

# Vermont State Teachers' Retirement System

**Actuarial Funding Valuation as of June 30, 2017 to  
calculate the Actuarially Determined Contribution for  
the Fiscal Year Ending June 30, 2019**



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November 16, 2017

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

Dear Board Members:

We are pleased to submit this Actuarial Funding Valuation as of June 30, 2017 to calculate the Actuarially Determined Contribution for the fiscal year ending June 30, 2019 under the current funding and asset allocation and assuming contributions would be fully funded and invested similar to the pension plan. The report summarizes the actuarial data used in the valuation, calculates the Actuarially Determined Contribution and the Actuarial Accrued Liability. This report was based on the census data and financial information provided and/or affirmed by the Vermont State Teachers' Retirement System, and the terms of the Plan. The actuarial calculations were completed under the supervision of Yori Robinson, 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

## SECTION 1

### EXECUTIVE SUMMARY

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## SECTION 1: Executive Summary for the Vermont State Teachers' Retirement System June 30, 2017 Funding Valuation

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### Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the 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:

- **Plan of benefits** 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 require the award of a Social Security disability pension as a condition for receiving a disability pension from the plan and subsequent health benefits. If so, changes in the Social Security 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 Teachers’ 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.
- **Participant data** 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. For most plans, it is not possible or desirable to take a snapshot of the actual work force on the valuation date. In any event, the actuarial valuation is based on a future work force that is presumed to be the same as the active population included in the valuation, but in fact, employment varies from year to year, sometimes quite considerably. 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.
- **Assets** 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 gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
- **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. This 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 on high quality fixed income investments. 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 may use approximations and estimates that will have an immaterial impact on our results and 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.

## **SECTION 1: Executive Summary for the Vermont State Teachers' Retirement System June 30, 2017 Funding Valuation**

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Given the above, the user of Segal's actuarial valuation (or other actuarial calculations) needs to keep the following in mind:

- The actuarial valuation is prepared for use by the Vermont State Teachers' Retirement System. It includes information and calculations needed to determine the Actuarially Determined Contribution (ADC) and Actuarial Accrued Liability (AAL). Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial snapshot is a measurement at a specific date – it is not a prediction of a plan's future financial condition.
- 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 employment levels, variation in claims 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 Teachers' 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 Teachers' Retirement System upon delivery and review. The Vermont State Teachers' 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.

## **SECTION 1: Executive Summary for the Vermont State Teachers' Retirement System June 30, 2017 Funding Valuation**

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### **Purpose**

This report presents the results of our actuarial funding valuation of the Vermont State Teachers' Retirement System as of June 30, 2017. The Actuarially Determined Contribution (ADC) and Actuarial Accrued Liability (AAL) are determined as defined by the Vermont State Teachers' Retirement System.

### **Highlights of the Valuation**

Using the June 30, 2017 actuarial assumptions provided in Section 4 Exhibit I, the ADC for the fiscal year ending June 30, 2018 is \$51,657,588 assuming a 4.00% rate of return and \$39,944,343 assuming a 7.95% rate of return. The Normal Cost and Actuarially Accrued Liability were determined using the Projected Unit Credit actuarial cost method and the rates of return specified above. The Unfunded Actuarially Accrued Liability was amortized using an open 30 year amortization period calculated as a level percent of projected payroll, with an assumed payroll growth of 3.00%.

Note that the ADC for the fiscal year ending June 30, 2018 is being provided for illustrative purposes, at the request of the Vermont State Teachers' Retirement System.

The ADC for the fiscal year ending June 30, 2019 is \$54,658,645 assuming a 3.58% rate of return and \$41,926,698 assuming a 7.50% rate of return. The Normal Cost and Actuarially Accrued Liability were determined using the Projected Unit Credit actuarial cost method and the rates of return specified above. Assets were projected forward assuming the System contributes the amount of expected benefit payments for the year ending June 30, 2018 and the annual employer assessment per new teacher 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 3.00%.

**SECTION 1: Executive Summary for the Vermont State Teachers' Retirement System  
June 30, 2017 Funding Valuation**

**SUMMARY OF VALUATION RESULTS**

| <b>Unfunded Actuarial Accrued Liability as of</b>                | <b><u>June 30, 2017</u></b> | <b><u>June 30, 2017</u></b> |
|------------------------------------------------------------------|-----------------------------|-----------------------------|
| Rate of Return                                                   | 4.00%                       | 7.95%                       |
| Actuarial Accrued Liability                                      | \$864,801,372               | \$510,781,957               |
| Health Care Fund Assets                                          | <u>(26,657,646)</u>         | <u>(26,657,646)</u>         |
| Unfunded Actuarial Accrued Liability                             | \$891,459,018               | \$537,439,603               |
| Funded Ratio                                                     | -3.08%                      | -5.22%                      |
| <b>Actuarially Determined Contribution (ADC) for Year Ending</b> | <b><u>June 30, 2018</u></b> | <b><u>June 30, 2018</u></b> |
| Rate of Return                                                   | 4.00%                       | 7.95%                       |
| Normal Cost                                                      | \$17,592,760                | \$7,320,956                 |
| Amortization of the unfunded actuarial accrued liability         | <u>34,064,828</u>           | <u>32,623,387</u>           |
| Total Actuarially Determined Contribution                        | \$51,657,588                | \$39,944,343                |
| Projected payroll                                                | \$603,988,984               | \$603,988,984               |
| ADC as a percentage of pay                                       | 8.55%                       | 6.61%                       |
| <b>Unfunded Actuarial Accrued Liability as of</b>                | <b><u>June 30, 2018</u></b> | <b><u>June 30, 2018</u></b> |
| Rate of Return                                                   | 3.58%                       | 7.50%                       |
| Actuarial Accrued Liability                                      | \$948,401,815               | \$557,267,007               |
| Health Care Fund Assets                                          | <u>(24,968,540)</u>         | <u>(25,962,619)</u>         |
| Unfunded Actuarial Accrued Liability                             | \$973,370,355               | \$583,229,626               |
| Funded Ratio                                                     | -2.63%                      | -4.66%                      |
| <b>Actuarially Determined Contribution (ADC) for Year Ending</b> | <b><u>June 30, 2019</u></b> | <b><u>June 30, 2019</u></b> |
| Rate of Return                                                   | 3.58%                       | 7.50%                       |
| Normal Cost                                                      | \$19,502,203                | \$8,147,279                 |
| Amortization of the unfunded actuarial accrued liability         | <u>35,156,442</u>           | <u>33,779,419</u>           |
| Total Actuarially Determined Contribution                        | \$54,658,645                | \$41,926,698                |
| Projected payroll                                                | \$622,108,654               | \$622,108,654               |
| ADC as a percentage of pay                                       | 8.79%                       | 6.74%                       |

**SECTION 1: Executive Summary for the Vermont State Teachers' Retirement System  
June 30, 2017 Funding Valuation**

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November 16, 2017

**Actuarial Certification**

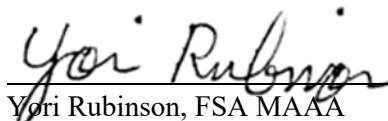
This is to certify that Segal Consulting, a Member of The Segal Group, Inc. has conducted an actuarial valuation of certain benefit obligations of the Vermont State Teachers' Retirement System other postemployment benefit programs as of June 30, 2017, in accordance with generally accepted actuarial principles and practices.

The actuarial valuation is completed on an annual basis and is based on the plan of benefits and participant, premium, claims and expense data provided by the System or from vendors employed by the System. 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 determining the Actuarially Defined Contribution (ADC) and Actuarial Accrued Liability (AAL). Determinations for purposes other than this may be significantly different from the results reported here. Accordingly, additional determinations may be needed for other purposes, such as meeting financial accounting requirements, 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 determine the ADC and AAL 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 their "General Qualification Standards for Statements of Actuarial Opinions" to render the actuarial opinion contained herein.



Yori Rubinson, FSA MAAA  
Vice President and Retiree Health Actuary

**SECTION 2: Valuation Results for the Vermont State Teachers' Retirement System**  
**June 30, 2017 Funding Valuation to Determine the Actuarially Determined Contribution**

**EXHIBIT 1: Unfunded Actuarial Accrued Liability**

The actuarial accrued liability is the portion of the actuarial value of total projected benefits allocated to periods prior to the valuation date by the actuarial cost method. The chart below shows the portion covered by retiree contributions and the portion covered by accumulated plan assets.

| <b>Actuarial Accrued Liability (AAL) and Unfunded AAL (UAAL)</b>       |                      |                     |                      |                     |
|------------------------------------------------------------------------|----------------------|---------------------|----------------------|---------------------|
|                                                                        | <b>June 30, 2017</b> |                     | <b>June 30, 2018</b> |                     |
| <b>Rate of Return</b>                                                  | 4.00%                | 7.95%               | 3.58%                | 7.50%               |
| <b>Participant Category</b>                                            |                      |                     |                      |                     |
| Current retirees, beneficiaries, and dependents                        | \$391,660,189        | \$262,194,849       | \$401,714,326        | \$268,524,271       |
| Current active members                                                 | <u>473,141,183</u>   | <u>248,587,108</u>  | <u>546,687,489</u>   | <u>288,742,736</u>  |
| Total actuarially accrued liability                                    | \$864,801,372        | \$510,781,957       | \$948,401,815        | \$557,267,007       |
| <b>Effect of Retiree Contributions</b>                                 |                      |                     |                      |                     |
| Actuarial accrued liability before reduction for retiree contributions | \$1,514,169,840      | \$873,468,615       | \$1,670,725,200      | \$956,327,458       |
| Less projected retiree contributions                                   | <u>649,368,468</u>   | <u>362,686,658</u>  | <u>722,323,385</u>   | <u>399,060,451</u>  |
| Net employer actuarial accrued liability                               | \$864,801,372        | \$510,781,957       | \$948,401,815        | \$557,267,007       |
| Assets                                                                 | <u>(26,657,646)</u>  | <u>(26,657,646)</u> | <u>(24,968,540)</u>  | <u>(25,962,619)</u> |
| Unfunded actuarial accrued liability                                   | \$891,459,018        | \$537,439,603       | \$973,370,355        | \$583,229,626       |
| Funded Ratio                                                           | -3.08%               | -5.22%              | -2.63%               | -4.66%              |

**SECTION 2: Valuation Results for the Vermont State Teachers' Retirement System**  
**June 30, 2017 Funding Valuation to Determine the Actuarially Determined Contribution**

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**EXHIBIT 2: Actuarially Determined Contribution**

The Actuarially Determined Contribution (ADC) is the recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

The Vermont State Teachers' Retirement System has elected to define the ADC as adding the Normal Cost of the plan to an amortization payment, both with adjustments to the start of the accounting period.

The Normal Cost and actuarial accrued liability are determined using a rate of return of 4.00% and 7.95% for the fiscal year ending June 30, 2018 and a rate of return of 3.58% and 7.50% for the fiscal year ending June 30, 2019. The unfunded actuarial accrued liability is amortized using a closed 30 year amortization period beginning for year ending June 30, 2019 calculated as a level percent of payroll, with an annual payroll growth rate of 3.00%.

|                                           | <b>Year Ending<br/>June 30, 2018</b> | <b>% of Payroll</b> | <b>Year Ending<br/>June 30, 2018</b> | <b>% of Payroll</b> |
|-------------------------------------------|--------------------------------------|---------------------|--------------------------------------|---------------------|
| Rate of Return                            | 4.00%                                |                     | 7.95%                                |                     |
| Normal Cost                               | \$17,592,760                         | 2.91%               | \$7,320,956                          | 1.21%               |
| Amortization of Unfunded Liability        | <u>34,064,828</u>                    | <u>5.64%</u>        | <u>32,623,387</u>                    | <u>5.40%</u>        |
| Total Actuarially Determined Contribution | \$51,657,588                         | 8.55%               | \$39,944,343                         | 6.61%               |
| Projected Payroll                         | \$603,988,984                        |                     | \$603,988,984                        |                     |

|                                           | <b>Year Ending<br/>June 30, 2019</b> | <b>% of Payroll</b> | <b>Year Ending<br/>June 30, 2019</b> | <b>% of Payroll</b> |
|-------------------------------------------|--------------------------------------|---------------------|--------------------------------------|---------------------|
| Rate of Return                            | 3.58%                                |                     | 7.50%                                |                     |
| Normal Cost                               | \$19,502,203                         | 3.13%               | \$8,147,279                          | 1.31%               |
| Amortization of Unfunded Liability        | <u>35,156,442</u>                    | <u>5.65%</u>        | <u>33,779,419</u>                    | <u>5.43%</u>        |
| Total Actuarially Determined Contribution | \$54,658,645                         | 8.79%               | \$41,926,698                         | 6.74%               |
| Projected Payroll                         | \$622,108,654                        |                     | \$622,108,654                        |                     |

**SECTION 3: Census Data for the Vermont State Teachers' Retirement System**  
**June 30, 2017 Funding Valuation to Determine the Actuarially Determined Contribution**

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**EXHIBIT A**

**Summary of Participant Data**

**June 30, 2016**

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**Retirees Enrolled in Health Care**

|                                                       |       |
|-------------------------------------------------------|-------|
| Number of retirees                                    | 6,259 |
| Average age of retirees                               | 70.9  |
| Number of spouses and dependents (excluding children) | 1,205 |
| Average age of spouses                                | 69.8  |

**Surviving Spouses Enrolled in Health Care**

|             |      |
|-------------|------|
| Number      | 96   |
| Average age | 77.8 |

**Retirees and Surviving Spouses Not Enrolled in Health Care**

|             |       |
|-------------|-------|
| Number      | 2,265 |
| Average Age | 71.0  |

**Terminated Members Entitled but Not Yet Eligible**

|                                   |       |
|-----------------------------------|-------|
| Number of terminated members      | 1,824 |
| Average age of terminated members | 50.0  |

**Active Participants**

|                                 |       |
|---------------------------------|-------|
| Number                          | 9,919 |
| Average age                     | 45.9  |
| Average years of service        | 12.7  |
| Average expected retirement age | 61.7  |

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**SECTION 4: Supporting Information for the Vermont State Teachers' Retirement System  
June 30, 2017 Funding Valuation to Determine the Actuarially Determined Contribution**

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**EXHIBIT I**

**Actuarial Assumptions and Actuarial Cost Method**

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|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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 Teachers' Retirement System.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Actuarial Cost Method:</b>         | Projected Unit Credit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Asset Valuation Method:</b>        | Market Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Amortization Method:</b>           | Level Percentage of Payroll, Closed as of year ending June 30, 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Remaining Amortization Period:</b> | 30 years remaining for the year ending June 30, 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Measurement Date:</b>              | June 30, 2017 and June 30, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Actuarial Valuation Date:</b>      | June 30, 2016                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Demographic Assumptions:</b>       | <p>Some of the demographic assumptions used in this valuation (including mortality, disability, turnover, and retirement) are the same as used in the Vermont State Teachers' Retirement System Actuarial Valuation and Review as of June 30, 2017 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>Payroll Increase Rate:</b>         | 3.00%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

**SECTION 4: Supporting Information for the Vermont State Teachers' Retirement System**  
**June 30, 2017 Funding Valuation to Determine the Actuarially Determined Contribution**

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**Salary Increase Rate:**

| <u>Service</u> | <u>Annual Rate of<br/>Salary Increase (%)</u> |
|----------------|-----------------------------------------------|
| 25             | 7.78%                                         |
| 30             | 6.47                                          |
| 35             | 5.60                                          |
| 40             | 4.92                                          |
| 45             | 4.43                                          |
| 50             | 4.09                                          |
| 55             | 3.85                                          |
| 60             | 3.75                                          |

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**Mortality Rates:**

*Death in Active Service:*

- All Groups 98% of RP-2014 White Collar Employee with generational projection using Scale SSA-2017.

*Healthy Post-retirement:*

- All Groups 98% of RP-2014 White Collar Annuitant with generational projection using Scale SSA-2017.

*Disabled Post-retirement:*

- All Groups RP-2014 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.

**SECTION 4: Supporting Information for the Vermont State Teachers' Retirement System**  
**June 30, 2017 Funding Valuation to Determine the Actuarially Determined Contribution**

**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 |        | Disability |        |
|     | Male       | Female | Male       | Female |
| 25  | 21.00%     | 20.00% | 0.005%     | 0.008% |
| 30  | 12.60      | 14.00  | 0.008      | 0.008  |
| 35  | 8.40       | 11.30  | 0.010      | 0.008  |
| 40  | 6.50       | 9.03   | 0.015      | 0.010  |
| 45  | 5.80       | 6.30   | 0.026      | 0.023  |
| 50  | 5.40       | 5.25   | 0.067      | 0.070  |
| 55  | 5.40       | 5.04   | 0.044      | 0.048  |
| 60  | 5.40       | 5.04   | 0.147      | 0.084  |

**Retirement Rates:**

| Age | Reduced Early Retirement |         | Full Early Retirement   |
|-----|--------------------------|---------|-------------------------|
|     | Group A                  | Group C | Grandfathered (Group C) |
| 55  | 6.13%                    | 6.13%   | 6.13%                   |
| 56  | 6.25                     | 6.25    | 6.25                    |
| 57  | 6.25                     | 6.25    | 6.25                    |
| 58  | 6.25                     | 6.25    | 6.25                    |
| 59  | 9.38                     | 9.38    | 9.38                    |
| 60  | 12.50                    | 18.75   | 18.75                   |
| 61  | 18.75                    | 18.75   | 18.75                   |

**SECTION 4: Supporting Information for the Vermont State Teachers' Retirement System**  
**June 30, 2017 Funding Valuation to Determine the Actuarially Determined Contribution**

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| Age | Service Retirement |                   |               |
|-----|--------------------|-------------------|---------------|
|     | Group C            |                   |               |
|     | Group A            | Non-Grandfathered | Grandfathered |
| 60  | 12.50%             | 17.00%            | N/A           |
| 61  | 18.80              | 17.00             | N/A           |
| 62  | 25.00              | 20.00             | 22.00%        |
| 63  | 22.00              | 22.00             | 22.00         |
| 64  | 22.00              | 22.00             | 22.00         |
| 65  | 33.00              | 33.00             | 33.00         |
| 66  | 33.00              | 33.00             | 33.00         |
| 67  | 33.00              | 33.00             | 33.00         |
| 68  | 22.00              | 22.00             | 22.00         |
| 69  | 33.00              | 33.00             | 33.00         |
| 70  | 100.00             | 100.00            | 100.00        |

Non-grandfathered members are assumed to retire with 25% probability if they are first eligible for service retirement on or before age 62 and 27.5% probability if they are first eligible for service retirement between age 62 and age 65.

**SECTION 4: Supporting Information for the Vermont State Teachers' Retirement System**  
**June 30, 2017 Funding Valuation to Determine the Actuarially Determined Contribution**

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Group A and Grandfathered Group C members are assumed to retire at the following rates upon completion of 30 years of creditable service:

| Age | Retirement After 30 Years of Service |                         |
|-----|--------------------------------------|-------------------------|
|     | Group A                              | Grandfathered (Group C) |
| 49  | 0.00%                                | 0.00%                   |
| 50  | 40.00                                | 40.00                   |
| 51  | 20.00                                | 20.00                   |
| 52  | 20.00                                | 20.00                   |
| 53  | 20.00                                | 20.00                   |
| 54  | 20.00                                | 20.00                   |
| 55  | 20.00                                | 8.75                    |
| 56  | 10.00                                | 6.25                    |
| 57  | 10.00                                | 6.25                    |
| 58  | 10.00                                | 10.00                   |
| 59  | 10.00                                | 10.00                   |
| 60  | 30.00                                | 25.00                   |
| 61  | 25.50                                | 17.00                   |

**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. For nonactives currently not receiving coverage, the subsidy was set based on service and retirement date provided in the data. If no service information was provided, retirees were assumed to have an 80% subsidy and spouses were assumed to not be eligible for a subsidy.

**Participation and Coverage Election:** 70% of active employees eligible for a subsidy at retirement and 10% of those not eligible for a subsidy at retirement were assumed to elect coverage. 30% of future terminated vested participants who are eligible for a subsidy and 10% of those not eligible for a subsidy were assumed to elect coverage. 30% of current terminated vested participants were assumed to elect coverage.

Current retirees who have not elected coverage can choose to do so each year at open enrollment. Of current retirees who have not elected coverage and are eligible for a subsidy, 40% who retired within the past year and 10% of others were assumed to elect medical coverage. Current retirees who have not elected coverage and are not eligible for a subsidy are not assumed to elect coverage.

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**Dependents:**

Demographic data was used for spouses of current retirees when available. For current retirees, spouse coverage was determined based on plan coverage. For future retirees and current spouses for which information is not available, husbands are assumed to be three years older than wives. Of those future retirees who elect to continue their health coverage at retirement, 60% of males and 50% of females were assumed to have an eligible spouse who also opts for health coverage at that time. Spouses of future retirees who are not eligible for subsidized spouse coverage were assumed not to elect coverage. Spouses of current retirees who are not eligible for subsidized spouse coverage were assumed to pay the full premium.

It is assumed that 5% of future retirees covering spouses will elect the Premium Reduction Option. Current and future terminated vested as well as current retirees without health coverage are not assumed to elect the Premium Reduction Option. The Premium Reduction Option is valued using a reduction factor of 0.85 of the single-life subsidy for which the retiree and spouse are eligible. Surviving spouses with a date of retirement before January 1, 2007 are assumed to pay the full medical premium.

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**Per Capita Cost Development:**

*Medical and Prescription Drug*

Per capita claims costs were based on claims for the period July 1, 2015 through June 30, 2017. Claims were separated by non-Medicare and Medicare retirees, and by medical and prescription drug. Claims were separated by plan year, then adjusted as follows:

- total claims were divided by the number of adult members to yield a per capita claim,
- the per capita claim was trended to the midpoint of the valuation year at assumed trend rates, and
- the per capita claim was adjusted for the effect of any plan changes.

Per capita claims for each plan year were then combined by taking a weighted average. The weights used in this average account for a number of factors including each plan year's volatility of claims experience and distance to the valuation year. Actuarial factors were then applied to the weighted average cost to estimate individual retiree and spouse costs by age and by gender.

*Administrative Expenses*

Per capita claims costs were based on claims for the period July 1, 2015 through June 30, 2017. Claims were separated by plan year, then adjusted as described above to yield a combined weighted average per capita claims cost.

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**Per Capita Health Costs:**

Medical and prescription drug claims costs for the year beginning July 1, 2017 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 Drugs |         |         |         |
|-----|---------|---------|---------|---------|--------------------|---------|---------|---------|
|     | Retiree |         | Spouse  |         | Retiree            |         | Spouse  |         |
|     | Male    | Female  | Male    | Female  | Male               | Female  | Male    | Female  |
| 50  | \$7,969 | \$9,077 | \$5,566 | \$7,288 | \$1,515            | \$1,725 | \$1,058 | \$1,385 |
| 55  | 9,464   | 9,771   | 7,448   | 8,436   | 1,799              | 1,857   | 1,416   | 1,603   |
| 60  | 11,239  | 10,532  | 9,971   | 9,784   | 2,136              | 2,002   | 1,895   | 1,860   |
| 64  | 12,894  | 11,172  | 12,587  | 11,012  | 2,451              | 2,123   | 2,392   | 2,093   |
| 65  | 1,472   | 1,251   | 1,472   | 1,251   | 1,896              | 1,612   | 1,896   | 1,612   |
| 70  | 1,706   | 1,348   | 1,706   | 1,348   | 2,197              | 1,737   | 2,197   | 1,737   |
| 75  | 1,839   | 1,451   | 1,839   | 1,451   | 2,368              | 1,869   | 2,368   | 1,869   |

**Administrative Expenses**

An annual administrative expense of \$526 per participant with health and welfare coverage increasing at 3.0% per year was added to projected incurred claim costs in developing the benefit obligations.

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**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<br>June 30, | Rate (%)                     |                          |
|-------------------------|------------------------------|--------------------------|
|                         | Pre-Medicare<br>Health Costs | Medicare<br>Health Costs |
| 2018                    | 7.50                         | 7.75                     |
| 2019                    | 7.25                         | 7.45                     |
| 2020                    | 7.00                         | 7.15                     |
| 2021                    | 6.75                         | 6.85                     |
| 2022                    | 6.50                         | 6.55                     |
| 2023                    | 6.25                         | 6.25                     |
| 2024                    | 6.00                         | 5.95                     |
| 2025                    | 5.75                         | 5.65                     |
| 2026                    | 5.50                         | 5.35                     |
| 2027                    | 5.25                         | 5.05                     |
| 2028                    | 5.00                         | 4.75                     |
| 2029                    | 4.75                         | 4.50                     |
| 2030+                   | 4.50                         | 4.50                     |

The trend rate assumptions were developed using Segal’s internal guidelines, which are established each year using data sources such as the 2018 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.

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- Retiree Contribution Increase Rate:** Retiree contributions were assumed to increase with health trend. Retiree contribution rates were based on 2017 premiums. Plan premiums 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 2020. The excise tax limit is assumed to increase by 2.5% each year after 2018.

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**Exhibit II**

**Summary of Plan**

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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.

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|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eligibility:</b>          | <p>Retirees and their spouses are eligible for health coverage if the retiree is eligible for pension benefits. Pension eligibility requirements are below.</p> <p><b><u>Group A:</u></b> Public school teachers employed within the State of Vermont prior to July 1, 1981 and elected to remain a Group A member.</p> <ul style="list-style-type: none"><li>• Retirement: Attainment of 30 years of creditable service, or age 55.</li></ul> <p><b><u>Group C:</u></b> Public school teachers employed within the State of Vermont on or after July 1, 1990. Teachers hired before July 1, 1990 and were Group B members in service on July 1, 1990 are now Group C members. Grandfathered participants are Group C members who were within five years of normal retirement eligibility as defined prior to July 1, 2010.</p> <ul style="list-style-type: none"><li>• Retirement Group C Grandfathered: Attainment of age 62, or 30 years of creditable service, or age 55 with 5 years of creditable service.</li><li>• Retirement Group C Non-grandfathered: Attainment of age 65, or age plus creditable service equal to 90, or age 55 with 5 years of creditable service.</li></ul> <p>Vesting and Disability: 5 years of creditable service. Participants who terminate with 5 years of service under the age of 55 may elect coverage upon receiving pension benefits.</p> |
| <b>Benefit Types:</b>        | Medical and prescription drug. Retirees pay the full cost for dental benefits.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Duration of Coverage:</b> | Lifetime.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Spousal Benefits:</b>     | Same benefits as for retirees.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Spousal Coverage:</b>     | Lifetime.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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**Retiree Contributions:**

**Retired before June 30, 2010:**

Retirees with at least 10 years of service pay premium costs in excess of an 80% VSTRS subsidy.

Retirees with less than 10 years of service do not receive any premium subsidy.

Spouses do not receive any premium subsidy, regardless of the retiree's service.

**Retired after June 30, 2010:**

Retirees pay premium costs in excess of the following VSTRS subsidy, based on service:

| <b>Retiree Subsidy Level</b>             | <b>Subsidy</b> |
|------------------------------------------|----------------|
| <b>Years of Service at June 30, 2010</b> |                |
| 10 years or more                         | 80%            |
| Less than 10 years                       |                |
| Less than 15 years at retirement         | 0%             |
| 15-19.99 years at retirement             | 60%            |
| 20-24.99 years at retirement             | 70%            |
| 25 or more years at retirement           | 80%            |

Spouses of retirees can receive an 80% subsidy, if they meet the following requirements:

**Spouse Coverage with 80% Subsidy**

| <b>Years of Service at June 30, 2010</b> | <b>Required Years of Service at Retirement</b> |
|------------------------------------------|------------------------------------------------|
| Less than 10 years                       | 25 years of service at retirement              |
| Between 10 and 14.99 years               | 25 years of service at retirement              |
| Between 15 and 24.99 years               | 10 additional years from June 30, 2010         |
| Between 25 and 29.99 years               | 35 years of service at retirement              |
| 30 or more years                         | 5 additional years from June 30, 2010          |

Spouses of retirees who do not meet the above requirements for an 80% subsidy can receive unsubsidized coverage.

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**Premium Reduction Option:**

Participants retiring on or after January 1, 2007 with a VSTRS premium subsidy have a one-time option to reduce the VSTRS subsidy percentage during the retiree's life so that a surviving spouse may continue to receive the same VSTRS 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.

**Benefit Descriptions**

| <b>Medical*</b>                     | <b>JY Plan</b>                       | <b>\$300 Comprehensive Plan</b>         | <b>Vermont Health Partnership</b>    |
|-------------------------------------|--------------------------------------|-----------------------------------------|--------------------------------------|
| <i>Annual deductible</i>            | N/A                                  | \$300 per person,<br>\$600 per family   | N/A                                  |
| <i>Co-pay</i>                       | \$20                                 | N/A                                     | \$15 for PCP,<br>\$25 for Specialist |
| <i>Coinsurance (plan pays)</i>      | 100% of Allowed                      | 80%                                     | 100% of Allowed                      |
| <i>Annual maximum out-of-pocket</i> | N/A                                  | \$600 per person,<br>\$1,200 per family | N/A                                  |
| <b>Prescription Drugs</b>           |                                      |                                         |                                      |
| <i>Generic</i>                      | \$5                                  |                                         |                                      |
| <i>Preferred Brand</i>              | \$20                                 |                                         |                                      |
| <i>Non-Preferred Brand</i>          | \$45                                 |                                         |                                      |
| <i>Annual maximum out-of-pocket</i> | \$600 per person, \$1,200 per family |                                         |                                      |

\*Eligible participants may also elect the Vermont Blue65 Plan C Medigap plan. The Medigap plan excludes prescription drug coverage.