Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

GASB STATEMENT NO. 74 REPORT

FOR THE

CONNECTICUT STATE TEACHERS' RETIREMENT SYSTEM

RETIREE HEALTH INSURANCE PLAN

PREPARED AS OF JUNE 30, 2017

www.CavMacConsulting.com

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

November 1, 2017

Board of Directors
Connecticut State Teachers' Retirement System
765 Asylum Avenue
Hartford, CT 06105

Members of the Board:

Presented in this report is information to assist the Connecticut State Teachers' Retirement System (System) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 74 for the Retiree Health Insurance Plan (Plan). GASB Statement No. 74 (GASB 74) is the accounting standard that applies to the financial reports issued by other postemployment benefits (OPEB) plans. This report has been prepared by the System's actuary, Cavanaugh Macdonald Consulting (CMC), as of June 30, 2017 (Measurement Date).

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2016 (Valuation Date). The valuation was based on data, provided by the System's staff for active, inactive and retired members along with pertinent financial information. This information was reviewed for completeness and internal consistency, but was not audited by us. The valuation results depend on the integrity of the data. If any of the information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial principles and practices, as well as in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. The calculations are based on the current provisions of the Plan, and on actuarial assumptions that are internally consistent and individually reasonable based on the actual experience of the Plan. In addition, the calculations were completed in compliance with the laws governing the Plan and, in our opinion, meet the requirements of GASB 74. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 74 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

If you have any questions, please call us at 678-388-1700.

Respectfully submitted,

Eric H. Gary, FSA, FCA, MAAA
Principal and Chief Health Actuary

John J. Garrett ASA, FCA, MAAA
Principal and Consulting Actuary

Table of Contents

Section I – Summary of Principal Results

REPORT OF THE ANNUAL GASB STATEMENT NO. 74
REQUIRED INFORMATION FOR THE
CONNECTICUT STATE TEACHERS' RETIREMENT SYSTEM
RETIREE HEALTH INSURANCE PLAN

PREPARED AS OF JUNE 30, 2017
($ thousands)

Valuation Date (VD):	June 30, 2016
Prior Measurement Date:	June 30, 2016
Measurement Date (MD):	June 30, 2017
Membership Data as of June 30, 2016:	
Inactive Members Currently Receiving Benefits	27,557
Inactive Members Entitled to But Not Yet Receiving Benefits	2,085
Active Members	50,877
Total Membership	80,519
Discount Rate:	
Long-Term Expected Rate of Return	2.75%
Municipal Bond Index Rate at Measurement Date	3.56%
Year in which Fiduciary Net Position is Projected to be Depleted	2018
Single Equivalent Interest Rate (SEIR)	3.56%
Net OPEB Liability as of Measurement Date:	
Total OPEB Liability (TOL)	$ 3,538,772
Fiduciary Net Position (FNP)	63,428
Net OPEB Liability (NOL = TOL – FNP)	$ 3,475,344
FNP as a percentage of TOL	1.79%

Section II – Introduction

The Governmental Accounting Standards Board issued Statement No. 74 (GASB 74), *"Financial Reporting for Postemployment Benefit Plans other than Pension Plans"* in June 2015. GASB 74's effective date is for a plan's fiscal year beginning after June 15, 2016. If an OPEB plan does not issue a stand-alone financial report, the employer should make the note disclosures required by Statement 74 for an OPEB plan within the employer's financial report. For the purposes of reporting under GASB 74, the Plan is assumed to be a cost-sharing, other than insured, defined benefit OPEB plan with a special funding situation where assets are accumulated in a trust that meets the criteria in paragraph 3 of GASB 74.

This report, prepared as of June 30, 2017 (Measurement Date or MD), presents information to assist the Plan in meeting the requirements of GASB 74. Much of the material provided in this report is based on the data, assumptions and results of the biennial actuarial valuation of the Plan, as of June 30, 2016 (Valuation Date or VD).

GASB 74 replaced GASB 43, which was more closely tied to funding efforts in that it required OPEB plans to report items consistent with the results of a plan's actuarial valuations, as long as those valuations met certain parameters. GASB 74 basically separates accounting from funding by creating disclosure and reporting requirements that may or may not be consistent with the basis used for funding the plan.

GASB 74 requires the determination of the Total OPEB Liability (TOL) utilizing the Entry Age Normal (EAN) actuarial cost method. If the valuation date at which the TOL is determined is before the measurement date, as is the case here, the TOL must be rolled forward to the measurement date. The Net OPEB Liability (NOL) is then set equal to the rolled forward TOL minus the plan's Fiduciary Net Position (FNP) (basically the market value of assets as of the Measurement Date). The plan provisions recognized in the calculation of the TOL are summarized in Schedule B. The development of the roll-forward of the TOL is shown in the table on page 8.

Among the items needed for the liability calculation is the discount rate, as defined by GASB, or a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan's provisions applicable to the membership and beneficiaries of the Plan on the Measurement Date. Future contributions are to be projected in accordance with a plan's funding policy and/or the application of professional judgment to consider the recent contribution history of the employers and nonemployer contributing entities. If the FNP is not projected to be depleted at any point in the future, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, at a future measurement date, the FNP is projected to be depleted, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long-term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate (Municipal Bond Index Rate). The Municipal Bond Index Rate used for this purpose is the June average of the Bond Buyer General Obligation 20-year Municipal Bond Index published weekly by the Board of Governors of the Federal Reserve System. Our calculations indicated the FNP is projected to be depleted in 2018, so the Municipal Bond Index Rate is used in the determination of the SEIR. Please see Paragraph 35(b) in the GASB 74 section for more explanation into the development of the SEIR.

Section II – Introduction (continued)

The FNP projections are based upon the Plan's financial status on the Valuation Date, the indicated set of methods and assumptions, and the requirements of GASB 74. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing plan basis, reflecting the impact of future members. Therefore, the results of this test do not necessarily indicate whether or not the fund will actually run out of money, the financial condition of the Plan, or the Plan's ability to make benefit payments in future years.

While a funding policy has not been officially adopted by the Plan's Board of Directors, the Funding Policy used in the determination of an Actuarially Determined Contribution (ADC) to be used as a benchmark against which to gauge the employer contribution rates is shown in Schedule E of this report.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 74, for note disclosure and Required Supplementary Information (RSI).

Section III – Financial Statement Notes

The material presented herein will follow the order presented in GASB 74. There are non-actuarial items required which are not included in this report. Paragraph numbers are provided for ease of reference.

Paragraphs 34(a)(1)-(3): CMC was not expected to supply this information.

Paragraph 34(a)(4): The data required regarding the membership of the Plan was furnished by the System. The following table summarizes the membership of the Plan as of June 30, 2016, the Valuation Date.

Membership

	Number
Inactive Members or Their Beneficiaries Currently Receiving Benefits	27,557
Inactive Members Entitled to but not yet Receiving Benefits	2,085
Active Members	50,877
Total Membership	80,519

Paragraphs 34(a)(5)-(6) and 34(b)-(e): CMC was not expected to supply this information.

Paragraph 35(a)(1)-(4): The information is provided in the following table. As stated previously, the NPL is equal to the TOL minus the FNP. That result as of June 30, 2017, the Measurement Date, is presented in the table below ($ thousands).

Measurement Date of June 30, 2017	
TOL	$ 3,538,772
FNP	63,428
NOL	$ 3,475,344
Ratio of FNP to TOL	1.79%

Section III – Financial Statement Notes (continued)

Paragraph 35(b): Listed below is the information to be disclosed regarding the actuarial assumptions and other inputs used to measure the TOL. The complete set of actuarial assumptions and other inputs utilized in developing the TOL are outlined in Schedule C. The TOL was determined by an actuarial valuation as of June 30, 2016, using the following key actuarial assumptions and other inputs:

Inflation	2.75%
Real wage growth	0.50%
Wage inflation	3.25%
Salary increases, including wage inflation	3.25% - 6.50%
Long-term Investment Rate of Return, net of OPEB plan investment expense, including inflation	2.75%
Municipal Bond Index Rate	3.56%
Year FNP is projected to be depleted	2018
Single Equivalent Interest Rate, net of OPEB plan investment expense, including price inflation	3.56%
Health Care Cost Trends	
Medicare Supplement Claims	7.25% for 2017 decreasing to an ultimate rate of 5.00% by 2022
Retiree Contributions	7.25% for 2017 decreasing to an ultimate rate of 5.00% by 2022

Mortality rates were based on the RPH-2014 White Collar table with employee and annuitant rates blended from ages 50 to 80, projected to the year 2020 using the BB improvement scale, and further adjusted to grade in increases (5% for females and 8% for males) to rates over age 80 for the period after service retirement and for dependent beneficiaries as well as for active members. The RPH-2014 Disabled Mortality Table projected to 2017 with Scale BB is used for the period after disability retirement. .

The demographic actuarial assumptions for retirement, disability incidence, and withdrawal used in the June 30, 2016 valuation were based on the results of an actuarial experience study for the period July 1, 2010 – June 30, 2015.

The remaining actuarial assumptions (e.g., initial per capita costs, health care cost trends, rate of plan participation, rates of plan election, etc.) used in the June 30, 2016 valuation were based on a review of recent plan experience done concurrently with the June 30, 2016 valuation.

The long-term expected return on plan assets is reviewed as part of the GASB 74 valuation process. Several factors are considered in evaluating the long-term rate of return assumption, including the Plan's current asset allocations and a log-normal distribution analysis using the best-estimate ranges of expected future real rates of return (expected return, net of investment expense and inflation) for each major asset class compiled by Horizon Actuarial Services, LLC in its *"Survey of Capital Market Assumptions, 2016 Edition"*. The long-term expected rate of return was determined by weighting the expected future real rates

of return by the target asset allocation percentage and then adding expected inflation. The assumption is not expected to change absent a significant change in the asset allocation, a change in the inflation assumption, or a fundamental change in the market that alters expected returns in future years.

The target asset allocation and best estimates of geometric real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Expected 10-Year Geometric Real Rate of Return	Standard Deviation
U.S. Equity – Large Cap	0.00%	4.39%	16.92%
U.S. Equity – Small/Mid Cap	0.00%	4.74%	21.01%
Non U.S. Equity - Developed	0.00%	4.86%	19.50%
Non U.S. Equity - Emerging	0.00%	6.19%	26.35%
U.S. Corp. Bonds - Core	0.00%	1.22%	5.96%
U.S. Corp. Bonds - Long Duration	0.00%	1.62%	10.49%
U.S. Corp. Bonds - High Yield	0.00%	3.66%	11.01%
Non-U.S. Debt - Developed	0.00%	0.26%	7.58%
Non-U.S. Debt - Emerging	0.00%	3.53%	11.58%
U.S. Treasuries (Cash Equivalents)	100.00%*	(0.02%)	2.79%
TIPS (Inflation-Protected)	0.00%	0.63%	6.51%
Real Estate	0.00%	4.11%	14.74%
Hedge Funds	0.00%	3.18%	8.39%
Commodities	0.00%	1.78%	18.50%
Infrastructure	0.00%	4.34%	13.78%
Private Equity	0.00%	6.91%	23.12%
Total / 50th Percentile	100.00%	0.02%	2.79%
Price Inflation		2.75%	
Expected Rate of Return		0.9998 x 1.0275 – 1 = 2.73%	
Expected Rate of Return (Rounded Nearest 0.25%)		2.75%	

*All of the Plan's assets are assumed to be invested in cash equivalents given the need for liquidity.

Discount rate (SEIR). The discount rate used to measure the TOL as of the Measurement Date was 3.56%. The projection of cash flows used to determine the discount rate was performed in accordance with GASB 74. The projection's basis was an actuarial valuation performed as of June 30, 2016. In addition to the actuarial methods and assumptions of the June 30, 2016 actuarial valuation, the following actuarial methods and assumptions were used in the projection of cash flows:

- Total payroll for the initial projection year consists of the payroll of the active membership present on the Valuation Date. In subsequent projection years, total payroll was assumed to increase annually at a rate of 3.25%.
- Employee contributions were assumed to be made at the current member contribution rate. Employee contributions for future plan members were used to reduce the estimated amount of total service costs for future plan members.
- No future employer contributions were assumed to be made.
- For future plan members, contribution inflows were further reduced by the estimated amount of total service costs for future plan members not financed by their member contributions.

Based on these assumptions, the Plan's FNP was projected to be depleted in 2018 and, as a result, the Municipal Bond Index Rate was used in the determination of the SEIR. Here, the long-term expected rate of return of 2.75% on Plan investments was applied to periods through 2018 and the Municipal Bond Index Rate at the Measurement Date (3.56%) was applied to periods on and after 2018, resulting in an SEIR at the Measurement Date (3.56%).

The FNP projections are based upon the Plan's financial status on the Valuation Date, the indicated set of methods and assumptions, and the requirements of GASB 74. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing plan basis, reflecting the impact of future members. Therefore, the results of this test do not necessarily indicate whether or not the fund will actually run out of money, the financial condition of the Plan, or the Plan's ability to make benefit payments in future years.

Paragraphs 35(b)(1) and 35(b)(2)(g): These paragraph require disclosure of the sensitivity of the NOL to changes in the health care cost trend rates and the discount rate. The following exhibit presents the NOL of the Plan, calculated using the health care cost trend rates, as well as what the Plan's NOL would be if it were calculated using a health care cost trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate. Similarly, the exhibit presents the NOL of the Plan, calculated using the discount rate of 3.56%, as well as what the Plan's NOL would be if it were calculated using a Discount Rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate ($ thousands):

Net OPEB Liability			
	Health Care Cost Trend Rates		
Discount Rate	1% Decrease	Current	1% Increase
1% Increase (4.56%)		$ 2,914,719	
Current (3.56%)	$ 2,861,462	$ 3,475,344	$ 4,301,861
1% Decrease (2.56%)		$ 4,188,346	

Paragraph 35(c): The TOL is based upon an actuarial valuation performed as of the Valuation Date, June 30, 2016. An expected TOL is determined as of June 30, 2017 using standard roll-forward techniques. The roll-forward calculation begins with the TOL, as of June 30, 2016, subtracts the actual benefit payments (net of retiree contributions) for the year, applies interest at the discount rate for the year, and then adds the annual normal cost (also called the Service Cost). Actuarial gains and losses arising from the difference between estimates and actual experience (excluding amounts related to benefit changes and changes in assumptions or other inputs) are reconciled to the TOL as of the Measurement Date. Last, the changes of assumptions or other inputs include the change in the SEIR from 3.01 percent on the Prior Measurement Date to 3.56 percent on the Measurement Date. The procedure used to determine the TOL, as of June 30, 2017, is shown in the following table ($ thousands):

TOL Roll-Forward	
(a) TOL as of June 30, 2016*	$ 3,734,043
(b) Actual Benefit Payments and Refunds for the Year July 1, 2016 – June 30, 2017	(84,071)
(c) Interest on TOL = [(a) x (0.03010)] + [(b) x (0.01505)]	111,129
(d) Service Cost for the Year July 1, 2016 – June 30, 2017 at the End of the Year	148,220
(e) Changes of Benefit Terms	0
(f) Differences Between Expected and Actual Experience at the End of the Year	0
(g) Changes of Assumptions or Other Inputs	(370,549)
(h) TOL Rolled Forward to June 30, 2017 = (a) + (b) + (c) + (d) + (e) + (f) + (g)	$ 3,538,772

* The TOL used in the roll-forward as of June 30, 2016 is calculated using the discount rate as of the Prior Measurement Date.

Section IV – Required Supplementary Information

The material presented herein will follow the order presented in GASB 74. Paragraph numbers are provided for ease of reference.

Paragraphs 36(a)-(c): The required tables of schedules are provided in Appendix A.

Paragraph 36(d): The required schedule presenting the annual money-weighted rates of return is to be supplied by the System.

Paragraph 38: Information regarding changes to benefit terms and changes to assumptions or other inputs should be noted regarding the RSI. The information should be listed by the date for which the indicated change was first reflected in reported amounts.

Changes to benefit terms:

June 30, 2017 (Valuation Date: June 30, 2016)

- None

Changes to assumptions or other inputs:

June 30, 2017 (Valuation Date: June 30, 2016)

- The SEIR was increased from 3.01% to 3.56% to reflect the change in the Municipal Bond Index Rate.
- Changes were made to the assumed initial per capita health care costs, rates of health care inflation used to project the per capita costs, and the rates of Plan participation based upon recent experience and current expectations,.
- As a result of the Experience Study for the Five-Year Period Ending June 30, 2015, the long-term rate of return was been lowered from 4.50% to 4.25% to reflect the decrease in the rate of inflation. Similarly, the payroll growth rate assumption was decreased from 3.75% to 3.25% to reflect the decrease in the rate of inflation and the decrease in the rate of real wage increase. Last, the salary growth assumption, the payroll growth rate, the rates of withdrawal, the rates of retirement, the rates of mortality, and the rates of disability incidence were adjusted based upon the experience study's findings and their adoption by the Board.

Section IV – Required Supplementary Information (continued)

Methods and assumptions used in calculations of Actuarially Determined Contributions. The Actuarially Determined Contribution rates, as a percentage of payroll, used to determine the Actuarially Determined Contribution amounts in the Schedule of Employer Contributions (Schedule A) are calculated as of the most recent Valuation Date. The following actuarial methods and assumptions (from the June 30, 2016 actuarial valuation) were used to determine contribution rates reported in that schedule for the year ending June 30, 2017:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll
Amortization period	30 years, open
Asset valuation method	Market value of assets
Price inflation	2.75%
Real wage growth	0.50%
Wage inflation	3.25%
Salary increases, including wage inflation	3.25% to 6.50%
Initial health care cost trend rates	
Medicare Supplement Claims	7.75%
Retiree Contributions	7.75%
Ultimate health care cost trend rates	
Medicare Supplement Claims	5.00%
Retiree Contributions	5.00%
Year of ultimate trend rates	
Medicare Supplement Claims	2022
Retiree Contributions	2022
Long-term investment rate of return, net of pension plan investment expense, including price inflation	4.25%

SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
GASB 74 Paragraph 36(a)
($ thousands)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total OPEB Liability										
Service Cost at end of year	$ 148,220									
Interest	111,129									
Changes of benefit terms	0									
Difference between expected and actual experience	0									
Changes of assumptions or other inputs	(370,549)									
Benefit payments	(84,071)									
Net change in Total OPEB Liability	$ (195,271)									
Total OPEB Liability – beginning	$ 3,734,043									
Total OPEB Liability – ending (a)	$ 3,538,772									
Plan Fiduciary Net Position										
Contributions – employer	$ 19,922									
Contributions – active member	50,436									
Net investment income	369									
Benefit payments	(84,071)									
Administrative expense	(150)									
Other	42									
Net change in Plan Fiduciary Net Position	$ (13,452)									
Plan Fiduciary Net Position – beginning	$ 76,880									
Plan Fiduciary Net Position – ending (b)	$ 63,428									
Net OPEB Liability – ending (a) – (b)	$ 3,475,344									

Schedule A – Required Supplementary Information

SCHEDULE OF THE NET OPEB LIABILITY
GASB 74 Paragraph 36(b)
($ thousands)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total OPEB Liability	$ 3,538,772									
Plan Fiduciary Net Position	63,428									
Net OPEB Liability	$ 3,475,344									
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	1.79%									
Covered payroll	$ 4,279,755									
Net OPEB Liability as a percentage of covered payroll	81.20%									

Schedule A – Required Supplementary Information

SCHEDULE OF EMPLOYER CONTRIBUTIONS
GASB 74 Paragraph 36(c)
($ thousands)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Actuarially Determined Employer Contribution	$ 166,802	$ 130,331	$ 125,620	$ 187,227	$ 180,460	$ 184,145	$ 177,063	$ 121,334	$ 116,667	$ 116,123
Contributions in relation to the Actuarially Determined Contribution	19,922	19,960	25,145	25,955	27,040	49,486	5,312	12,108	22,433	20,770
Annual contribution deficiency (excess)	$ 146,880	$ 110,371	$ 100,475	$ 161,272	$ 153,420	$ 134,659	$ 171,751	$ 109,226	$ 94,234	$ 95,353
Covered Payroll	$ 4,279,755	$ 4,125,066	$ 4,078,367	$ 3,930,957	$ 4,101,750	$ 3,943,990	$ 3,823,754	$ 3,676,686	$ 3,529,470	$ 3,393,717
Actual contributions as a percentage of covered payroll	0.47%	0.48%	0.62%	0.66%	0.66%	1.25%	0.14%	0.33%	0.64%	0.61%

Schedule B – Summary of Main Plan Provisions

Outlined below are the principal provisions of the System that were reflected in the results shown in this report.

Covered Employees

Any teacher, principal, superintendent or supervisor engaged in service of public schools, plus professional employees at State schools of higher education if they choose to be covered.

Credited Service

One month for each month of service as a teacher in Connecticut public schools, maximum 10 months for each school year. Ten months of credited service constitutes one year of Credited Service. Certain other types of teaching service, State employment, or wartime military service may be purchased prior to retirement, if the Member pays one-half the cost.

Normal Retirement

Eligibility - Age 60 with 20 years of Credited Service in Connecticut, or 35 years of Credited Service including at least 25 years of service in Connecticut.

Early Retirement

Eligibility - 25 years of Credited Service including 20 years of Connecticut service, or age 55 with 20 years of Credited Service including 15 years of Connecticut service.

Proratable Retirement

Eligibility - Age 60 with 10 years of Credited Service.

Disability Retirement

Eligibility - 5 years of Credited Service in Connecticut if not incurred in the performance of duty and no service requirement if incurred in the performance of duty.

Termination of Employment

Eligibility - 10 or more years of Credited Service.

Teachers' Required Contribution

1.25% of annual salaries in excess of $500,000 is contributed for health insurance of retired teachers.

State Contribution

The State pays for one third of the costs through an annual appropriation in the General Fund. Administrative costs of the Plan are financed by the State. Based upon Chapter 167a, Subsection D of Section 10-183t of the Connecticut statutes, it is assumed the State will pay for any long-term shortfall arising from insufficient active member contributions.

Schedule B – Summary of Main Plan Provisions (continued)

Retiree Health Care Coverage

Any member that is currently receiving a retirement or disability benefit is eligible to participate in the Plan. There are two types of the health care benefits offered through the system. Subsidized Local School District Coverage provides a subsidy paid to members still receiving coverage through their former employer and the CTRB Sponsored Medicare Supplemental Plans provide coverage for those participating in Medicare, but not receiving Subsidized Local School District Coverage.

Any member that is not currently participating in Medicare Parts A & B is eligible to continue health care coverage with their former employer. A subsidy of up to $110 per month for a retired member plus an additional $110 per month for a spouse enrolled in a local school district plan is provided to the school district to first offset the retiree's share of the cost of coverage, any remaining portion is used to offset the district's cost. The subsidy amount is set by statute, and has not increased since July of 1996. A subsidy amount of $220 per month may be paid for a retired member, spouse or the surviving spouse of a member who has attained the normal retirement age to participate in Medicare, is not eligible for Part A of Medicare without cost, and contributes at least $220 per month towards coverage under a local school district plan.

Any member that is currently participating in Medicare Parts A & B is eligible to either continue health care coverage with their former employer, if offered, or enroll in the plan sponsored by the System. If they elect to remain in the plan with their former employer, the same subsidies as above will be paid to offset the cost of coverage.

If a member participating in Medicare Parts A & B so elects, they may enroll in one of the CTRB Sponsored Medicare Supplemental Plans. Active members, retirees, and the State pay equally toward the cost of the basic coverage (medical and prescription drug benefits). There are three choices for coverage under the CTRB Sponsored Medicare Supplemental Plans. The choices and calendar year premiums charged for each choice are shown in the table below:

Monthly Funding Rates for CTRB Sponsored Medicare Supplemental Plans						
Coverage	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Medicare Supplement with Prescriptions	$124	$117	$97	$91	$95	$92
Medicare Supplement with Prescriptions and Dental	$173	$160	$141	$136	$143	$136
Medicare Supplement with Prescriptions, Dental, Vision & Hearing	$180	$165	$146	$140	$148	$141

Those participants electing vision, hearing, and/or dental are required by the System's funding policy to pay the full cost of coverage for these benefits, and no liability under GASB No. 43 and No. 45 is assumed by the Plan for these benefits.

Survivor Health Care Coverage

Survivors of former employees or retirees remain eligible to participate in the Plan and continue to be eligible to receive either the $110 monthly subsidy or participate in the CTRB Sponsored Medicare Supplemental Plans, as long as they do not remarry.

Schedule C – Statement of Actuarial Assumptions and Methods

Investment Rate of Return

Funding: Assumed annual rate of 4.25% net of investment and administrative expenses.
Accounting: Assumed annual rate of 2.75% net of investment expenses.

Health Care Cost Trend Rates

Following is a chart detailing trend assumptions. Trend is applied to the CTRB Sponsored Medicare Supplemental Plans' premiums and claims.

Year of Increase	Claims Trend	Contributions Trend
2016	7.25%	7.25%
2017	7.00%	7.00%
2018	6.75%	6.75%
2019	6.25%	6.25%
2020	5.75%	5.75%
2021	5.25%	5.25%
2022 and beyond	5.00%	5.00%

No increases are assumed for the Subsidized Local School District Coverage's subsidy of $110 per month for a retired member, plus an additional $110 per month for a spouse, as the subsidy amount is set by statute and has not increased since July of 1996. The valuation assumes all future recipients of the subsidy receive an amount of $110 per month.

Anticipated Plan Participation

The assumed annual rates of member participation and spouse coverage are as follows:

Participant	Subsidized Local School District Coverage	CTRB Sponsored Medicare Supplemental Plans
Member Pre 65	60%	N/A
Member Post 65	20%	60%
Spouse/Survivor Pre 65*	45%	N/A
Spouse/Survivor Post 65*	40%	45%

*Percentage of participating members electing spouse coverage.

Schedule C – Statement of Actuarial Assumptions and Methods (continued)

Age Related Morbidity

Per capita health care costs of the CTRB Sponsored Medicare Supplemental Plans are adjusted to reflect expected cost changes related to age. The increase to the net incurred claims was assumed to be:

Participant Age	Annual Increase
< 30	0.0%
30 – 34	1.0%
35 – 39	1.5%
40 – 44	2.0%
45 – 49	2.6%
50 – 54	3.3%
55 – 59	3.6%
60 – 64	4.2%
65 – 69	3.0%
70 – 74	2.5%
75 – 79	2.0%
80 – 84	1.0%
85 - 89	0.5%
90 and over	0.0%

Annual Expected Claims of the CTRB Sponsored Medicare Supplemental Plans

Assumed adult per capita health care costs were based on past experience and trended based on the assumptions. The expected value of medical and prescription drug claims of the CTRB Sponsored Medicare Supplemental Plans, age adjusted to age 65, for the year following the valuation date is $2,513. This amount includes medical, drug, and third-party administrative costs, and represents the amount the System pays as the full contribution amount. The average medical, drug, and administrative costs shown are normalized to age 65 and then age adjusted in calculating liabilities.

For the June 30, 2016 valuation, the assumed health care claims costs are based on the premium equivalent rate provided by the System. CMC accepted all information without audit and has relied upon the sources for the accuracy of the data; however, CMC did review the information for reasonableness. On the basis of this review, CMC believes the data and information provided to be sufficiently complete and reliable, and that it is appropriate for the purposes intended.

The valuation reflects the Plan's January 1, 2015 transition to prescription drug benefits provided through a Medicare Prescription Drug Plan (PDP). As the Plan will no longer participate in the Centers for Medicare & Medicaid Services' (CMS) Retiree Drug Subsidy Program, the Medicare Part D subsidies implicit in the lower costs for PDPs are recognized in the liability under GASB Statements No. 43 and No. 45.

Schedule C – Statement of Actuarial Assumptions and Methods (continued)

Spouse Participation in Health Insurance Coverage

Use of actual census data and current coverage elections for spouses of current retirees. For spouses of future retirees, it was assumed females were three years younger than their spouse.

Rates of Annual Salary Increase

Rates of Annual Salary Increase Assumption	
Years of Service	**Annual Rate**
0 – 1	6.50%
2 – 9	6.25
10 – 11	5.50
12 – 14	5.00
15	4.75
16	4.50
17	4.25
18	4.00
19	3.75
20	3.50
21+	3.25

Active Member Decrement Rates

a. Table below provides a summary of the assumed rates of service retirement.

Annual Rates of Retirement						
Age	**Unreduced**		**Proratable**		**Reduced**	
	Male	Female	Male	Female	Male	Female
50	27.5%	27.5%			1.00%	1.00%
55	38.5%	27.5%			4.00%	4.75%
60	22.0%	27.5%	6.0%	5.5%		
65	36.3%	32.5%	13.0%	12.5%		
70	100.0%	32.5%	30.0%	14.5%		
75	100.0%	32.5%	30.0%	18.0%		
80	100.0%	100.0%	100.0%	100.0%		

b. Table below provides a summary of the assumed rates of mortality while actively employed and disability.

Annual Rates of Death and Disability				
Age	**Pre-Retirement Mortality**		**Disability**	
	Male	Female	Male	Female
20	0.0377%	0.0147%	0.0341%	0.0500%
25	0.0412%	0.0162%	0.0341%	0.0500%
30	0.0404%	0.0205%	0.0341%	0.0410%
35	0.0448%	0.0272%	0.0341%	0.0410%
40	0.0539%	0.0375%	0.0536%	0.0720%
45	0.0818%	0.0622%	0.1219%	0.1200%
50	0.1476%	0.1116%	0.2438%	0.2630%
55	0.2800%	0.1927%	0.5363%	0.4380%
60	0.4557%	0.2914%	0.9604%	0.5000%
64	0.6572%	0.4272%		

c. Table below provides a summary of the assumed rates of withdrawal for active members prior to eligibility for retirement.

Annual Rates of Withdrawal					
			10 or more years of service		
Years of Service	**Male**	**Female**	**Age**	**Male**	**Female**
0	14.00%	12.00%	25	1.50%	4.00%
1	11.00	10.50	30	1.50	4.00
2	8.00	8.75	35	1.50	3.50
3	6.50	7.50	40	1.50	2.30
4	4.50	6.75	45	1.59	1.50
5	3.50	6.00	50	2.04	2.00
6	3.00	5.25	55	3.44	2.50
7	2.75	4.75	59	4.00	2.90
8	2.50	4.25			
9	2.50	4.00			

Withdrawal Assumptions

It was assumed that 30% of the vested members who terminate elect to withdraw their contributions while the remaining 70% elect to leave their contributions in the plan in order to be eligible for a benefit at their retirement date. It is assumed that eligible deferred vested participants will commence health care benefits at age 60.

Schedule C – Statement of Actuarial Assumptions and Methods (continued)

Post-Retirement Mortality

For healthy retirees and beneficiaries, the RPH-2014 White Collar table with employee and annuitant rates blended from ages 50 to 80 projected to the year 2020 using the BB improvement scale and further adjusted to grade in increases (5% for females and 8% for males) to rates over age 80. For disabled retirees, the RPH-2014 Disabled Mortality table projected to 2017 using the BB improvement scale. The following are sample rates for the retirees, beneficiaries, and disabled:

Annual Rates of Death				
	Healthy		Disabled	
Age	Male	Female	Male	Female
50	0.1476%	0.1116%	1.8406%	1.1487%
55	0.2800%	0.1927%	2.2661%	1.3727%
60	0.4557%	0.2914%	2.7070%	1.5886%
65	0.7214%	0.4747%	3.2573%	1.9356%
70	1.1906%	0.8584%	4.0909%	2.6165%
75	2.0499%	1.5897%	5.4230%	3.8159%
80	3.6764%	2.9756%	7.5768%	5.7047%
85	6.9254%	5.4419%	11.1066%	8.5219%

Marriage Assumption

For the purpose of valuing coverage under the in-service death benefit, 85% of males and 75% of females assumed to be married, with females being three years younger than their spouse.

Asset Valuation Method

Market Value of Assets

Payroll Growth Rate

The total annual payroll of active members is assumed to increase at an annual rate of 3.25%. This rate does not anticipate increases in the number of members.

Schedule C – Statement of Actuarial Assumptions and Methods (continued)

Changes from Prior Valuation

As a result of the Experience Study for the Five-Year Period Ending June 30, 2015:

- The discount rate has been lowered from 4.50% to 4.25% to reflect the decrease in the rate of inflation.
- The payroll growth rate assumption was decreased from 3.75% to 3.25% to reflect the decrease in the rate of inflation and the decrease in the rate of real wage increase.
- The demographic assumptions of salary growth, payroll growth, the rates of withdrawal, the rates of retirement, the rates of mortality, and the rates of disability incidence were adjusted based upon the experience study's findings and their adoption by the Board.

Additionally, the assumed initial per capita health care costs, the assumed rates of health care inflation used to project the per capita costs, and the participation assumptions have been revised.

Affordable Care Act (ACA)

The impact of the Affordable Care Act (ACA) was addressed in this valuation. Review of the information currently available did not identify any specific provisions of the ACA that are anticipated to significantly impact results. While the impact of certain provisions such as the excise tax on high-value health insurance plans beginning in 2020 (if applicable), mandated benefits and participation changes due to the individual mandate should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by amounts employers and retirees can afford (i.e., trend). The trend assumption forecasts the anticipated increase to initial per capita costs, taking into account health care cost inflation, increases in benefit utilization, plan changes, government-mandated benefits, and technological advances. Given the uncertainty regarding the ACA's implementation (e.g., the impact of excise tax on high-value health insurance plans, changes in participation resulting from the implementation of state-based health insurance exchanges), continued monitoring of the ACA's impact on the Plan's liability will be required.

Schedule D – Actuarial Cost Method

The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future investment rate of return. The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of the Plan are determined following a level funding approach, and consist of a normal contribution and an actuarial accrued liability contribution.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for OPEB benefits to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.

Schedule E – Funding Policy

I. Plan Overview

The Connecticut State Teachers' Retirement System (System) maintains the Retiree Health Insurance Plan (Plan), a defined benefit OPEB plan. The costs of the Plan are financed as follows:

- Active members contribute 1.25% of their annual salaries (less $500,000);
- Benefit recipients pay, through monthly premiums, for one third of the current, basic costs of the System's Sponsored Medicare Supplemental Plan(s);
- Annual appropriations from the General Fund of the State of Connecticut (State); and
- The investment earnings resulting from contributions made in excess of current costs.

The purpose of this Statement of OPEB Plan Funding Policy (Funding Policy) is to state the overall funding goals for the Plan, the benchmarks that will be used to measure progress in achieving those goals, and the methods and assumptions that will be employed to develop the benchmarks.

II. Funding Objectives

The objective in requiring State and active member contributions to the Plan is to accumulate sufficient assets during an active member's term of employment to fully finance the benefits, net of benefit recipient premiums, received in retirement. In meeting this objective, the Plan will strive to meet the following funding goals:

- To pre-fund benefits in a manner sufficient to maintain adequate asset levels so investment earnings are a primary source of revenue to pay benefits, net of benefit recipient premiums. Attaining this objective assures benefits are financed in a cost-efficient manner, lessening the need to rely on State and active employee contributions.
- To maintain an increasing funded ratio (ratio of actuarial value of assets to actuarial accrued liabilities) that reflects a trend of improved actuarial condition. The long-term objective is to obtain a 100% funded ratio over a reasonable period of future years.
- To maintain adequate asset levels to finance the benefits promised to benefit recipients and monitor the future demand for liquidity.
- To develop a pattern of relatively stable and sufficient contribution rates that allow reasonable budget predictability for contributing entities and benefit security for benefit recipients.
- If required active member contribution amounts are larger than actual State contributions, then any benefit improvements should be funded through increases in contribution amounts; and
- To provide intergenerational equity for taxpayers with respect to Plan costs.

Schedule E – Funding Policy

III. Benchmarks

To track progress in achieving the previously outlined funding goals, the following benchmarks will be measured as of the actuarial valuation date (with due recognition that a single valuation's results may not be indicative of long-term trends):

- **Actuarial Determined Contribution (ADC) –** State and active member contribution rates should be sufficient from year to year, when expressed as a percent of active member payroll, to fund adequately the promised benefits of the Plan. An actuarial valuation to determine the Actuarially Determined Contribution (ADC) rate to finance the Plan's obligations shall be performed biennially, beginning as of June 30, 2016. The ADC shall include (1) the normal cost, (2) the unfunded liability cost, and (3) the cost of administration. The State's portion of the ADC, the Actuarially Determined Employer Contribution (ADEC), will be set based on the valuation results produced as of the June 30 preceding the beginning of each biennium.

- **Funded Ratio –** The funded ratio, defined as the Actuarial Value of Assets (AVA) divided by the Actuarial Accrued Liability (AAL), should increase over time, before adjustments for changes in benefits, actuarial methods, and/or actuarial adjustments.

- **Unfunded Actuarial Accrued Liability (UAAL) Amortization Period** – The amortization period for the Plan's Unfunded Actuarial Accrued Liability (UAAL) will be set to 30. The amortization period will be open. As the Plan is open to new active members, the amortization of the UAAL will be developed using the level percent of payroll methodology.

IV. Methods and Assumptions

The actuarial assumptions used in the actuarial valuation of the Plan shall be developed or reviewed for reasonability by the Plan's actuary in conformity with the applicable Actuarial Standards of Practice issued by the Actuarial Standards Board. The assumptions are intended to represent the best estimate of anticipated experience and are intended to be long-term in nature.

- **Actuarial Cost Method -** The actuarial funding method used to develop the benchmarks will be Entry Age Normal (EAN), as described in Governmental Accounting Standards Board (GASB) Statements No. 74 (GASB 74) and No. 75 (GASB 75).

- **Asset Valuation Method -** The Actuarial Value of Assets (AVA) used to develop the benchmarks will be the Market Value of Assets (MVA), recognizing immediately each year's unanticipated investment income (gains and losses).

- **Long-Term Rate of Return -** The long-term annual investment rate of return assumption, as determined by the Plan's governing body, used to develop the benchmarks will be 4.25% net of investment expenses.

- **Other Economic and Demographic Assumptions -** The rates of inflation, salary growth, mortality, termination, disability, and retirement from the most recent pension valuation of the System will be used, along with the OPEB-specific assumptions (e.g., per capita health care costs, rates of health care cost inflation, future participation) developed by the Plan's actuary based upon a review of the Plan's experience.

- **Future Contributions** - For the purposes of projecting future contributions to the Plan, the contributions from the State are to be assumed to be based upon a funding approach not directly related to the ADEC and are equal to an amount to cover the Plan's in-year costs that are in excess of the required active member and retiree contributions.

  The Plan's actuary shall apply professional judgment in using the contribution levels indicated above by considering the most recent five-year contribution history as a key indicator of future contributions, reflecting all other known events and conditions. This may include limiting contributions to an average of contributions over the most recent five-year period, with modification based on consideration of subsequent events.

V. Glossary of Funding Policy Terms—

- **Actuarial Accrued Liability (AAL):** The AAL is the value at a particular point in time of all past normal costs. This is the amount of assets the plan would have today, if the current plan provisions, actuarial assumptions, and participant data had always been in effect, contributions equal to the normal cost had been made, and all actuarial assumptions had been met.

- **Actuarial Cost Method:** The actuarial cost method allocates a portion of the total cost (present value of benefits) to each year of service, both past service and future service.

- **Asset Values**: Plans may use an asset smoothing technique that recognizes gains or losses in plan assets over some period of time so as to reduce the effects of market volatility and stabilize contributions.
  - **Actuarial Value of Assets (AVA):** The AVA is the market value of assets less the deferred investment gains or losses not yet recognized by an asset smoothing method, if employed.
  - **Market Value of Assets (MVA):** The MVA is the fair value of assets of the Plan as reported in the Plan's audited financial statements.

- **Entry Age Normal Actuarial Cost Method (EAN):** The EAN actuarial cost method is a funding method that calculates the normal cost as a level percentage of pay or level dollar amount over the working lifetime of the plan's members.

- **Funded Ratio:** The funded ratio is the ratio of the plan assets (AVA) to the plan's actuarial accrued liabilities (AAL).

- **Normal Cost:** The normal cost is the cost allocated under the actuarial cost method to each year of active member service.

Schedule E – Funding Policy

- **Present Value of Benefits (PVB) or total cost:** The PVB is the value at a particular point in time of all projected future benefit payments for current plan members. The future benefit payments and the value of those payments are determined using actuarial assumptions regarding future events. Examples of these assumptions are estimates of retirement and termination patterns, salary increases, investment returns, per capita benefit costs, etc.

- **Surplus:** A surplus refers to the positive difference, if any, between the AVA and the AAL.

- **Unfunded Actuarial Accrued Liability (UAAL):** The UAAL is the portion of the AAL that is not currently covered by the AVA. It is the positive difference between the AAL and the AVA.

- **Valuation Date:** The valuation date is the date upon which an actuarial valuation is performed; meaning that the trust assets and liabilities of the Plan are valued as of that date.