

# **Vermont State Employees' Retirement System**

**Actuarial Valuation and Review of  
Other Postemployment Benefits  
(OPEB) Measured at June 30, 2018  
In accordance with GASB  
Statement. No. 74**

This report has been prepared at the request of the Board of Trustees to assist in administering the Retirement System. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees 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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November 19, 2018

Office of the Vermont State Treasurer  
109 State Street  
Montpelier, Vermont 05609

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2018 under Governmental Accounting Standards Board Statement No. 74. The report summarizes the actuarial data used in the valuation, discloses the Net OPEB Liability (NOL) as of June 30, 2018, and analyzes the preceding year's experience. In addition, we have calculated the Actuarially Determined Contribution for the fiscal year ending June 30, 2019. This report was based on the census data and financial information provided and/or affirmed by the Vermont State Employees' Retirement System, and the terms of the Plan. The actuarial calculations were completed under the supervision of Yori Rubinson, FSA MAAA, Vice President and Retiree Health Actuary.

If you have any questions, please feel free to call me. We look forward to discussing this material with you at your convenience.

Sincerely,

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

By: *Daniel A. Levin*  
Daniel A. Levin, FSA MAAA FCA CEBS  
Senior Vice President

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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 Vermont State Employees’ Retirement System 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. A snapshot as of a single date may not be an appropriate value for determining a single year’s contribution requirement, especially in volatile markets. Plan sponsors often use an “actuarial value of assets” that differs from market value to reflect gradually year-to-year changes in the market value of assets in determining the contribution requirements.

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**Actuarial assumptions**

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 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 Vermont State Employees' Retirement System. 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 Vermont State Employees' Retirement System 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 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 Vermont State Employees' Retirement System 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 Vermont State Employees' Retirement System upon delivery and review. Vermont State Employees' Retirement System should notify Segal immediately of any questions or concerns about the final content.

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 Governmental Entity (the “Employer”) OPEB plan as of June 30, 2018, required by Governmental Accounting Standards Board (GASB) Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other than Pension Plans*. The actuarial computations made are for purposes of fulfilling plan accounting and funding requirements. Determinations for purposes other than meeting financial accounting and funding requirements may be significantly different from the results reported here.

## Highlights of the Valuation

### *Accounting and Financial Reporting*

- The Net OPEB Liability (NOL) as of June 30, 2018 is \$1,218,504,402, a decrease of \$243,515,777, from the prior valuation NOL of \$1,462,020,179. The difference between the actuarial accrued liabilities was the net effect of several factors:
  - An actuarial experience loss increased the NOL by \$7,140,411. This was the net result of gains and losses due to demographic changes. We have taken these actuarial gains and losses into account in reviewing our assumptions for the current valuation.
  - Valuation assumption changes decreased the Net OPEB Liability by \$303,321,519. This was a net result of (1) decreases in obligations due to updating the valuation-year per capita health costs and retiree contribution rates and increasing the discount rate from 3.58% to 3.87%, and (2) increases due to modifying the claims cost development methodology for non-Medicare participants, modifying the assumed health trend rates, modifying the percentage of future retirees assumed to have a spouse electing coverage, modifying the assumed age spread between future retirees and their spouses, and increasing the percentage of non-DC Plan current retirees assumed to have life insurance coverage.
  - Plan changes decreased the Net OPEB Liability by \$20,232,937. Effective January 1, 2019 SelectCare Plan medical copays were modified. In addition, the pharmacy deductible and maximum pharmacy out of pocket cost increased for both the SelectCare Plan and the Total Choice Plan. The current plan of benefits is summarized in Exhibit III of Section 3.
- As of June 30, 2018, the ratio of assets to the Total OPEB Liability (the funded ratio) is 1.76%. This is based on the market value of assets at this point in time.

### ***Funding***

- For the fiscal year ending June 30, 2018, the Actuarially Determined Contribution (ADC) is \$74,760,248 and is equal to the Annual Required Contribution (ARC) determined in accordance with GASB 45. The Normal Cost and Actuarially Accrued Liability were determined using Projected Unit Credit and a funding rate of return equal to 4.0%. The Unfunded Actuarially Accrued Liability was amortized using an open 30 year amortization period calculated as a level percent of projected payroll.
- For the fiscal year ending June 30, 2019, the ADC is \$100,187,896. The Normal Cost and Actuarially Accrued Liability were determined using the Projected Unit Credit actuarial method and a 3.58% rate of return. Assets were projected forward from June 30, 2017 assuming the System contributes the amount of expected benefit payments for the year ending June 30, 2018. The Unfunded Actuarially Accrued Liability was amortized using a closed 30 year amortization period calculated as a level percent of projected payroll, with an assumed annual payroll growth of 3.50%.

## Summary of Key Valuation Results

	June 30, 2018	June 30, 2017
Total OPEB Liability	\$1,240,275,317	\$1,484,522,051
Plan Fiduciary Net Position (Assets)	<u>21,770,915</u>	<u>22,501,872</u>
Net OPEB Liability	\$1,218,504,402	1,462,020,179
Plan Fiduciary Net Position as a percentage of Total OPEB Liability	1.76%	1.52%
		<b>For Year Ending June 30, 2018</b>
Actuarially Determined Contribution for Fiscal Year Ending		\$74,760,248 <sup>1</sup>
Actual Contribution for Fiscal Year Ending		32,956,898
Benefit Payments		34,559,465

<sup>1</sup>The Actuarially Determined Contribution was calculated by the prior actuary, Buck Consultants.

## *Actuarial Certification*

*November 19, 2018*

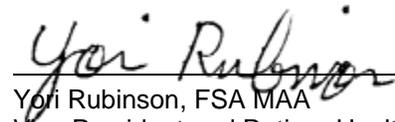
This is to certify that Segal Consulting, a Member of The Segal Group, Inc., has conducted an actuarial valuation of certain benefit obligations of Vermont State Employees' Retirement System's other postemployment benefit programs as of June 30, 2018, in accordance with generally accepted actuarial principles and practices. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statement 74 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 Employer and reliance on participant, premium, claims and expense data provided by the Employer or from vendors employed by the Employer. 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 and funding requirements. Determinations for purposes other than meeting financial accounting and funding 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 74 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.



Yori Rubinson, FSA MAA  
Vice President and Retiree Health Actuary

## Section 2: Valuation Results

### General Information about the OPEB Plan

#### *Plan Description*

Pursuant to contractual agreement and policy, VSERS provides postemployment healthcare benefits to eligible VSERS employees who retire from the System. Vermont Statute Title 3, Chapter 16 assigns the authority to VSERS to establish and amend the benefit provisions of the plan and to establish maximum obligations of plan members to contribute to the plan. The VSERS Board of Trustees is authorized to establish contribution rates of System employees and retirees, and they are set as part of the collective bargaining process.

At June 30, 2017, the Vermont State Employees' Retirement System plan membership consisted of the following:

	June 30, 2017
Retired members or beneficiaries currently receiving benefits	4,878
Active members	<u>8,941</u>
Total	13,819

## Net OPEB Liability

	June 30, 2018	June 30, 2017
<b>Components of the Net OPEB Liability</b>		
Total OPEB Liability	\$1,240,275,317	\$1,484,522,051
Plan Fiduciary Net Position	<u>21,770,915</u>	<u>22,501,872</u>
Net OPEB Liability	\$1,218,504,402	1,462,020,179
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	1.76%	1.52%

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 actuarial valuations using data as of June 30, 2017 and 2016.

The total OPEB liability was measured by an actuarial valuation as of June 30, 2018 using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

	June 30, 2018	June 30, 2017
Salary increases	Varies by age	Varies by age
Discount rate	3.87%	3.58%
Healthcare cost trend rates		
Non-Medicare	7.15% graded to 4.50% over 12 years	7.50% graded to 4.50% over 12 years
Medicare	7.30% graded to 4.50% over 13 years	8.00% graded to 4.50% over 10 years
Increase to Retiree Contributions	Equal to health trend	Equal to health trend
Mortality rates		
Pre-retirement Mortality		
Groups A/F/F*/DC	101% of RP-2006 blended 30% Blue Collar Employee, 70% Healthy Employee with generational projection using Scale SSA-2017	(same as current year)
Group C	RP-2006 Blue Collar Employee with generational projection using Scale SSA-2017	(same as current year)
Group D	RP-2006 Healthy Employee with generational projection using Scale SSA-2017	(same as current year)
Post-retirement Mortality		
Groups A/F/F*/DC	101% of RP-2006 blended 30% Blue Collar Annuitant, 70% Healthy Annuitant with generational projection using Scale SSA-2017	(same as current year)
Group C	RP-2006 Blue Collar Annuitant with generational projection using Scale SSA-2017	(same as current year)
Group D	RP-2006 Healthy Annuitant with generational projection using Scale SSA-2017	(same as current year)
Disabled Mortality	RP-2006 Disabled Mortality Table with generational projection using Scale SSA-2017	(same as current year)

Detailed information regarding all actuarial assumptions can be found in Section 3, Exhibit II.

# Determination of Discount Rate and Investment Rates of Return

## *Development of Long-Term Rate*

The long-term expected rate of return on OPEB plan investments are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

The target allocation, long-term expected rates of return for each major asset class, and expected inflation, as provided by the System, are summarized below:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return as of June 30, 2018
Large cap equity	20.00%	7.50%
International equity	15.00%	7.75%
Emerging international equity	5.00%	9.25%
Core bonds	60.00%	3.75%
Inflation		2.75%

The System’s Board established the Vermont State Employees’ Postemployment Benefits Trust Fund (the Trust) in 2005. The Trust was created for the sole purpose of accepting irrevocable contributions from the System in order to provide postemployment health insurance benefits to current and future eligible retirees of the System in accordance with the terms of the healthcare plan.

***Projection of OPEB Plan’s Fiduciary Net Position for Use in Calculation of Discount Rate***

The projection of cash flow used to determine the discount rate assumed that the Vermont State Employees’ Retirement System contributions would be made at rates equal to the projected benefit payments for the upcoming year. Based on these assumptions, the OPEB Plan’s fiduciary net position was projected to be exhausted within the first year. Therefore, the index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher as of June 30, 2018 with an expected rate of return of 3.87% on plan investments was applied to all periods of projected benefit payments to determine the Total OPEB Liability.

Year Beginning July 1:	Projected Beginning Plan Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Investment Earnings (d)	Projected Ending Plan Fiduciary Net Position (e) = (a) + (b) - (c) + (d)
2018	\$21,770,915	\$19,804,297	\$42,362,113	\$786,901	\$0

Notes:

- (1) Amounts may not total exactly due to rounding
- (2) Column (c): Projected benefit payments have been determined in accordance with paragraphs 43-47 of GASB Statement No. 74 and are based on the closed group of active, retired members and beneficiaries as of June 30, 2017.
- (3) Column (d): Projected investment earnings are based on the assumed investment rate of return of 7.5% per annum and reflect the assumed timing of benefit payments and contributions made at the middle of each year.
- (4) The Plan’s Fiduciary Net Position is projected to be exhausted within the first year.

## Sensitivity

The following presents the NOL of Vermont State Employees' Retirement System as well as what the Vermont State Employees' Retirement System's NOL would be if it were calculated using a discount rate that is 1-percentage-point lower (2.87%) or 1-percentage-point higher (4.87%) than the current rate. Also, shown is the NOL as if it were calculated using healthcare cost trend rates that were 1-percentage-point lower or 1-percentage-point higher than the current healthcare trend rates.

	1% Increase in Discount Rate (4.87%)	Current Discount Rate (3.87%)	1% Decrease in Discount Rate (2.87%)
Net OPEB Liability (Asset)	\$1,058,594,603	\$1,218,504,402	\$1,416,158,823
	1% Increase in Health Care Cost Trend Rates	Current Health Care Cost Trend Rates	1% Decrease in Health Care Cost Trend Rates
Net OPEB Liability (Asset)	\$1,440,292,352	\$1,218,504,402	\$1,044,625,664

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

	June 30, 2018	June 30, 2017
<b>Total OPEB Liability</b>		
• Service cost	\$52,326,222	\$66,840,919
• Interest	54,400,554	46,867,620
• Change of benefit terms	-20,232,937	--
• Differences between expected and actual experience	7,140,411	--
• Changes of assumptions	-303,321,519	-190,150,328
• Benefit payments, including refunds of member contributions	<u>-34,559,465</u>	<u>-33,346,278</u>
<b>Net change in Total OPEB Liability</b>	<b><u>-\$244,246,734</u></b>	<b><u>-\$109,788,066</u></b>
<b>Total OPEB Liability – beginning</b>	<b><u>1,484,522,051</u></b>	<b><u>1,594,310,117</u></b>
<b>Total OPEB Liability – ending</b>	<b><u>\$1,240,275,317</u></b>	<b><u>\$1,484,522,051</u></b>
<b>Plan Fiduciary Net Position</b>		
• Contributions – employer	\$32,956,898	\$33,122,887
• Contributions – employee	--	--
• Net investment income	872,659	1,372,446
• Benefit payments, including refunds of member contributions	-34,559,465	-33,346,278
• Administrative expense	-1,049	--
• Other	<u>--</u>	<u>--</u>
<b>Net change in Plan Fiduciary Net Position</b>	<b><u>-\$730,957</u></b>	<b><u>\$1,149,055</u></b>
<b>Plan Fiduciary Net Position – beginning</b>	<b><u>22,501,872</u></b>	<b><u>21,352,817</u></b>
<b>Plan Fiduciary Net Position – ending</b>	<b><u>\$21,770,915</u></b>	<b><u>\$22,501,872</u></b>
<b>Net OPEB Liability – ending</b>	<b><u>\$1,218,504,402</u></b>	<b><u>\$1,462,020,179</u></b>
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	1.76%	1.52%
Covered employee payroll	\$531,542,782	\$497,200,588
Plan Net OPEB Liability as a percentage of covered employee payroll	229.24%	294.05%

## Notes to Schedule:

The information in the above schedule is required beginning in 2017. A full 10-year trend will be compiled in future years.

### *Benefit changes:*

In 2017: None.

In 2018: SelectCare Plan medical copays were modified. In addition, the pharmacy deductible and maximum pharmacy out of pocket cost increased for both the SelectCare Plan and the Total Choice Plan.

### *Changes of assumptions:*

In 2017: The discount rate was increased from 2.85% to 3.58%.

In 2018: The discount rate was increased from 3.58% to 3.87%.

The percentage of non-DC Plan current retirees assumed to have life insurance coverage was increased from 65% to 75%.

Future male retirees were assumed to be two years older than their spouses, decreased from three years. Future female retirees were assumed to be one year younger than their spouses, decreased from three years.

The percentage of future retirees assumed to have a spouse electing coverage was increased from 60% to 70% for male retirees and from 50% to 60% for female retirees.

The claims cost development methodology was modified for non-Medicare participants.

The per capita valuation-year claims and retiree contribution rates were updated.

The assumed health trend rates were modified.

## Schedule of Contributions – Last Ten Fiscal Years

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered-Employee Payroll	Contributions as a Percentage of Covered Employee Payroll
2017	\$71,832,832 <sup>(1)</sup>	\$33,122,887	\$38,709,945	\$497,200,588	6.66%
2018	74,760,248 <sup>(1)</sup>	32,956,898	41,803,350	531,542,782	6.20%

<sup>(1)</sup> Calculated by the prior actuary, Buck Consultants.

### Notes to Schedule:

#### Methods and assumptions used to determine contribution rates:

<b>Valuation date</b>	Actuarially determined contribution rates are calculated as of June 30, one year prior to the end of the fiscal year in which contributions are reported
<b>Measurement date</b>	June 30, 2018
<b>Actuarial cost method</b>	Projected Unit Credit
<b>Amortization method</b>	30 Years, Open, Level Percent of Payroll
<b>Remaining amortization period</b>	30 Years as of July 1, 2018
<b>Asset valuation method</b>	The market value of assets as of the measurement date
<b>Actuarial assumptions</b>	The actuarial assumptions used to calculate the actuarially determined contribution rates can be found in the Report on the Actuarial Valuation of Post Retirement Benefits of the Vermont State Employees' Retirement System Prepared as of June 30, 2016 completed by Buck Consulting.

## Actuarially Determined Contribution

	Year Ending June 30, 2019	% of Payroll
Normal Cost	\$45,921,632	8.62%
Actuarial Accrued Liability	1,633,194,151	306.64%
Assets	<u>23,307,439</u>	4.38%
Unfunded Actuarial Accrued Liability	\$1,609,886,712	302.26%
Amortization of Unfunded Actuarial Accrued Liability	54,266,264	10.19%
Total Actuarially Determined Contribution	\$100,187,896	18.81%
Total Payroll	\$532,613,700	

The actuarially determined contribution was calculated in the Vermont State Employees' Retirement System Actuarial Funding Valuation as of June 30, 2017 to calculate the Actuarially Determined Contribution for the Fiscal Year Ending June 30, 2019, completed by Segal Consulting.

The Normal Cost and Actuarially Accrued Liability were determined using the Projected Unit Credit actuarial method and a 3.58% rate of return. Assets were projected forward from June 30, 2017 assuming the System contributes the amount of expected benefit payments for the year ending June 30, 2018. The Unfunded Actuarially Accrued Liability was amortized using a closed 30 year amortization period calculated as a level percent of projected payroll, with an assumed annual payroll growth of 3.50%.

## Statement of Fiduciary Net Position

	June 30, 2018
Total Assets	\$21,795,003
Total Liabilities	<u>24,088</u>
Net position restricted for OPEB	\$21,770,915

## Schedule of Investment Returns

Year	Annual Money Weighted Rate of Return, Net of Investment Expense
2017	6.5%
2018	4.0%

## Section 3: Supporting Information

### EXHIBIT I SUMMARY OF PARTICIPANT DATA

	As of June 30, 2017	As of June 30, 2016
<b>Retirees Enrolled in Health Care:</b>		
Number of retirees	4,680	4,590
Average age of retirees	70.4	70.1
Number of spouses and dependents (excluding children)	2,312	2,256
Average age of spouses	66.4	67.1
<b>Surviving Spouses Enrolled in Health Care:</b>		
Number	198	205
Average age	75.3	75.3
<b>Active Participants:</b>		
Number	8,941	8,813
Average age	46.2	46.3
Average years of service	11.2	11.4
Average expected retirement age	63.0	63.0

## EXHIBIT II ACTUARIAL ASSUMPTIONS AND METHODS

<b>Data:</b>	Detailed census data, claim experience, and summary plan descriptions for postretirement welfare benefits were provided and/or affirmed by the Vermont State Employees' Retirement System.	
<b>Actuarial Cost Method:</b>	Entry Age Normal, Level Percentage of Pay	
<b>Asset Valuation Method:</b>	Market Value	
<b>Roll-forward Techniques:</b>	The results as of June 30, 2018 were based on participant data as of June 30, 2017 projected forward to June 30, 2018 using standard actuarial techniques.	
<b>Measurement Date:</b>	June 30, 2018	
<b>Actuarial Valuation Date:</b>	June 30, 2017	
<b>Demographic Assumptions:</b>	<p>Some of the demographic assumptions used in this valuation (including mortality, disability, turnover, and retirement), in addition to the assumed salary scale are the same as used in the Vermont State Employees' Retirement System Actuarial Valuation and Review as of June 30, 2018 completed by Segal Consulting. These assumptions were reviewed as part of the pension valuation process, and we have no reason to doubt their reasonableness for use in this valuation.</p> <p>The remaining demographic assumptions, such as enrollment elections, percent married, and relative ages of spouses were based on the experience of the Plan and the experience of similar plans.</p>	
<b>Discount Rate:</b>	3.87% based on the index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher as of June 30, 2018	
<b>Salary Increases:</b>	<b>Age</b>	<b>Annual Rate of Salary Increase (%)</b>
	25	6.21%
	30	5.66%
	35	5.26%
	40	4.92%
	45	4.36%
	50	3.70%
	55	3.50%
	60	3.50%

**Mortality Rates:**

*Death in Active Service:*

- Groups A/F/F\*/DC 101% of RP-2006 blended 30% Blue Collar Employee, 70% Healthy Employee with generational projection using Scale SSA-2017.
- Group C RP-2006 Blue Collar Employee with generational projection using Scale SSA-2017.
- Group D RP-2006 Healthy Employee with generational projection using Scale SSA-2017.

*Healthy Post-retirement:*

- Groups A/F/F\*/DC 101% of RP-2006 blended 30% Blue Collar Annuitant, 70% Healthy Annuitant with generational projection using Scale SSA-2017.
- Group C RP-2006 Blue Collar Annuitant with generational projection using Scale SSA-2017.
- Group D RP-2006 Healthy Annuitant with generational projection using Scale SSA-2017.

*Disabled Post-retirement:*

- All Groups RP-2006 Disabled Mortality Table with generational projection using Scale SSA-2017.

The tables with the generational projection to the ages of participants as of the measurement date reasonably reflect the mortality experience of the Plan as of the measurement date. The mortality tables were then adjusted to future years using a generational projection with Scale SSA-2017 to reflect future mortality improvement.

**Separation from Service before Retirement (Due to Withdrawal and Disability):**

Representative values of the assumed annual rates of withdrawal and disability are as follows:

Age	Rate (%)				
	Withdrawal <sup>1</sup>			Disability <sup>2</sup>	
	Groups A/D/F/F*/DC	Group C		Groups A/D/F/F*/DC	Group C
	Male/Female	Male	Female		
25	4.91%	4.32%	8.64%	0.02%	0.08%
30	3.93	4.32	8.64	0.02	0.10
35	3.28	4.32	8.64	0.03	0.13
40	3.04	N/A	N/A	0.04	0.20
45	2.69	N/A	N/A	0.06	0.32
50	2.25	N/A	N/A	0.10	0.55
55	1.83	N/A	N/A	0.18	0.91
60	3.90	N/A	N/A	0.28	1.46

<sup>1</sup> Withdrawal rates are increased during the first 10 years of service.

<sup>2</sup> All DC disabilities are assumed to be "non-duty".

**Retirement Rates:**

Once eligible for a retirement benefit under the pension plan (Group A: age 65 with 5 years of service, age 62 with 20 years of service, or any age with 30 years of service; Group C: age 55 or age 50 with 20 years of service; Group D: age 55 with 5 years of service or any age with 30 years of service; Group F: age 62, age 55 with 5 years of service, or any age with 30 years of service; Group F\* and DC: age 65, 87 points, or age 55 with 5 years of service), the following rates apply:

Age	Retirement Group F/F*/DC <sup>1</sup>				
	Male	Female	Age	Male	Female
50	16.0%	6.0%	60	5.6%	5.6%
51	16.0	8.0	61	11.2	11.2
52	8.0	9.0	62	22.4	22.4
53	8.0	9.0	63	17.5	14.0
54	8.0	10.0	64	17.5	14.0
55	4.0	5.0	65	25.0	20.0
56	3.4	4.2	66	15.0	15.0
57	4.5	5.6	67	17.5	17.5
58	5.0	6.3	68	17.5	17.5
59	5.6	5.6	69	20.0	20.0
			70	100.0	100.0

<sup>1</sup> All Group A, C, and D members are assumed to retire when first eligible.

**Missing Participant Data:**

A missing census item for a given participant was assumed to equal the average value of that item over all other participants of the same status for whom the item is known.

**Participation and Coverage Election:**

80% of active employees eligible to retire and receive subsidized postretirement welfare coverage were assumed to participate in the plan. 70% of terminated vested participants are assumed to elect coverage upon receiving pension benefits. Deferred pension benefits are assumed to commence at age 50 for Group C and age 55 for Group F\* and DC Plan participants.

100% of eligible future retirees are assumed to elect life insurance upon retirement. 75% of non-DC Plan current retirees are assumed to have life insurance coverage. Life insurance coverage for current DC retirees is based on the data provided.

35% of eligible future retirees covering a spouse are assumed to elect the Premium Reduction Option. No terminated vested participants were assumed to elect the Premium Reduction Option. Current retiree Premium Reduction Option status was based on the provided demographic data.

**Dependents:**

Demographic data was used for spouses of current retirees when available. For future retirees and current spouses for which information is not available, male employees are assumed to be two years older than wives and female employees are assumed to be one year younger than husbands. Of those future retirees who elect to continue their health coverage at retirement, 70% of males and 60% of females were assumed to have an eligible spouse who also opts for health coverage at that time. Spouses of retirees electing PRO are assumed to elect coverage for their lifetime. Spouses of retirees not electing PRO are assumed to drop coverage upon death of retiree.

**Per Capita Cost Development:**

Per capita claims costs were based on the monthly required premium equivalents as of January 1, 2019 calculated by Milliman. Premiums for Total Choice and Select Care POS were weighted by actual active, retiree and dependent enrollment, separately for non-Medicare and Medicare. Premiums were trended to the midpoint of the valuation year at assumed trend rates. Actuarial factors were then applied to the weighted average cost to estimate individual retiree and spouse costs by age and by gender.

**Per Capita Health Costs:**

Medical and prescription drug claims costs for the year beginning July 1, 2018, including administrative fees, are shown in the table below for retirees and for spouses at selected ages. These costs are net of deductibles and other benefit plan cost sharing provisions.

Age	Medical & Prescription Drug			
	Retiree		Spouse	
	Male	Female	Male	Female
50	\$11,236	\$12,798	\$7,848	\$10,276
55	13,343	13,776	10,502	11,894
60	15,846	14,849	14,059	13,795
64	18,180	15,752	17,747	15,527
65	3,818	3,245	3,818	3,245
70	4,425	3,497	4,425	3,497
75	4,769	3,765	4,769	3,765

**Administrative Expenses:**

An additional administrative expense load of 10% is added to death benefit claims.

**Health Care Cost Trend Rates:**

Health care trend measures the anticipated overall rate at which health plan costs are expected to increase in future years. The rates shown below are “net” and are applied to the net per capita costs shown above. The trend shown for a particular plan year is the rate that is applied to that year’s cost to yield the next year’s projected cost.

Year Ending June 30	Rate (%)	
	Pre-Medicare Health Costs	Medicare Health Costs
2019	7.150	7.300
2020	6.925	7.075
2021	6.700	6.850
2022	6.475	6.625
2023	6.250	6.400
2024	6.025	6.175
2025	5.800	5.950
2026	5.575	5.725
2027	5.350	5.500
2028	5.125	5.275
2029	4.900	5.050
2030	4.675	4.825
2031	4.500	4.600
2032+	4.500	4.500

The trend rate assumptions were developed using Segal’s internal guidelines, which are established each year using data sources such as the 2019 Segal Health Trend Survey, internal client results, trends from other published surveys prepared by the S&P Dow Jones Indices, consulting firms and brokers, and CPI statistics published by the Bureau of Labor Statistics.

**Retiree Contribution Increase Rate:**

Retiree contributions were assumed to increase with health trend. Retiree contribution rates were based on premiums effective January 1, 2019, trended to the valuation date. Premiums for Total Choice and Select Care POS were weighted by actual retiree and dependent enrollment, separately for non-Medicare and Medicare.

**Health Care Reform Assumption:**

The Plan is assumed to be in compliance with the Patient Protection and Affordable Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) of 2010 as of the valuation date. The valuation includes the projected effect of the Act's provision which imposes an excise tax on high cost employer-sponsored health coverage beginning in 2022. The excise tax limit is assumed to increase by 2.5% each year after 2018.

**Assumption Changes:**

The short-term rate of return was increased from 3.58% to 3.87%.

The percentage of non-DC Plan current retirees assumed to have life insurance coverage was increased from 65% to 75%.

Future male retirees were assumed to be two years older than their spouses, decreased from three years.

Future female retirees were assumed to be one year younger than their spouses, decreased from three years.

The percentage of future retirees assumed to have a spouse electing coverage was increased from 60% to 70% for male retirees and from 50% to 60% for female retirees.

The claims cost development methodology was modified for non-Medicare participants.

The per capita valuation-year claims and retiree contribution rates were updated.

The assumed health trend rates were modified.

## EXHIBIT III SUMMARY OF PLAN

This exhibit summarizes the major benefit provisions as included in the valuation. To the best of our knowledge, the summary represents the substantive plans as of the measurement date. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

<b>Eligibility:</b>	<p><b><u>Group A:</u></b> Employees in active service as of June 30, 1981 and elected to continue to make contributions, or were hired between July 1, 1981 and June 30, 1984 and elected to enroll in Group A. Closed to new enrollment.</p> <ul style="list-style-type: none"> <li>• Retirement: Attainment of age 55 with 5 years of service or any age with 30 years of service.</li> </ul> <p><b><u>Group C:</u></b> State police officers and public safety employees assigned to law enforcement duties.</p> <ul style="list-style-type: none"> <li>• Retirement: Attainment of age 55, age 50 with 20 years of service, or any age with 30 years of service.</li> <li>• Terminated Vested: Participants who terminate with 20 or more years of service can receive medical benefits upon receiving DB pension benefits.</li> </ul> <p><b><u>Group D:</u></b> Supreme court justices, and superior and district court judges. Probate judges appointed prior to July 1, 1987 are also covered by this plan.</p> <ul style="list-style-type: none"> <li>• Retirement: Attainment of age 55 with 5 years of service or any age with 30 years of service.</li> </ul> <p><b><u>Group F:</u></b> State employees hired after January 1, 1991 and before July 1, 2008</p> <ul style="list-style-type: none"> <li>• Retirement: Attainment of age 55 and 5 years of service or any age with 30 years of service.</li> <li>• Terminated Vested: Not eligible</li> </ul> <p><b><u>Group F*:</u></b> State employees hired on or after July 1, 2008</p> <ul style="list-style-type: none"> <li>• Retirement: Attainment of age 55 and 5 years of service</li> <li>• Terminated Vested: 20 or more years of service can receive medical upon receiving DB pension benefits</li> </ul> <p><b><u>Defined Contribution (DC) Pension:</u></b> Exempt state employees.</p> <ul style="list-style-type: none"> <li>• Retirement: Attainment of age 55 and 5 years of service</li> <li>• Terminated Vested: 20 or more years of service can receive medical upon receiving DC pension benefits</li> </ul> <p><b><u>Non-Duty Disability Medical Benefits:</u></b> Not available to DC pension participants. 5 years of service for all other groups.</p> <p><b><u>Life Insurance Benefit:</u></b> 20 or more years of continuous service (no terminated vested benefits for life insurance)</p>
<b>Benefit Types:</b>	Medical and prescription drug coverage is provided for all retirees. Life insurance is provided for all retirees. Retirees pay the full cost for dental benefits.
<b>Duration of Coverage:</b>	Lifetime.
<b>Spousal Benefits:</b>	Same benefits as for retirees except no life insurance.

<b>Spousal Coverage:</b>	Lifetime.																																																																											
<b>Premiums:</b>	The VSERS insurance premiums effective January 1, 2019 are shown below.																																																																											
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Select Care POS	Total Premium
<b>Retiree Under 65</b>	
Retiree Only	\$868.79
Retiree & 1 dependent	1,737.56
Retiree & 2 or more dependent	2,389.15
Retiree & 1 Medicare dependent	1,167.78
Retiree & 1 Medicare dependent <b>Dependent Declines EGWP</b>	976.65
Retiree & 2 or more dependents with 1 Medicare dependent	1,555.44
Retiree & 2 or more dependents with 1 Medicare dependent <b>Dependent Declines EGWP</b>	1,364.31
Retiree & 2 or more dependents with dependents all Medicare <b>Dependents Decline EGWP</b>	982.03
<b>Retiree Over 65 or Medicare Eligible</b>	
Retiree only – Medicare	\$298.99
Retiree only – Medicare <b>Declines EGWP</b>	107.86
Retiree & 1 dependent – both Medicare	597.97
Retiree & 1 dependent – both Medicare <b>Retiree Declines EGWP</b>	406.84
Retiree & 1 dependent – both Medicare <b>Dependent Declines EGWP</b>	406.84
Retiree & 1 dependent – both Medicare <b>Both Decline EGWP</b>	215.70
Retiree Medicare & 1 dependent not	1,167.78
Retiree Medicare & 1 dependent not <b>Retiree Declines EGWP</b>	976.65
Retiree Medicare & 2 or more dependents not	1,555.44
Retiree Medicare & 2 or more dependents not <b>Retiree Declines EGWP</b>	1,364.31
Retiree Medicare & 2 or more dependents with 1 Medicare dependent	985.64
Retiree Medicare & 2 or more dependents with 1 Medicare dependent <b>Dep. Declines EGWP</b>	794.50
Retiree Medicare & 2 or more dependents with 1 Medicare dependent <b>Both Decline EGWP</b>	603.36
Retiree Medicare & 2 Dependents – all Medicare eligible	896.97

<b>Retiree Contributions:</b>	Retirees and spouses pay premium costs in excess of the VSERS subsidy.					
				<b>Subsidy</b>		
	Groups A, C, D, F			80%		
	Group F* and Defined Contribution (hired July 1, 2008 or later)					
	Less than 10 years of service			0%		
	10-14 years of service			40%		
	15-19 years of service			60%		
20+ years of service			80%			
<b>Premium Reduction Option:</b>	<p>Participants in Groups A, C, D, F, or F* retiring on or after January 1, 2007 with a VSERS premium subsidy have a one-time option to reduce the VSERS subsidy percentage during the retiree's life so that a surviving spouse may continue to receive the same VSERS subsidy for the spouse's lifetime. If the retiree elects the joint and survivor pension option but not the Premium Reduction Option, spouses are covered for the spouse's lifetime but pay 100% of the plan premium after the retiree's death.</p> <p>This option is not available to Defined Contribution participants.</p>					
<b>Benefit Descriptions:</b>	<b>Medical</b>	<b>TotalChoice Plan</b>		<b>SelectCare POS Plan</b>		
				<u>In-Network</u>	<u>Out-of-Network</u>	
	<i>Annual deductible</i>	\$300 per person, \$600 per family		None	\$500 per person, \$1,000 per family	
	<i>Maximum annual copays (after deductible is met)</i>	\$750 per person, \$2,250 per family		None	\$2,000 per person, \$6,000 per family	
	<i>Coinsurance</i>	80%		100%	70%	
	<b>Prescription Drugs</b>					
	<i>Annual deductible</i>	\$50 per person, \$150 per family				
	<i>Coinsurance</i>					
	<i>Generic</i>	10%				
	<i>Preferred Brand</i>	20%				
	<i>Non-Preferred Brand</i>	40%				
	<i>Annual maximum out-of-pocket</i>	\$800 per covered member				
	<b>Life Insurance</b>					
		\$10,000 for retiree only				
	<b>Plan Changes since Prior Valuation:</b>	Effective January 1, 2019 SelectCare Plan medical copays were modified. In addition, the pharmacy deductible and maximum pharmacy out of pocket cost increased for both the SelectCare Plan and the Total Choice Plan.				

## EXHIBIT IV DEFINITION OF TERMS

<b>Actuarially Determined Contribution:</b>	A target or recommended contribution to an OPEB plan for the reporting period based on the most recent measurement available.
<b>Assumptions or Actuarial Assumptions:</b>	The estimates on which the cost of the Plan is calculated including: <ul style="list-style-type: none"> <li>(a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;</li> <li>(b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;</li> <li>(c) Retirement rates — the rate or probability of retirement at a given age;</li> <li>(d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.</li> </ul>
<b>Covered Employee Payroll:</b>	The payroll of the employees that are provided OPEB benefits
<b>Discount Rate:</b>	The single rate of return, that when applied to all projected benefit payments results in an actuarial present value that is the sum of the following: <ul style="list-style-type: none"> <li>(1) the actuarial present value of projected benefit payments projected to be funded by plan assets using a long term rate of return, and</li> <li>(2) the actuarial present value of projected benefit payments that are not included in (1) using a yield or index rate for 20 year tax exempt general obligation municipal bonds with an average rating of AA/Aa or higher</li> </ul>
<b>Entry Age Actuarial Cost Method:</b>	An actuarial cost method where the present value of the projected benefits for an individual is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age
<b>Healthcare Cost Trend Rates:</b>	The rate of change in per capita health costs over time
<b>Net OPEB Liability:</b>	The Total OPEB Liability less the Plan Fiduciary Net Position
<b>Plan Fiduciary Net Position:</b>	Market Value of Assets
<b>Real Rate of Return:</b>	The rate of return on an investment after removing inflation
<b>Service Cost:</b>	The amount of contributions required to fund the benefit allocated to the current year of service.

<b>Total OPEB Liability:</b>	Present value of all future benefit payments for current retirees and active employees taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions.
<b>Valuation Date:</b>	The date at which the actuarial valuation is performed

## EXHIBIT V ACCOUNTING REQUIREMENTS

The Governmental Accounting Standards Board (GASB) issued Statement Number 74 – Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans, and Statement Number 75 – Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions. Under these statements, all state and local government entities that provide other post-employment benefits are required to report the cost of these benefits on their financial statements. The accounting standards supplement cash accounting, under which the expense for postemployment benefits is equal to benefit and administrative costs paid on behalf of retirees and their dependents (i.e., a pay-as-you-go basis).

The statements cover postemployment benefits of medical, prescription drugs, dental, vision and life insurance coverage for retirees; long-term care coverage, life insurance and death benefits that are *not* offered as part of a pension plan; and long-term disability insurance for employees. The benefits valued in this report are limited to those described in Exhibit III of Section 3, which are based on those provided under the terms of the substantive plan in effect at the time of the valuation and on the pattern of sharing costs between the employer and plan members. The projection of benefits is not limited by legal or contractual limits on funding the plan unless those limits clearly translate into benefit limits on the substantive plan being valued.

The new standards prescribe an accrual-basis accounting requirement, thereby recognizing the employer cost of postemployment benefits over an employee's career. The standards also prescribe a consistent accounting requirement for both pension and non-pension benefits.

The total cost of providing postemployment benefits is projected, taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions. These assumptions are summarized in Exhibit II of Section 3. This amount is then discounted to determine the Total OPEB Liability. The Net OPEB Liability (NOL) is the difference between the Total OPEB Liability and market value of assets in the Plan, called the Plan Fiduciary Net Position.

Once the NOL is determined, the Annual OPEB Expense is determined as the change in NOL from the prior year with deferred recognition of certain elements. In addition, Required Supplementary Information (RSI) must be reported, including historical information about the Net OPEB Liability and the contributions made to the Plan. Exhibit IV of Section 3 contains a definition of terms as well.

The calculation of an accounting obligation does not, in and of itself, imply that there is any legal liability to provide the benefits valued, nor is there any implication that the Employer is required to implement a funding policy to satisfy the projected expense.

Actuarial calculations reflect a long-term perspective, and the methods and assumptions use techniques designed to reduce short-term volatility in accrued liabilities and the actuarial value of assets, if any.

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and the actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.