

**State of Connecticut  
State Employee OPEB  
Plan (SEOPEBP)**

**Actuarial Valuation and Review of  
Other Postemployment Benefits  
(OPEB) for Reporting Date  
June 30, 2019 Measured at June  
30, 2018 in accordance with GASB  
Statement No. 75**

This report has been prepared at the request of the State of Connecticut to assist in administering the Plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the State of Connecticut Office of the State Comptroller and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.



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March 13, 2019

Thomas C. Woodruff, PhD  
Director  
Healthcare Policy & Benefits Services Division  
Office of the State Comptroller  
55 Elm Street  
Hartford, CT 06106-1775


Dear Dr. Woodruff:

We are pleased to submit this Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2019 under Governmental Accounting Standards Board Statement No. 75. The report summarizes the actuarial data used in the valuation, discloses the Net OPEB Liability (NOL) measured as of June 30, 2018, to be reported as of June 30, 2019, and analyzes the preceding years' experience. This report was based on the census data and financial information provided by the Healthcare Policy & Benefits Services Division of the Office of the State Comptroller and the terms of the Plan. The actuarial calculations were completed under the supervision of Daniel J. Rhodes, FSA, MAAA, Vice President and Consulting Actuary.

The actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. The assumptions used in this valuation are the same as in the June 30, 2018 GASB 74 report dated February 4, 2019. Further, in our opinion, these assumptions are reasonably related to the experience of and the expectations for the Plan. The actuarial projections are based on these assumptions and the plan of benefits as summarized in the June 30, 2018 GASB 74 report.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By: 

Daniel J. Rhodes, FSA, MAAA  
Vice President and Consulting Actuary

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# Section 1: Executive Summary

## Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to defining future uncertain obligations of a postretirement health plan. As such, it will never forecast the precise future stream of benefit payments. It is an estimated forecast – the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation.

In order to prepare a valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:

<b>Plan of benefits</b>	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. For example, a plan may provide health benefits to post-65 retirees that coordinates with Medicare. If so, changes in the Medicare law or administration may change the plan’s costs without any change in the terms of the plan itself. It is important for the State to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
<b>Participant data</b>	An actuarial valuation for a plan is based on data provided to the actuary by the plan. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is not necessary to have perfect data for an actuarial valuation: the valuation is an estimated forecast, not a prediction. The uncertainties in other factors are such that even perfect data does not produce a “perfect” result. Notwithstanding the above, it is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
<b>Assets</b>	Part of the cost of a plan will be paid from existing assets – the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the auditor. Some plans include assets, such as private equity holdings, real estate, or hedge funds that are not subject to valuation by reference to transactions in the marketplace.
<b>Actuarial assumptions</b>	In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. To determine the future costs of benefits, Segal collects claims, premiums, and enrollment data in order to establish a baseline cost for the valuation measurement, and then develops short- and long-term health care cost trend rates to project increases in costs in future years. This forecast also requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year, as well as forecasts of the plan’s benefits for each of those events. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan’s assets or, if there are no assets, a rate of return based on a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale). All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which

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assumptions the actuary selects within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model necessarily uses approximations and estimates that may lead to significant changes in our results but will have no impact on the actual cost of the plan. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

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The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared for use by the State. It includes information for compliance with accounting standards and for the plan's auditor. Segal is not responsible for the use or misuse of its report, particularly by any other party.
  - If the State is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
  - An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
  - Sections of this report include actuarial results that are not rounded, but that does not imply precision.
  - Critical events for a plan include, but are not limited to, decisions about changes in benefits and contributions. The basis for such decisions needs to consider many factors such as the risk of changes in plan enrollment, emerging claims experience, health care trend, and investment losses, not just the current valuation results.
  - Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The State should look to their other advisors for expertise in these areas.
  - While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
  - Segal's report shall be deemed to be final and accepted by the State upon delivery and review. The State should notify Segal immediately of any questions or concerns about the final content.
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As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

## Purpose

This report presents the results of our actuarial valuation of the State of Connecticut (the “State”) OPEB plan as of June 30, 2018, for June 30, 2019 reporting, required by Governmental Accounting Standards Board (GASB) Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other than Pensions*. The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may be significantly different from the results reported here.

## Highlights of the Valuation

- The net OPEB liability and annual OPEB expense in this valuation are calculated using a June 30, 2018 measurement date, to be used for reporting as of June 30, 2019 under Statement 75. The current year liabilities in this report are based on the prior valuation rolled forward to the June 30, 2018 measurement date.
- The **Net OPEB Liability** (NOL) as of June 30, 2018 is \$17,264,398,000, a decrease of \$98,182,000 from the prior valuation NOL of \$17,362,580,000 as of June 30, 2017. The NOL had been expected to increase to \$17,978,784,000 due to normal plan operations. The difference between actual and expected NOL was the net effect of several factors:
  - An **investment experience loss** increased the NOL by \$9,754,000. This was the result of a loss due to fund investment performance (returns less than expected).
  - **Valuation assumption changes** decreased the NOL by \$724,140,000. This was the result of increasing the discount rate from 3.68% to 3.95%. The discount rate is determined in accordance with GASB Statement No. 75. It is a blend of the long-term expected rate of return on OPEB Trust assets (6.90%, consistent with the assumption used in the GASB 67/68 reports of the retirement systems), and a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (3.87% as of June 30, 2018 and 3.58% as of June 30, 2017).
- As of June 30, 2018, the ratio of assets to the Total OPEB Liability (the funded ratio) is 4.69%. This is based on the market value of assets at this point in time.
- The **Annual OPEB Expense** for the measurement date of June 30, 2018, to be reported as of June 30, 2019, is \$1,187,290,000. The expense was \$1,223,749,000 last year.
- The Plan has accrued a total of \$919,774,000 of deferred net inflows as of June 30, 2018. Deferred inflows will decrease future year OPEB expenses as they are recognized over the next five to six years. *Section 2* shows the projected recognition of these deferred inflows and deferred outflows. Any deferred outflows or inflows attributable to net contributions (i.e., total retiree benefits paid less recipient contributions) made between the measurement date as of June 30, 2018 and reporting date of June 30, 2019 are unknown as of this report and thus have not been reflected.

## Summary of Key Valuation Results

Reporting Date	June 30, 2019	June 30, 2018
Measurement Date	June 30, 2018	June 30, 2017
Discount Rate	3.95%	3.68%
Total OPEB Liability	\$18,114,287,000	\$17,904,922,000
Plan Fiduciary Net Position (Assets)	849,889,000	542,342,000
Net OPEB Liability	17,264,398,000	17,362,580,000
Plan Fiduciary Net Position as a percentage of Total OPEB Liability	4.69%	3.03%
Annual OPEB Expense	\$1,187,290,000	\$1,223,749,000
Service Cost at Beginning of Year	901,698,000	960,992,000
Total Payroll (estimated)	3,875,035,000	3,743,995,000

## *Actuarial Certification*

*March 5, 2019*

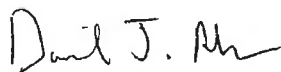
This is to certify that Segal Consulting, a Member of The Segal Group, Inc. has conducted an actuarial valuation of certain benefit obligations of the State of Connecticut's State Employee OPEB Plan (SEOPEBP) as of June 30, 2018, in accordance with generally accepted actuarial principles and practices. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statement 75 for the determination of the liability for postemployment benefits other than pensions.

The actuarial valuation is based on the plan of benefits verified by the State and reliance on participant, premium, claims and expense data provided by the State or from vendors employed by the State. Segal Consulting does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. Segal, however, does review the data for reasonableness and consistency.

The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may be significantly different from the results reported here. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security at termination of the plan, or determining short-term cash flow requirements.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience or rates of return on assets differing from that anticipated by the assumptions; changes in assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. The scope of the assignment did not include performing an analysis of the potential change of such future measurements except where noted.

To the best of my knowledge, this report is complete and accurate and in my opinion presents the information necessary to comply with GASB Statement 75 with respect to the benefit obligations addressed. The signing actuary is a member of the Society of Actuaries, the American Academy of Actuaries, and other professional actuarial organizations and meets the "General Qualification Standards for Statements of Actuarial Opinions" to render the actuarial opinion contained herein.



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Daniel J. Rhodes, FSA, MAAA  
Vice President and Consulting Actuary



## Section 2: GASB 75 Information

### General Information about the OPEB Plan

#### *Plan Description*

*Plan administration.* The State Comptroller's Healthcare Policy & Benefits Division under the direction of the Connecticut State Employees Retirement Commission administers this single-employer defined benefit OPEB plan that is used to provide benefits for qualifying employees. Sections 5-257 and 5-259 of the Connecticut General Statutes assigns the authority to establish and amend the benefit provisions of the plan.

*Plan membership.* At June 30, 2017, plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits <sup>1</sup>	74,579
Vested terminated members entitled to but not yet receiving benefits	256
Active members	49,538
<b>Total</b>	<b>124,373</b>

<sup>1</sup> For purposes of calculating remaining service lives for amortization periods in OPEB expense, 25,010 spouses covered under retired members coverage were excluded.

*Benefits provided.* The plan provides healthcare and life insurance benefits to eligible retired State employees and their spouses.

*Contributions.* The plan is primarily funded on a pay-as-you-go basis. The contribution requirements of the State are established and may be amended by the State legislature, or by agreement between the State and employee unions, upon approval by the State legislature.

## Net OPEB Liability

Reporting Date for Employer under GASB 75	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 75	June 30, 2018	June 30, 2017
<b>Components of the Net OPEB Liability</b>		
Total OPEB Liability	\$18,114,287,000	\$17,904,922,000
Plan Fiduciary Net Position	849,889,000	542,342,000
Net OPEB Liability	17,264,398,000	17,362,580,000
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	4.69%	3.03%

The Net OPEB liability was measured as of June 30, 2018 and 2017. Plan Fiduciary Net Position (plan assets) was valued as of the measurement dates and the Total OPEB Liability was determined from an actuarial valuation using data as of June 30, 2017.

*Actuarial assumptions.* The total OPEB liability was measured by an actuarial valuation as of June 30, 2017 using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Payroll growth rate	3.5%
Salary increases	3.25% to 19.50% varying by years of service and retirement system
Discount rate	3.95% as of June 30, 2018 and 3.68% as of June 30, 2017
Healthcare cost trend rates:	
Medical <sup>1</sup>	6.5% graded to 4.5% over 4 years
Prescription drug <sup>1</sup>	8.0% graded to 4.5% over 7 years
Dental and Part B	4.5%
Administrative expense <sup>1</sup>	3.0%

<sup>1</sup> Short term rates were altered for participants under 65 to reflect the impact of new retirees receiving 2017 SEBAC changes upon retirement and for Medicare-eligible participants to reflect MAPD rate guarantees through 2020, as well as known increases in administrative fees. See Section 3, Exhibit II of the June 30, 2018 GASB 74 report dated February 4, 2019 for more detail.

## Mortality rates

*Healthy:* SERS, PJERS, JFSMCCRS, ARP, HYBRID, OTHER

RP-2014 White Collar Mortality Table projected to 2020 by Scale BB at 100% for males and 95% for females

STRS

Headcount-Weighted RP-2014 White Collar Mortality Table with employee and annuitant rates blended from ages 50 to 80 projected to year 2020 under Scale BB and further adjusted to grade in increases (5% for females and 8% for males) to rates over age 80

*Disabled:* SERS, PJERS, JFSMCCRS, ARP, HYBRID, OTHER

RP-2014 Disabled Retiree Mortality Table at 65% for males and 85% for females

STRS

Headcount-Weighted RP-2014 Disabled Retiree Mortality Table projected to 2017w with Scale BB

The demographic assumptions used in this valuation are the same as those used in the most recent pension valuation report or experience study available, completed by Cavanaugh Macdonald Consulting, LLC. Given that the participants in this Plan are a subset of the participants in the respective pension plans, we have no reason to doubt the reasonableness of these specific assumptions for this valuation. Other assumptions were determined by Segal Consulting.

Detailed information regarding all actuarial assumptions can be found in the June 30, 2018 GASB 74 report dated February 4, 2019.

## Determination of Discount Rate and Investment Rates of Return

### *Development of Discount Rate*

We used the same long-term expected rate of return as the one developed by Cavanaugh MacDonald Consulting, LLC in their GASB Statement No. 67 Report for the Connecticut State Employees' Retirement System prepared as of June 30, 2017. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized below:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Large Cap U.S. Equities	21.0%	5.8%
Developed Non-U.S. Equities	18.0%	6.6%
Emerging Markets (Non-U.S.)	9.0%	8.3%
Real Estate	7.0%	5.1%
Private Equity	11.0%	7.6%
Alternative Investment	8.0%	4.1%
Fixed Income (Core)	8.0%	1.3%
High Yield Bonds	5.0%	3.9%
Emerging Market Bond	4.0%	3.7%
Inflation Linked Bonds	5.0%	1.0%
Cash	4.0%	0.4%

Nature of Assets: The assets are in an irrevocable OPEB trust.

### *Development of Blended Discount Rate*

The discount rate is a blend of the long-term expected rate of return on OPEB Trust assets and a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rate of AA/Aa or higher (3.87% as of June 30, 2018 and 3.58% as of June 30, 2017). The final discount rate used to measure to total OPEB liability was 3.95% as of June 30, 2018. The blending is based on the sufficiency of projected assets to make projected benefit payments.

## Sensitivity

The following presents the NOL of the State as well as what the State's NOL would be if it were calculated using a discount rate that is 1-percentage-point lower (2.95%) or 1-percentage-point higher (4.95%) than the current rate. Also, shown is the NOL as if it were calculated using healthcare cost and contribution trend rates that were 1-percentage-point lower or 1-percentage-point higher than the current trend rates.

	1% Increase in Discount Rate (4.95%)	Current Discount Rate (3.95%)	1% Decrease in Discount Rate (2.95%)
Net OPEB Liability	\$15,022,254,000	\$17,264,398,000	\$20,025,441,000
	1% Increase in Trend Rates	Current Trend Rates	1% Decrease in Trend Rates
	Medical: 7.5% graded to 5.5% over 4 years Prescription Drug: 9.0% graded to 5.5% over 7 years Dental and Part B: 5.5% Administrative expense: 4.0%	Medical: 6.5% graded to 4.5% over 4 years Prescription Drug: 8.0% graded to 4.5% over 7 years Dental and Part B: 4.5% Administrative expense: 3.0%	Medical: 5.5% graded to 3.5% over 4 years Prescription Drug: 7.0% graded to 3.5% over 7 years Dental and Part B: 3.5% Administrative expense: 2.0%
Net OPEB Liability	\$20,507,187,000	\$17,264,398,000	\$14,705,267,000

## Schedule of Changes in Net OPEB Liability – Last Two Fiscal Years

Reporting Date for Employer under GASB 75	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 75	June 30, 2018	June 30, 2017
<b>Total OPEB Liability</b>		
• Service cost	\$901,698,000	\$960,992,000
• Interest	680,154,000	511,133,000
• Change of benefit terms	--	--
• Differences between expected and actual experience	--	--
• Changes of assumptions	-724,140,000	-510,781,000
• Benefit payments, including refunds of member contributions	<u>-648,347,000</u>	<u>-639,467,000</u>
<b>Net change in Total OPEB Liability</b>	<b>\$209,365,000</b>	<b>\$321,877,000</b>
<b>Total OPEB Liability – beginning</b>	<b><u>\$17,904,922,000</u></b>	<b><u>\$17,583,045,000</u></b>
<b>(a) Total OPEB Liability – ending</b>	<b><u>\$18,114,287,000</u></b>	<b><u>\$17,904,922,000</u></b>
<b>Plan Fiduciary Net Position</b>		
• Contributions – employer	\$801,893,000	\$667,401,000
• Contributions – employee	116,814,000	120,783,000
• Net investment income	37,001,000	53,194,000
• Benefit payments, including refunds of member contributions	-648,347,000	-639,467,000
• Administrative expense	--	--
• Other	<u>186,000</u>	<u>-187,000</u>
<b>Net change in Plan Fiduciary Net Position</b>	<b>\$307,547,000</b>	<b>\$201,724,000</b>
<b>Plan Fiduciary Net Position – beginning</b>	<b><u>\$542,342,000</u></b>	<b><u>\$340,618,000</u></b>
<b>(b) Plan Fiduciary Net Position – ending</b>	<b><u>\$849,889,000</u></b>	<b><u>542,342,000</u></b>
<b>(c) Net OPEB Liability – ending (a) - (b)</b>	<b><u>\$17,264,398,000</u></b>	<b><u>\$17,362,580,000</u></b>
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	4.69%	3.03%
Covered employee payroll (estimated)	\$3,875,035,000	\$3,743,995,000
Plan Net OPEB Liability as a percentage of covered employee payroll	445.5%	463.7%

**Notes to Schedule:**

*Benefit changes:* None.

*Changes of assumptions:* The discount rate was updated in accordance with GASB statement No. 75 to 3.95% as of June 30, 2018.

## Deferred Outflows of Resources and Deferred Inflows of Resources

The following charts reflect the deferred inflows and outflows of resources related to OPEB. Deferred inflows and outflows are differences between actual and expected experience that are not reflected in the current year's expenses.

Reporting Date for Employer under GASB 75	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 75	June 30, 2018	June 30, 2017
<b>Deferred Outflows of Resources</b>		
• Changes of assumptions or other inputs	\$0	\$0
• Net difference between projected and actual earnings on OPEB plan investments	0	0
• Difference between expected and actual experience in the Total OPEB Liability	<u>0</u>	<u>0</u>
Total Deferred Outflows of Resources	\$0	\$0
<b>Deferred Inflows of Resources</b>		
• Changes of assumptions or other inputs	-\$912,836,000	-\$416,541,000
• Net difference between projected and actual earnings on OPEB plan investments	-6,938,000	-19,654,000
• Difference between expected and actual experience in the Total OPEB Liability	<u>0</u>	<u>0</u>
Total Deferred Inflows of Resources	-\$919,774,000	-\$436,195,000

**Deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized as follows:**

Reporting Date for Employer under GASB 75 Year Ended June 30:

2019	N/A	-\$99,153,000
2020	-\$230,807,000	-99,153,000
2021	-230,807,000	-99,153,000
2022	-230,809,000	-99,155,000
2023	-17,236,000	-39,581,000
2024	-56,115,000	0
Thereafter	0	0



## Schedule of Recognition of Changes in Total Net OPEB Liability

Increase (Decrease) in OPEB Expense Arising from the Recognition of the  
Effects of Differences between Expected and Actual Experience on Total OPEB Liability

Reporting Date for Employer under GASB 75 Year Ended June 30:

Reporting Date for Employer under GASB 75 Year Ended June 30	Differences between Expected and Actual Experience	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	Thereafter
2018	\$0	5.42	<u>\$0</u>	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2019	0	5.42	N/A	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in OPEB expense			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**Increase (Decrease) in OPEB Expense Arising from the  
Recognition of the Effects of Assumption Changes**

**Reporting Date for Employer under GASB 75 Year Ended June 30:**

Reporting Date for Employer under GASB 75 Year Ended June 30	Effect of Assumption Changes	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	Thereafter
2018	-\$510,781,000	5.42	<u>-\$94,240,000</u>	-\$94,240,000	-\$94,240,000	-\$94,240,000	-\$94,240,000	-\$39,581,000	\$0	\$0
2019	-724,140,000	5.42	N/A	<u>-133,605,000</u>	<u>-133,605,000</u>	<u>-133,605,000</u>	<u>-133,605,000</u>	<u>-133,605,000</u>	<u>-56,115,000</u>	<u>0</u>
Net increase (decrease) in OPEB expense			-\$94,240,000	-\$227,845,000	-\$227,845,000	-\$227,845,000	-\$227,845,000	-\$173,186,000	-\$56,115,000	\$0

**Increase (Decrease) in OPEB Expense Arising from the Recognition of Differences between Projected and Actual Earnings on Investments**

**Reporting Date for Employer under GASB 75 Year Ended June 30:**

Reporting Date for Employer under GASB 75 Year Ended June 30	Differences between Projected and Actual Earnings on Investments	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	Thereafter
2018	-\$24,567,000	5.00	<u>-\$4,913,000</u>	-\$4,913,000	-\$4,913,000	-\$4,913,000	-\$4,915,000	\$0	\$0	\$0
2019	9,754,000	5.00	N/A	<u>1,951,000</u>	<u>1,951,000</u>	<u>1,951,000</u>	<u>1,951,000</u>	<u>1,950,000</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in OPEB expense			-\$4,913,000	-\$2,962,000	-\$2,962,000	-\$2,962,000	-\$2,964,000	\$1,950,000	\$0	\$0

**Total Increase (Decrease) in OPEB Expense**

**Reporting Date for Employer under GASB 75 Year Ended June 30:**

Reporting Date for Employer under GASB 75 Year Ended June 30	Differences between Expected and Actual Experience	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	Thereafter
2018	-\$535,348,000		<u>-\$99,153,000</u>	-\$99,153,000	-\$99,153,000	-\$99,153,000	-\$99,155,000	-\$39,581,000	\$0	\$0
2019	-\$714,386,000		N/A	<u>-131,654,000</u>	<u>-131,654,000</u>	<u>-131,654,000</u>	<u>-131,654,000</u>	<u>-131,655,000</u>	<u>-56,115,000</u>	<u>0</u>
Net increase (decrease) in OPEB expense			-\$99,153,000	-\$230,807,000	-\$230,807,000	-\$230,807,000	-\$230,809,000	-\$171,236,000	-\$56,115,000	\$0

## OPEB Expense

Reporting Date for Employer under GASB 75	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 75	June 30, 2018	June 30, 2017
<b>Components of OPEB Expense</b>		
• Service cost	\$901,698,000	\$960,992,000
• Interest on the Total OPEB Liability	680,154,000	511,133,000
• Expensed portion of current-period benefit changes	--	--
• Expensed portion of current-period difference between expected and actual experience in the Total OPEB Liability	--	--
• Expensed portion of current-period changes of assumptions or other inputs	-133,605,000	-94,240,000
• Member contributions	-116,814,000	-120,783,000
• Projected earnings on plan investments	-46,755,000	-28,627,000
• Expensed portion of current-period differences between actual and projected earnings on plan investments	1,951,000	-4,913,000
• Administrative expense	--	--
• Other	-186,000	187,000
• Recognition of beginning of year deferred outflows of resources as OPEB expense	--	--
• Recognition of beginning of year deferred inflows of resources as OPEB expense	<u>-99,153,000</u>	<u>--</u>
<b>OPEB Expense</b>	<b>\$1,187,290,000</b>	<b>\$1,223,749,000</b>

## Schedule of Contributions – Last Ten Fiscal Years

Year Ended June 30:	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered-Employee Payroll	Contributions as a Percentage of Covered Employee Payroll
2009					0.00%
2010					0.00%
2011					0.00%
2012	Historical information prior to implementation of GASB 74 and 75 is not required.				0.00%
2013					0.00%
2014					0.00%
2015					0.00%
2016					0.00%
2017	\$1,043,143,000	\$667,401,000	\$375,742,000	N/A	N/A
2018	1,157,121,000	801,893,000	355,228,000	\$3,743,995,000	21.42%

Note: Historical information prior to implementation of GASB 74 and 75 is not required.

**Notes to Schedule:**

**Methods and assumptions used to determine contribution rates for the year ended June 30, 2018:**

<b>Valuation date</b>	Actuarially determined contribution for fiscal year ending June 30, 2018 was determined with the June 30, 2017 actuarial valuation.
<b>Actuarial cost method</b>	Entry Age Normal
<b>Amortization method</b>	Level percent of growing payroll, closed, 30 years
<b>Remaining amortization period</b>	20 years as of June 30, 2018
<b>Asset valuation method</b>	Market value
<b>Investment rate of return</b>	6.90%
<b>Payroll growth rate</b>	3.50%

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	Allocation Calculation					
	June 30, 2017			June 30, 2018		
Groups	Employer Contributions	Proportionate Share	Share of June 30, 2018 NOL	Employer Contributions	Proportionate Share	Share of June 30, 2018 NOL
Primary Government	\$657,909,394	98.577827%	\$17,115,654,076	\$791,073,503	98.650756%	\$17,031,459,145
Component Units						
Connecticut Housing Finance Authority	2,603,173	0.390046%	67,722,049	2,933,060	0.365767%	63,147,471
Connecticut Airport Authority	2,708,873	0.405884%	70,471,934	3,200,867	0.399164%	68,913,262
Connecticut Green Bank	956,207	0.143273%	24,875,889	1,114,766	0.139017%	24,000,448
Connecticut Innovations Inc.	907,067	0.135910%	23,597,482	1,113,921	0.138911%	23,982,148
Connecticut Lottery Corporation	2,090,376	0.313211%	54,381,510	2,186,525	0.272670%	47,074,834
Capital Region Development Authority	<u>225,910</u>	<u>0.033849%</u>	<u>5,877,060</u>	<u>270,358</u>	<u>0.033715%</u>	<u>5,820,692</u>
Total Component Units	\$9,491,606	1.422173%	\$246,925,924	\$10,819,497	1.349244%	\$232,938,855
Grand Total	\$667,401,000	100.000000%	\$17,362,580,000	\$801,893,000	100.000000%	\$17,264,398,000



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OPEB Expense															
Groups	Service cost	Interest on the Total OPEB Liability	Expensed portion of current-period changes in proportion	Expensed portion of current-period benefit changes	Expensed portion of current-period difference between expected and actual experience in the Total OPEB Liability	Expensed portion of current-period changes of assumptions or other inputs	Employee contributions	Projected earnings on plan investments	Expensed portion of current-period differences between actual and projected earnings on plan investments	Administrative expense	Other	Recognition of beginning of year deferred outflows of resources as OPEB expense	Recognition of beginning of year deferred inflows of resources as OPEB expense	Net amortization of past-period amounts from changes in proportion	OPEB Expense
Primary Government	\$889,531,893	\$670,977,062	\$2,394,922	\$0	\$0	(\$131,802,342)	(\$115,237,895)	(\$46,124,162)	\$1,924,676	\$0	(\$183,491)	\$0	(\$97,815,185)	(\$56,564)	\$1,173,608,914
Component Units															
Connecticut Housing Finance Authority	3,298,114	2,487,779	(797,300)	0	0	(488,683)	(427,267)	(171,014)	7,136	0	(680)	0	(362,669)	295,985	3,841,401
Connecticut Airport Authority	3,599,254	2,714,930	(220,679)	0	0	(533,303)	(466,279)	(186,629)	7,788	0	(742)	0	(395,783)	(55,163)	4,463,394
Connecticut Green Bank	1,253,514	945,530	(139,763)	0	0	(185,734)	(162,391)	(64,997)	2,712	0	(259)	0	(137,840)	166,062	1,676,834
Connecticut Innovations Inc.	1,252,558	944,809	98,550	0	0	(185,592)	(162,267)	(64,948)	2,710	0	(258)	0	(137,734)	(613,283)	1,134,545
Connecticut Lottery Corporation	2,458,660	1,854,576	(1,331,329)	0	0	(364,301)	(318,517)	(127,487)	5,320	0	(507)	0	(270,360)	279,951	2,186,006
Capital Region Development Authority	304,007	229,314	(4,401)	0	0	(45,045)	(39,384)	(15,763)	658	0	(63)	0	(33,429)	(16,988)	378,906
Total Component Units	\$12,166,107	\$9,176,938	(\$2,394,922)	\$0	\$0	(\$1,802,658)	(\$1,576,105)	(\$630,838)	\$26,324	\$0	(\$2,509)	\$0	(\$1,337,815)	\$56,564	\$13,681,086
Grand Total	\$901,698,000	\$680,154,000	\$0	\$0	\$0	(\$133,605,000)	(\$116,814,000)	(\$46,755,000)	\$1,951,000	\$0	(\$186,000)	\$0	(\$99,153,000)	\$0	\$1,187,290,000

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Groups	Deferred Outflows of Resources and Deferred Inflows of Resources																
	Deferred Outflows of Resources					Deferred Inflows of Resources					Projected Recognition						
	Changes in proportion	Changes of assumptions	Net difference between projected and actual earnings on OPEB Plan investments	Difference between expected and actual experience in the Total OPEB Liability	Total Deferred Outflows of Resources	Changes in proportion	Changes of assumptions	Net difference between projected and actual earnings on OPEB Plan investments	Difference between expected and actual experience in the Total OPEB Liability	Total Deferred Inflows of Resources	2020	2021	2022	2023	2024	Thereafter	Total
Primary Government	\$10,585,547	\$0	\$0	\$0	\$10,585,547	(\$193,442)	(\$900,519,614)	(\$6,844,389)	\$0	(\$907,557,445)	(\$225,354,493)	(\$225,354,493)	(\$225,356,466)	(\$166,554,437)	(\$54,352,013)	\$0	(\$896,971,902)
Component Units																	
Connecticut Housing Finance Authority	1,012,266	0	0	0	1,012,266	(3,524,065)	(3,338,853)	(25,377)	0	(6,888,295)	(1,345,531)	(1,345,531)	(1,345,538)	(1,299,314)	(540,115)	0	(5,876,029)
Connecticut Airport Authority	0	0	0	0	0	(1,164,057)	(3,643,713)	(27,694)	0	(4,835,464)	(1,197,140)	(1,197,140)	(1,197,148)	(927,360)	(316,674)	0	(4,835,462)
Connecticut Green Bank	567,930	0	0	0	567,930	(617,753)	(1,268,997)	(9,645)	0	(1,896,395)	(294,562)	(294,562)	(294,565)	(308,066)	(136,710)	0	(1,328,465)
Connecticut Innovations Inc.	435,592	0	0	0	435,592	(2,097,429)	(1,268,030)	(9,638)	0	(3,375,097)	(835,349)	(835,349)	(835,352)	(396,896)	(36,558)	0	(2,939,504)
Connecticut Lottery Corporation	957,432	0	0	0	957,432	(5,884,472)	(2,489,030)	(18,918)	0	(8,392,420)	(1,680,719)	(1,680,719)	(1,680,725)	(1,680,659)	(712,165)	0	(7,434,987)
Capital Region Development Authority	0	0	0	0	0	(77,549)	(307,763)	(2,339)	0	(387,651)	(99,206)	(99,206)	(99,206)	(69,268)	(20,765)	0	(387,651)
Total Component Units	\$2,973,220	\$0	\$0	\$0	\$2,973,220	(\$13,365,325)	(\$12,316,386)	(\$93,611)	\$0	(\$25,775,322)	(\$5,452,507)	(\$5,452,507)	(\$5,452,534)	(\$4,681,563)	(\$1,762,987)	\$0	(\$22,802,098)
Grand Total	\$13,558,767	\$0	\$0	\$0	\$13,558,767	(\$13,558,767)	(\$912,836,000)	(\$6,938,000)	\$0	(\$933,332,767)	(\$230,807,000)	(\$230,807,000)	(\$230,809,000)	(\$171,236,000)	(\$56,115,000)	\$0	(\$919,774,000)

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Projected Recognition Schedules of Deferred Outflows of Resources and Deferred Inflows of Resources																
Changes in Proportion																
Groups	2019 Outstanding Balance of Deferred Outflows of Resources	2020 Recognition of Deferred Outflows	2021 Recognition of Deferred Outflows	2022 Recognition of Deferred Outflows	2023 Recognition of Deferred Outflows	2024 Recognition of Deferred Outflows	Recognition of Deferred Outflows Thereafter	Total	2019 Outstanding Balance of Deferred Inflows of Resources	2020 Recognition of Deferred Inflows	2021 Recognition of Deferred Inflows	2022 Recognition of Deferred Inflows	2023 Recognition of Deferred Inflows	2024 Recognition of Deferred Inflows	Recognition of Deferred Inflows Thereafter	Total
Primary Government	\$10,585,547	\$2,394,922	\$2,394,922	\$2,394,922	\$2,394,922	\$1,005,859	\$0	\$10,585,547	(\$193,442)	(\$56,564)	(\$56,564)	(\$56,564)	(\$23,750)	\$0	\$0	(\$193,442)
Component Units																
Connecticut Housing Finance Authority	1,012,266	295,985	295,985	295,985	124,311	0	0	1,012,266	(3,524,065)	(797,300)	(797,300)	(797,300)	(797,300)	(334,865)	0	(3,524,065)
Connecticut Airport Authority	0	0	0	0	0	0	0	0	(1,164,057)	(275,842)	(275,842)	(275,842)	(243,848)	(92,683)	0	(1,164,057)
Connecticut Green Bank	567,930	166,062	166,062	166,062	69,744	0	0	567,930	(617,753)	(139,763)	(139,763)	(139,763)	(139,763)	(58,701)	0	(617,753)
Connecticut Innovations Inc.	435,592	98,550	98,550	98,550	98,550	41,392	0	435,592	(2,097,429)	(613,283)	(613,283)	(613,283)	(257,580)	0	0	(2,097,429)
Connecticut Lottery Corporation	957,432	279,951	279,951	279,951	117,579	0	0	957,432	(5,884,472)	(1,331,329)	(1,331,329)	(1,331,329)	(1,331,329)	(559,156)	0	(5,884,472)
Capital Region Development Authority	0	0	0	0	0	0	0	0	(77,549)	(21,389)	(21,389)	(21,389)	(11,536)	(1,846)	0	(77,549)
Total Component Units	\$2,973,220	\$840,548	\$840,548	\$840,548	\$410,184	\$41,392	\$0	\$2,973,220	(\$13,365,325)	(\$3,178,906)	(\$3,178,906)	(\$3,178,906)	(\$2,781,356)	(\$1,047,251)	\$0	(\$13,365,325)
Grand Total	\$13,558,767	\$3,235,470	\$3,235,470	\$3,235,470	\$2,805,106	\$1,047,251	\$0	\$13,558,767	(\$13,558,767)	(\$3,235,470)	(\$3,235,470)	(\$3,235,470)	(\$2,805,106)	(\$1,047,251)	\$0	(\$13,558,767)

State of Connecticut State Employee OPEB Plan  
 GASB 75 Agency Calculations for Reporting Date June 30, 2019 Measured at June 30, 2018

Projected Recognition Schedules of Deferred Outflows of Resources and Deferred Inflows of Resources																
Changes of Assumptions																
Groups	2019 Outstanding Balance of Deferred Outflows of Resources	2020 Recognition of Deferred Outflows	2021 Recognition of Deferred Outflows	2022 Recognition of Deferred Outflows	2023 Recognition of Deferred Outflows	2024 Recognition of Deferred Outflows	Recognition of Deferred Outflows Thereafter	Total	2019 Outstanding Balance of Deferred Inflows of Resources	2020 Recognition of Deferred Inflows	2021 Recognition of Deferred Inflows	2022 Recognition of Deferred Inflows	2023 Recognition of Deferred Inflows	2024 Recognition of Deferred Inflows	Recognition of Deferred Inflows Thereafter	Total
Primary Government	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$900,519,614)	(\$224,770,815)	(\$224,770,815)	(\$224,770,815)	(\$170,849,299)	(\$55,357,872)	\$0	(\$900,519,616)
Component Units																
Connecticut Housing Finance Authority	0	0	0	0	0	0	0	0	(3,338,853)	(833,382)	(833,382)	(833,382)	(633,457)	(205,250)	0	(3,338,853)
Connecticut Airport Authority	0	0	0	0	0	0	0	0	(3,643,713)	(909,475)	(909,475)	(909,475)	(691,296)	(223,991)	0	(3,643,712)
Connecticut Green Bank	0	0	0	0	0	0	0	0	(1,268,997)	(316,743)	(316,743)	(316,743)	(240,758)	(78,009)	0	(1,268,996)
Connecticut Innovations Inc.	0	0	0	0	0	0	0	0	(1,268,030)	(316,502)	(316,502)	(316,502)	(240,574)	(77,950)	0	(1,268,030)
Connecticut Lottery Corporation	0	0	0	0	0	0	0	0	(2,489,030)	(621,265)	(621,265)	(621,265)	(472,226)	(153,009)	0	(2,489,030)
Capital Region Development Authority	0	0	0	0	0	0	0	0	(307,763)	(76,818)	(76,818)	(76,818)	(58,390)	(18,919)	0	(307,763)
Total Component Units	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$12,316,386)	(\$3,074,185)	(\$3,074,185)	(\$3,074,185)	(\$2,336,701)	(\$757,128)	\$0	(\$12,316,384)
Grand Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$912,836,000)	(\$227,845,000)	(\$227,845,000)	(\$227,845,000)	(\$173,186,000)	(\$56,115,000)	\$0	(\$912,836,000)

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Projected Recognition Schedules of Deferred Outflows of Resources and Deferred Inflows of Resources																
Net Difference between Projected and Actual Earnings on OPEB Plan Investments																
Groups	2019 Outstanding Balance of Deferred Outflows of Resources	2020 Recognition of Deferred Outflows	2021 Recognition of Deferred Outflows	2022 Recognition of Deferred Outflows	2023 Recognition of Deferred Outflows	2024 Recognition of Deferred Outflows	Recognition of Deferred Outflows Thereafter	Total	2019 Outstanding Balance of Deferred Inflows of Resources	2020 Recognition of Deferred Inflows	2021 Recognition of Deferred Inflows	2022 Recognition of Deferred Inflows	2023 Recognition of Deferred Inflows	2024 Recognition of Deferred Inflows	Recognition of Deferred Inflows Thereafter	Total
Primary Government	\$7,697,719	\$1,924,676	\$1,924,676	\$1,924,676	\$1,923,690	\$0	\$0	\$7,697,718	(\$14,542,108)	(\$4,846,712)	(\$4,846,712)	(\$4,848,685)	\$0	\$0	\$0	(\$14,542,109)
Component Units																
Connecticut Housing Finance Authority	28,541	7,136	7,136	7,136	7,132	0	0	28,540	(53,918)	(17,970)	(17,970)	(17,977)	0	0	0	(53,917)
Connecticut Airport Authority	31,147	7,788	7,788	7,788	7,784	0	0	31,148	(58,841)	(19,611)	(19,611)	(19,619)	0	0	0	(58,841)
Connecticut Green Bank	10,847	2,712	2,712	2,712	2,711	0	0	10,847	(20,492)	(6,830)	(6,830)	(6,833)	0	0	0	(20,493)
Connecticut Innovations Inc.	10,839	2,710	2,710	2,710	2,709	0	0	10,839	(20,477)	(6,825)	(6,825)	(6,827)	0	0	0	(20,477)
Connecticut Lottery Corporation	21,276	5,320	5,320	5,320	5,317	0	0	21,277	(40,194)	(13,396)	(13,396)	(13,402)	0	0	0	(40,194)
Capital Region Development Authority	2,631	658	658	658	657	0	0	2,631	(4,970)	(1,656)	(1,656)	(1,657)	0	0	0	(4,969)
Total Component Units	\$105,281	\$26,324	\$26,324	\$26,324	\$26,310	\$0	\$0	\$105,282	(\$198,892)	(\$66,288)	(\$66,288)	(\$66,315)	\$0	\$0	\$0	(\$198,891)
Grand Total	\$7,803,000	\$1,951,000	\$1,951,000	\$1,951,000	\$1,950,000	\$0	\$0	\$7,803,000	(\$14,741,000)	(\$4,913,000)	(\$4,913,000)	(\$4,915,000)	\$0	\$0	\$0	(\$14,741,000)



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Discount Rate and Trend Sensitivity					
Groups	NOL at Current Discount Rate (3.95%)	1% Decrease in Discount Rate (2.95%)	1% Increase in Discount Rate (4.95%)	1% Decrease in Trend Rates	1% Increase in Trend Rates
Primary Government	\$17,031,459,145	\$19,755,248,940	\$14,819,567,139	\$14,506,857,067	\$20,230,495,009
Component Units					
Connecticut Housing Finance Authority	63,147,471	73,246,455	54,946,448	53,787,014	75,008,523
Connecticut Airport Authority	68,913,262	79,934,351	59,963,430	58,698,132	81,857,308
Connecticut Green Bank	24,000,448	27,838,767	20,883,487	20,442,821	28,508,476
Connecticut Innovations Inc.	23,982,148	27,817,540	20,867,563	20,427,233	28,486,739
Connecticut Lottery Corporation	47,074,834	54,603,370	40,961,180	40,096,852	55,916,947
Capital Region Development Authority	<u>5,820,692</u>	<u>6,751,577</u>	<u>5,064,753</u>	<u>4,957,881</u>	<u>6,913,998</u>
Total Component Units	\$232,938,855	\$270,192,060	\$202,686,861	\$198,409,933	\$276,691,991
Grand Total	\$17,264,398,000	\$20,025,441,000	\$15,022,254,000	\$14,705,267,000	\$20,507,187,000