.20
64	0.115		0.20
65	1.000		1.00