

Vermont State Teachers' Retirement System

Information Required Under
Governmental Accounting Standards Board
Statement No. 67 as of June 30, 2015

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Document Version: 1.0 (July 2014).



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November 16, 2015

Board of Trustees
Vermont State Teachers' Retirement System
Montpelier, Vermont 05609

GASB 67 Report as of June 30, 2015

Dear Board Members:

This actuarial valuation report provides information concerning the Vermont State Teachers' Retirement System (VSTRS) in accordance with the Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67). This Statement is an amendment of Statement No. 25, Financial Reporting for Defined Benefit Pension Systems and Note Disclosures for Defined Contribution Systems. Information is provided herein for the fiscal year ending June 30, 2015.

This report covers the retirement [Section 401(a)] portion of the System. The retiree medical benefits payable under the System will be addressed in a separate report prepared in accordance with GASB Statement No. 43.

We certify that the information contained in this report has been prepared in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information fairly presents the actuarial position of the System in accordance with the requirements of GASB 67 as of June 30, 2015.

The Board of Trustees and staff of the State Treasurer's office may use this report for the review of the operation of the System. The report may also be used in the preparation of VSTRS' audited financial statements. Use of this report for any other purpose or by anyone other than the Board of Trustees, the staff of the State Treasurer's office or its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' prior written consent.

Future actuarial measurements may differ significantly from current measurements due to System experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in System provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this report.



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In preparing the actuarial results, we have relied upon information provided by State Treasurer's office staff regarding System provisions, participants, assets, contributions and other matters used in the actuarial valuation. Although we did not audit the data, we reviewed the data for reasonableness and consistency with the prior year's information. The accuracy of the results presented herein is dependent on the accuracy of the data.

This valuation was prepared based on the actuarial assumptions and methods used in the June 30, 2014, actuarial valuation of the System, except as noted herein. In our opinion, the actuarial assumptions used are appropriate for purposes of the valuation and are reasonably related to the experience of the System and to reasonable long-term expectations.

This report was prepared under my supervision and in accordance with all applicable Actuarial Standards of Practice. I am a Fellow of the Society of Actuaries, an Enrolled Actuary and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

I am available to discuss this report with you at your convenience.

Buck Consultants, LLC

David L. Driscoll

David L. Driscoll, FSA, EA, MAAA
Principal and Consulting Actuary

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Section I – GASB 67 Information

Notes to the Financial Statements for the Year Ended June 30, 2014

Net Pension Liability

The components of the net pension liability as of June 30, 2014, are as follows:

Total pension liability	\$	2,839,621,294
System fiduciary net position		<u>(1,653,116,441)</u>
Net pension liability	\$	1,186,504,853
System fiduciary net position as a percentage of the total pension liability		58.22%

Actuarial Assumptions

The total pension liability as of June 30, 2015 was determined by rolling forward the total pension liability as of June 30, 2014 to June 30, 2015, using the actuarial assumptions outlined in Section II. Except for the expected rate of return on assets, these assumptions were selected on the basis of the experience study that was performed for the five-year period ending June 30, 2010. The recommended assumption changes based on this experience study were adopted by the Board at its May 24, 2011 Board meeting, and were effective for the June 30, 2011 actuarial valuation. The 7.95% expected rate of return on assets was adopted by the Board at a meeting held on July 27, 2015.

Actuarial Cost Method

Entry Age Normal – Level Percentage of Pay

Asset Valuation Method

Invested assets are reported at fair value.

The long-term expected rate of return on System investments was determined using best-estimate ranges of expected future nominal rates of return (expected returns, net of investment expense and inflation) developed for each major asset class using an econometric model that forecasts a variety of economic environments and then calculates asset class returns based on functional relationships between the economic variables and the asset classes. For funding valuations performed through June 30, 2014, these best estimate ranges were combined to produce forecasts of the short, intermediate, and longer term horizons by weighting the expected future nominal rates of return by the target asset allocation percentage. The various time horizons in the forecast are intended to capture more recent economic and capital market conditions as well as other plausible environments that could develop in the future over economic cycles. To reflect this in the rate-of-return assumption, a Select and Ultimate assumption setting approach, which is cited in Section 3.6.4 of Actuarial Standard of Practice No. 27 as an alternative to a single assumed rate of return, was employed.

Best estimates of arithmetic rates of return for each major asset class included in the target asset allocation as of June 30, 2015 are summarized in the following table:

<u>Asset Class</u>	<u>Long-Term Expected Real Rate of Return</u>
Equity	8.61%
Fixed Income	1.91%
Alternatives	6.93%
Multi-strategy	4.88%

Nominal long-term expected rates of return for these asset classes are equal to the sum of the above expected long-term real rates and the expected long-term inflation rate of 3.0%.

Discount rate: The discount rate used to measure the total pension liability was 7.95%. The projection of cash flows used to determine the discount rate assumed that contributions will continue to be made in accordance with the current funding policy. Based on these assumptions, the fiduciary net position was projected to be available to make all projected future benefit payments to current System members. The assumed discount rate has been determined in accordance with the method prescribed by GASB 67. We believe this assumption is reasonable for the purposes of the measurements required by GASB 67. Tables 1 and 2 provide additional details regarding the determination of the discount rate.

In the projection of future cash outflows of the System, it was assumed that administrative expenses payable from System assets would amount to approximately \$2.26 million in fiscal 2015 and rise by 3% per annum.

Sensitivity of the net pension liability to changes in the discount rate: The following presents the net pension liability, calculated using the discount rate of 7.95%, as well as what the net pension liability would be if it were calculated using a discount rate that is one-percentage-point lower (6.95%) or one-percentage-point higher (8.95%) than the current rate:

	<u>1% Decrease (6.95%)</u>	<u>Current Discount Rate (7.95%)</u>	<u>1% Increase (8.95%)</u>
Net Pension Liability	\$1,506,647,377	\$1,186,504,853	\$917,933,969

Schedules of Required Supplementary Information

Schedule of Changes in the Net Pension Liability and Related Ratios

	<u>FYE June 30, 2015</u>
Total pension liability	
Service cost	\$ 33,613,557
Interest	215,447,502
Changes of benefit terms	0
Differences between expected and actual experience	20,002,876
Changes of assumptions	57,488,610
Benefit payments	<u>(150,732,845)</u>
Net change in total pension liability	\$ 175,819,700
Total pension liability-beginning	\$ 2,663,801,594
Total pension liability-ending (a)	\$ 2,839,621,294
System fiduciary net pension	
Contributions - employers	\$ 72,908,805
Contributions – members	34,863,531
Net investment income	(7,566,697)
Benefit payments, including refunds of member contributions	(150,732,845)
Administrative expenses	(2,259,402)
Other	<u>538,444</u>
Net change in System fiduciary net position	\$ (52,248,164)
System fiduciary net position-beginning	\$ 1,705,364,604
System fiduciary net position-ending (b)	<u>\$ 1,653,116,441</u>
System's net pension liability-ending (a)-(b)	\$ 1,186,504,853
System fiduciary net position as a percentage of the total pension liability	58.22%
Covered payroll as of June 30, 2014 actuarial valuation	\$ 567,073,601
Net pension liability as a percentage of covered payroll	209.23%

Notes to Schedule:

Benefit changes since June 30, 2014: None

Changes of assumptions since June 30, 2014: The discount rate used to measure the net pension liability was lowered from 8.15% to 7.95%, due to the adoption by the Board of Trustees of a 7.95% expected future rate of return on assets for funding purposes.



Schedule of Employer Contributions

	<u>FYE June 30, 2014</u>
Actuarially determined contribution	\$ 72,857,863
Contributions related to the actuarially determined contribution	<u>72,908,805</u>
Contribution deficiency (excess)	\$ (50,942)

Notes to Schedule

Valuation date: Actuarially determined contributions are calculated as of the June 30 preceding by twelve months the start of the fiscal year in which contributions are made. That is, the contribution calculated in the June 30, 2013, actuarial valuation will be made during the fiscal year ended June 30, 2015.

The methods and assumptions used to calculate the actuarially determined contribution in the June 30, 2014 actuarial valuation are shown in Section II.

Schedule of Investment Returns

	<u>FYE June 30, 2014</u>	<u>FYE June 30, 2015</u>
Annual money-weighted rate of return, net of investment expenses	13.83%	(0.40%)

Table 1

Projection of Fiduciary Net Position
(000's omitted)

Fiscal Year	Beginning	Projection of Fiduciary Net Position					Projected	Ending
Ending	Fiduciary	Member	Employer	Benefit	Administrative	Investment	Fiduciary	
June 30	Net Position	Contributions	Contributions	Payments	Expenses	Earnings	Net Position	
Interest Rate								
2015	6.25%	1,705,365	34,864	72,909	260,817	2,260	101,806	1,651,867
2016	6.75%	1,651,867	26,793	74,761	162,469	2,328	109,401	1,698,025
2017	7.00%	1,698,025	25,356	77,500	172,193	2,398	116,393	1,742,684
2018	7.50%	1,742,684	24,006	80,440	181,003	2,470	127,791	1,791,448
2019	7.75%	1,791,448	22,701	83,574	190,032	2,544	135,555	1,840,702
2020	8.25%	1,840,702	21,451	86,915	199,429	2,620	148,070	1,895,089
2021	8.25%	1,895,089	20,264	90,472	208,275	2,699	152,292	1,947,143
2022	8.25%	1,947,143	19,118	94,249	217,002	2,780	156,337	1,997,065
2023	8.50%	1,997,065	18,026	98,259	225,142	2,863	165,099	2,050,444
2024	8.50%	2,050,444	16,994	102,513	232,950	2,949	169,442	2,103,494
2025	8.50%	2,103,494	15,986	107,012	240,083	3,037	173,796	2,157,168
2026	8.50%	2,157,168	15,029	111,774	246,832	3,128	178,232	2,212,243
2027	8.50%	2,212,243	14,123	116,811	253,264	3,222	182,814	2,269,505
2028	8.50%	2,269,505	13,242	122,128	259,420	3,319	187,605	2,329,741
2029	8.50%	2,329,741	12,380	127,736	265,375	3,419	192,671	2,393,733
2030	8.75%	2,393,733	11,543	133,651	270,874	3,522	203,918	2,468,449
2031	9.00%	2,468,449	10,724	139,885	275,973	3,628	216,481	2,555,938
2032	9.00%	2,555,938	9,921	146,452	280,734	3,737	224,394	2,652,234
2033	9.00%	2,652,234	9,131	153,368	285,190	3,849	233,129	2,758,823
2034	9.00%	2,758,823	8,357	160,651	289,267	3,964	242,824	2,877,425
2035	9.00%	2,877,425	7,602	168,319	292,870	4,083	253,639	3,010,032
2036	9.00%	3,010,032	6,871	176,393	296,160	4,205	265,747	3,158,678
2037	9.00%	3,158,678	6,176	184,896	298,528	4,331	279,359	3,326,250
2038	9.00%	3,326,250	5,511	193,846	299,779	4,461	294,744	3,516,111
2039	9.00%	3,516,111	4,878	1,408	300,165	4,595	303,308	3,520,945
2040	9.00%	3,520,945	4,288	1,230	300,447	4,733	303,691	3,524,974
2041	9.00%	3,524,974	3,726	1,062	299,257	4,875	304,067	3,529,697
2042	9.00%	3,529,697	3,201	907	297,073	5,021	304,552	3,536,263
2043	9.00%	3,536,263	2,714	769	294,376	5,172	305,228	3,545,426
2044	9.00%	3,545,426	2,276	645	290,626	5,327	306,186	3,558,580
2045	9.00%	3,558,580	1,879	533	286,429	5,487	307,525	3,576,601
2046	9.00%	3,576,601	1,526	432	281,187	5,652	309,351	3,601,071
2047	9.00%	3,601,071	1,229	348	275,434	5,822	311,782	3,633,174
2048	9.00%	3,633,174	975	276	268,657	5,997	314,948	3,674,718
2049	9.00%	3,674,718	760	215	261,465	6,177	318,983	3,727,034
2050	9.00%	3,727,034	586	166	253,294	6,362	324,033	3,792,164
2051	9.00%	3,792,164	442	125	244,855	6,553	330,250	3,871,573
2052	9.00%	3,871,573	326	92	236,033	6,750	337,770	3,966,978
2053	9.00%	3,966,978	233	66	226,785	6,953	346,750	4,080,288
2054	9.00%	4,080,288	164	47	217,222	7,162	357,355	4,213,471
2055	9.00%	4,213,471	111	31	207,338	7,377	369,765	4,368,663
2056	9.00%	4,368,663	74	21	197,239	7,598	384,165	4,548,085
2057	9.00%	4,548,085	47	13	187,027	7,826	400,751	4,754,043
2058	9.00%	4,754,043	28	8	176,721	8,061	419,729	4,989,026
2059	9.00%	4,989,026	15	4	166,548	8,303	441,314	5,255,509
2060	9.00%	5,255,509	7	2	156,519	8,552	465,728	5,556,175
2061	9.00%	5,556,175	3	1	146,664	8,809	493,210	5,893,916
2062	9.00%	5,893,916	1	0	137,002	9,073	524,021	6,271,863

Table 1
 (continued)
 Projection of Fiduciary Net Position
 (000's omitted)

	Interest	Beginning	Member	Employer	Benefit Administrative	Projected	Ending
	Rate	Fiduciary	Contributions	Contributions	Payments	Investment	Fiduciary
		Net Position			Expenses	Earnings	Net Position
2063	9.00%	6,271,863	0	0	127,552	9,345	6,693,406
2064	9.00%	6,693,406	0	0	118,336	9,625	7,162,217
2065	9.00%	7,162,217	0	0	109,371	9,914	7,682,280
2066	9.00%	7,682,280	0	0	100,676	10,211	8,257,915
2067	9.00%	8,257,915	0	0	92,272	10,517	8,893,813
2068	9.00%	8,893,813	0	0	84,180	10,833	9,595,060
2069	9.00%	9,595,060	0	0	76,421	11,158	10,367,180
2070	9.00%	10,367,180	0	0	69,018	11,493	11,216,170
2071	9.00%	11,216,170	0	0	61,991	11,838	12,148,546
2072	9.00%	12,148,546	0	0	55,357	12,193	13,171,390
2073	9.00%	13,171,390	0	0	49,133	12,559	14,292,407
2074	9.00%	14,292,407	0	0	43,329	12,936	15,519,981
2075	9.00%	15,519,981	0	0	37,953	13,324	16,863,245
2076	9.00%	16,863,245	0	0	33,011	13,724	18,332,144
2077	9.00%	18,332,144	0	0	28,499	14,136	19,937,525
2078	9.00%	19,937,525	0	0	24,414	14,560	21,691,212
2079	9.00%	21,691,212	0	0	20,745	14,997	23,606,106
2080	9.00%	23,606,106	0	0	17,478	15,447	25,696,280
2081	9.00%	25,696,280	0	0	14,594	15,910	27,977,098
2082	9.00%	27,977,098	0	0	12,073	16,387	30,465,324
2083	9.00%	30,465,324	0	0	9,890	16,879	33,179,256
2084	9.00%	33,179,256	0	0	8,018	17,385	36,138,867
2085	9.00%	36,138,867	0	0	6,430	17,907	39,365,957
2086	9.00%	39,365,957	0	0	5,098	18,444	42,884,314
2087	9.00%	42,884,314	0	0	3,994	18,997	46,719,899
2088	9.00%	46,719,899	0	0	3,090	19,567	50,901,035
2089	9.00%	50,901,035	0	0	2,360	20,154	55,458,623
2090	9.00%	55,458,623	0	0	1,778	20,759	60,426,370
2091	9.00%	60,426,370	0	0	1,322	21,382	65,841,040
2092	9.00%	65,841,040	0	0	970	22,023	71,742,728
2093	9.00%	71,742,728	0	0	702	22,684	78,175,158
2094	9.00%	78,175,158	0	0	502	23,365	85,186,004
2095	9.00%	85,186,004	0	0	355	24,066	92,827,248
2096	9.00%	92,827,248	0	0	250	24,788	101,155,560
2097	9.00%	101,155,560	0	0	174	25,532	110,232,723
2098	9.00%	110,232,723	0	0	122	26,298	120,126,084
2099	9.00%	120,126,084	0	0	86	27,087	130,909,063
2100	9.00%	130,909,063	0	0	61	27,900	142,661,686
2101	9.00%	142,661,686	0	0	43	28,737	155,471,191
2102	9.00%	155,471,191	0	0	31	29,599	169,432,663
2103	9.00%	169,432,663	0	0	22	30,487	184,649,750
2104	9.00%	184,649,750	0	0	16	31,402	201,235,427
2105	9.00%	201,235,427	0	0	11	32,344	219,312,835
2106	9.00%	219,312,835	0	0	8	33,314	239,016,201
2107	9.00%	239,016,201	0	0	5	34,313	260,491,831
2108	9.00%	260,491,831	0	0	3	35,342	283,899,194
2109	9.00%	283,899,194	0	0	2	36,402	309,412,115
2110	9.00%	309,412,115	0	0	1	37,494	337,220,059
2111	9.00%	337,220,059	0	0	1	38,619	367,529,544
2112	9.00%	367,529,544	0	0	0	39,778	400,565,673

Vermont State Teachers' Retirement System
GASB 67 Valuation - June 30, 2015



Table 2

Fiscal Year	Projection of Fiduciary Net Position (000's omitted)						Present Value of Benefit Payments	
	Ending June 30	Interest Rate	Beginning Fiduciary Net Position	Benefit Payments	Benefit Payments		Unfunded Portion at 3.73%	Using Single Discount Rate of 7.95%
					Funded Portion	Unfunded Portion		
2015	6.25%	1,705,365	260,817	260,817	0	0	251,029	
2016	6.75%	1,651,867	162,469	162,469	0	0	144,856	
2017	7.00%	1,698,025	172,193	172,193	0	0	142,219	
2018	7.50%	1,742,684	181,003	181,003	0	0	138,486	
2019	7.75%	1,791,448	190,032	190,032	0	0	134,687	
2020	8.25%	1,840,702	199,429	199,429	0	0	130,937	
2021	8.25%	1,895,089	208,275	208,275	0	0	126,675	
2022	8.25%	1,947,143	217,002	217,002	0	0	122,263	
2023	8.50%	1,997,065	225,142	225,142	0	0	117,507	
2024	8.50%	2,050,444	232,950	232,950	0	0	112,628	
2025	8.50%	2,103,494	240,083	240,083	0	0	107,529	
2026	8.50%	2,157,168	246,832	246,832	0	0	102,410	
2027	8.50%	2,212,243	253,264	253,264	0	0	97,340	
2028	8.50%	2,269,505	259,420	259,420	0	0	92,363	
2029	8.50%	2,329,741	265,375	265,375	0	0	87,525	
2030	8.75%	2,393,733	270,874	270,874	0	0	82,759	
2031	9.00%	2,468,449	275,973	275,973	0	0	78,108	
2032	9.00%	2,555,938	280,734	280,734	0	0	73,604	
2033	9.00%	2,652,234	285,190	285,190	0	0	69,265	
2034	9.00%	2,758,823	289,267	289,267	0	0	65,081	
2035	9.00%	2,877,425	292,870	292,870	0	0	61,039	
2036	9.00%	3,010,032	296,160	296,160	0	0	57,179	
2037	9.00%	3,158,678	298,528	298,528	0	0	53,392	
2038	9.00%	3,326,250	299,779	299,779	0	0	49,667	
2039	9.00%	3,516,111	300,165	300,165	0	0	46,069	
2040	9.00%	3,520,945	300,447	300,447	0	0	42,716	
2041	9.00%	3,524,974	299,257	299,257	0	0	39,413	
2042	9.00%	3,529,697	297,073	297,073	0	0	36,244	
2043	9.00%	3,536,263	294,376	294,376	0	0	33,270	
2044	9.00%	3,545,426	290,626	290,626	0	0	30,428	
2045	9.00%	3,558,580	286,429	286,429	0	0	27,780	
2046	9.00%	3,576,601	281,187	281,187	0	0	25,263	
2047	9.00%	3,601,071	275,434	275,434	0	0	22,924	
2048	9.00%	3,633,174	268,657	268,657	0	0	20,713	
2049	9.00%	3,674,718	261,465	261,465	0	0	18,674	
2050	9.00%	3,727,034	253,294	253,294	0	0	16,758	
2051	9.00%	3,792,164	244,855	244,855	0	0	15,007	
2052	9.00%	3,871,573	236,033	236,033	0	0	13,401	
2053	9.00%	3,966,978	226,785	226,785	0	0	11,927	
2054	9.00%	4,080,288	217,222	217,222	0	0	10,583	
2055	9.00%	4,213,471	207,338	207,338	0	0	9,358	
2056	9.00%	4,368,663	197,239	197,239	0	0	8,246	
2057	9.00%	4,548,085	187,027	187,027	0	0	7,243	
2058	9.00%	4,754,043	176,721	176,721	0	0	6,340	
2059	9.00%	4,989,026	166,548	166,548	0	0	5,535	
2060	9.00%	5,255,509	156,519	156,519	0	0	4,819	
2061	9.00%	5,556,175	146,664	146,664	0	0	4,183	
2062	9.00%	5,893,916	137,002	137,002	0	0	3,620	

Vermont State Teachers' Retirement System
GASB 67 Valuation - June 30, 2015



Table 2
 (continued)
 Projection of Fiduciary Net Position
 (000's omitted)

Fiscal Year	Ending June 30	Interest Rate	Beginning Fiduciary Net Position	Benefit Payments	Benefit Payments		Present Value of Benefit Payments	
					Funded Portion	Unfunded Portion	Unfunded Portion at 3.73%	Using Single Discount Rate of 7.95%
2063	9.00%	6,271,863	127,552	127,552	0	0	3,122	
2064	9.00%	6,693,406	114,563	114,563	0	0	2,597	
2065	9.00%	7,162,217	105,882	105,882	0	0	2,224	
2066	9.00%	7,682,280	97,474	97,474	0	0	1,896	
2067	9.00%	8,257,915	89,358	89,358	0	0	1,610	
2068	9.00%	8,893,813	81,550	81,550	0	0	1,361	
2069	9.00%	9,595,060	74,068	74,068	0	0	1,146	
2070	9.00%	10,367,180	66,932	66,932	0	0	959	
2071	9.00%	11,216,170	60,157	60,157	0	0	798	
2072	9.00%	12,148,546	53,760	53,760	0	0	661	
2073	9.00%	13,171,390	47,755	47,755	0	0	544	
2074	9.00%	14,292,407	42,151	42,151	0	0	445	
2075	9.00%	15,519,981	36,957	36,957	0	0	361	
2076	9.00%	16,863,245	32,176	32,176	0	0	291	
2077	9.00%	18,332,144	27,807	27,807	0	0	233	
2078	9.00%	19,937,525	23,846	23,846	0	0	185	
2079	9.00%	21,691,212	20,282	20,282	0	0	146	
2080	9.00%	23,606,106	17,104	17,104	0	0	114	
2081	9.00%	25,696,280	14,295	14,295	0	0	88	
2082	9.00%	27,977,098	11,835	11,835	0	0	68	
2083	9.00%	30,465,324	9,702	9,702	0	0	51	
2084	9.00%	33,179,256	7,870	7,870	0	0	39	
2085	9.00%	36,138,867	6,314	6,314	0	0	29	
2086	9.00%	39,365,957	5,006	5,006	0	0	21	
2087	9.00%	42,884,314	3,920	3,920	0	0	15	
2088	9.00%	46,719,899	3,030	3,030	0	0	11	
2089	9.00%	50,901,035	2,311	2,311	0	0	8	
2090	9.00%	55,458,623	1,737	1,737	0	0	5	
2091	9.00%	60,426,370	1,287	1,287	0	0	4	
2092	9.00%	65,841,040	939	939	0	0	2	
2093	9.00%	71,742,728	675	675	0	0	2	
2094	9.00%	78,175,158	478	478	0	0	1	
2095	9.00%	85,186,004	334	334	0	0	1	
2096	9.00%	92,827,248	231	231	0	0	0	
2097	9.00%	101,155,560	158	158	0	0	0	
2098	9.00%	110,232,723	108	108	0	0	0	
2099	9.00%	120,126,084	73	73	0	0	0	
2100	9.00%	130,909,063	50	50	0	0	0	
2101	9.00%	142,661,686	34	34	0	0	0	
2102	9.00%	155,471,191	23	23	0	0	0	
2103	9.00%	169,432,663	16	16	0	0	0	
2104	9.00%	184,649,750	11	11	0	0	0	
2105	9.00%	201,235,427	7	7	0	0	0	
2106	9.00%	219,312,835	5	5	0	0	0	
2107	9.00%	239,016,201	3	3	0	0	0	
2108	9.00%	260,491,831	2	2	0	0	0	
2109	9.00%	283,899,194	1	1	0	0	0	
2110	9.00%	309,412,115	0	0	0	0	0	
2111	9.00%	337,220,059	0	0	0	0	0	
2112	9.00%	367,529,544	0	0	0	0	0	



Section II – Actuarial Assumptions and Methods

NOTE: These assumptions are used in the determination of VSERS' funding requirements. Except as noted in Section I, they are also used for determining liabilities under GASB 67.

INTEREST RATE: 7.95% per annum. Through June 30, 2014, a select-and-ultimate interest rate set was used, as specified below. The interest rate set was restarted every year.

Year 1: 6.25%	Year 10: 8.50%
Year 2: 6.75%	Year 11: 8.50%
Year 3: 7.00%	Year 12: 8.50%
Year 4: 7.50%	Year 13: 8.50%
Year 5: 7.75%	Year 14: 8.50%
Year 6: 8.25%	Year 15: 8.50%
Year 7: 8.25%	Year 16: 8.75%
Year 8: 8.25%	Year 17 and later: 9.00%
Year 9: 8.50%	

SEPARATIONS BEFORE NORMAL RETIREMENT: Representative values of the assumed annual rates of withdrawal, vested retirement, early retirement, disability and death are as follows:

Age	Withdrawal and Vested Retirement		Disability		Death	
	Males	Females	Males	Females	Males	Females
25	20.00%	20.00%	.010%	.015%	.02%	.02%
30	12.00	14.00	.015	.015	.02	.02
35	8.00	11.30	.020	.015	.02	.02
40	6.50	8.60	.030	.020	.05	.02
45	5.80	6.00	.053	.045	.05	.04
50	5.40	5.00	.067	.070	.07	.06
55	5.40	4.84	.088	.095	.07	.10
59	5.40	4.84	.234	.142	.09	.14
60	5.40	4.84	.294	.168	.09	.15
61	5.40	4.84	.366	.202	.297	.17

Age	Reduced Early Retirement		Full Early Retirement	
	Grandfathered	Non-Grandfathered	Grandfathered	Non-Grandfathered
50	-	-	40.00%	25.00%
55	8.75%	8.75%	20.00	20.00
56	6.25	6.25	10.00	10.00
57	6.25	6.25	10.00	10.00
58	6.25	6.25	10.00	10.00
59	6.25	6.25	10.00	10.00
60	12.50	12.50	30.00	17.00
61	12.50	12.50	17.00	17.00

SERVICE RETIREMENTS: Occur between ages 62 (60 for Group A) and 70. The assumed rates of service retirement are as follows:

Age	Annual Rate of Retirement	
	Grandfathered	Non-Grandfathered
62	25.0%	20.0%
63	20.0	20.0
64	20.0	20.0
65	30.0	30.0
66	30.0	30.0
67	30.0	30.0
68	20.0	20.0
69	30.0	30.0
70	100.0	100.0

SALARY INCREASES: Representative values of the assumed annual rates of future salary increase are as follows:

Age	Annual Rate of Salary Increase
25	8.40%
30	7.05
35	6.15
40	5.45
45	4.95
50	4.60
55	4.35
60	4.25
64	4.25

DEATHS AFTER RETIREMENT: The 1995 Buck Mortality Tables set back three years for males and one year for females, for retirees, terminated vested members and beneficiaries; the RP-2000 Disabled Life Table with projection to 2016 using Scale AA for disabled retirees. The tables used contain a margin to reflect anticipated mortality improvement after the valuation date.

INFLATION: The separately stated assumptions for investment return, salary increases and cost of living adjustments are consistent with an expected annual inflation rate of 3.00% to 3.25% per year.

FUTURE EXPENSES: No provision made.

SPOUSE'S AGE: Husbands are assumed to be three years older than their wives.

PERCENT MARRIED: 85% of the male members and 35% of the female members are assumed to be married.

COST-OF-LIVING ADJUSTMENTS: Assumed to occur on January 1 following one year of retirement at the rate of 3% per annum for Group A members and 1.5% per annum for Group C member (beginning at age 62 for Group C members who elect reduced early retirement).

INACTIVE MEMBERS: A liability equal to 350% of accumulated contributions of inactive members is included in the valuation liabilities.

ACTUARIAL COST METHOD: The individual entry age normal actuarial cost method was used. For actuarial valuations prior to June 30, 2006, the entry age normal method with frozen initial liability was used.

ASSET VALUATION METHOD: The amount of the assets for valuation purposes equals the preliminary asset value plus 20% of the difference between the market and preliminary asset values. The preliminary asset value is equal to the previous year's asset value (for valuation purposes) adjusted for contributions less benefit payments and expenses and expected investment income. If necessary, a further adjustment is made to ensure that the valuation assets are within 20% of the market value.

MEMBER DATA: 344 members terminated on June 30, 2014 and retired on July 1, 2014 were included with a valuation status as members receiving benefits. 511 members who were active on June 30, 2014 and terminated on July 1, 2014, were included with a valuation status as inactive. For those terminated members with at least five years of service, the system will automatically vest them six years after their termination if they do not withdraw.

HEALTH AND MEDICAL BENEFITS FOR RETIREES: Not included in this valuation.

Data for Valuation

In preparing the actuarial valuation as of June 30, 2014, the actuary relied on data and assets provided by the staff of the State Treasurer's office. While not verifying the data at their source, the actuary has performed tests for consistency and reasonableness.

The following is a summary of System participants as of June 30, 2014:

Retired members or beneficiaries currently receiving benefits	8,086
Inactive members	2,416
Active members	9,952
Terminated vested members	740



Section III – Summary of System Provisions

Effective Date	July 1, 1947.
Creditable Service	Service as a member plus purchased service.
Average Final Compensation (AFC)	Average annual compensation during highest 3 successive years.
Membership	Immediate upon employment.
Grandfathered status	Group C members who were within five years of normal retirement eligibility as defined prior to July 1, 2010, are “grandfathered”

GROUP A

GROUP C

Service Retirement Allowance

Eligibility

Age 60 or 30 years of creditable service.

Grandfathered: Age 62 or 30 years of creditable service for.

Non-Grandfathered: Age 65 or age plus creditable service equal 90.



	<u>GROUP A</u>	<u>GROUP C</u>
Amount of Allowance	Member annuity based on accumulated contributions plus a pension which, with member annuity, equals 1/60 of AFC times creditable service.	<p>Grandfathered:</p> <p>Member annuity based on accumulated contributions plus a pension which, with member annuity, equals 1/80 of AFC times creditable service prior to July 1, 1990 plus 1/60 of AFC times creditable service after July 1, 1990.</p> <p>Non Grandfathered:</p> <p>Member annuity based on accumulated contributions plus a pension which, with member annuity, equals 1/80 of AFC times creditable service prior to July 1, 1990 plus 1/60 of AFC times creditable service after July 1, 1990 up to 20 years of service, plus 1/50 of AFC for years of service after 20.</p> <p>If member already has 20 or more years of service on June 30, 2010, the 1/50 will be applied to all service accrued after July 1, 2010.</p>
Minimum	\$6,600 after 30 years of creditable service (pro-rata portion if less than 30 years).	N/A
Maximum	None	<p>Grandfathered: 50% of AFC up to June 30, 2010. May continue to accrue up to 53.34% of AFC with service earned after July 1, 2010.</p> <p>Non-Grandfathered: 60% of AFC.</p>
Early Retirement Allowance		
Eligibility	Age 55.	Age 55 and 5 years of creditable service.



	<u>GROUP A</u>	<u>GROUP C</u>
Amount of Allowance	Actuarial equivalent of service allowance using AFC and creditable service at early retirement.	Grandfathered: Accrued normal benefit reduced 6% for each year under age 62. Non-Grandfathered: Accrued normal benefit reduced by actuarial reduction from normal retirement age.
Vested Retirement Allowance		
Eligibility	5 years of creditable service.	5 years of creditable service.
Amount of Allowance	Commencing at age 60 calculated as a service allowance using AFC and creditable service at termination.	Commencing at age 62, calculated as a service allowance using AFC and creditable service at termination.
Disability Retirement Allowance		
Eligibility	Total and permanent disability after 5 years of creditable service (5 years preceding retirement served in State).	Total and permanent disability after 5 years of creditable service (5 years preceding retirement served in State).
Amount of Allowance	Calculated as a service allowance based on AFC and creditable service at disability retirement, subject to a 25% of AFC minimum.	Calculated as a service allowance based on AFC and creditable service at disability retirement, subject to a 25% of AFC minimum.
Death Benefits		
Eligibility	Age 60 or 30 years of creditable service; 10 years of creditable service if in service at death.	Age 55 and 5 years of creditable service or 10 years of creditable service.
Amount of Allowance	Accrued allowance paid under 100% survivorship option. If the eligibility requirements are not met or if beneficiary so elects, the member's accumulated contributions are paid to the beneficiary or estate. Certain children's benefits may also be payable.	Accrued allowance paid under 100% survivorship option. If the eligibility requirements are not met or if beneficiary so elects, the member's accumulated contributions are paid to the beneficiary or estate. Certain children's benefits may also be payable.



	<u>GROUP A</u>	<u>GROUP C</u>
Return of Contributions	If no other beneficiary is payable, a terminated member receives his accumulated contributions with interest.	If no other beneficiary is payable, a terminated member receives his accumulated contributions with interest.
Options	The allowance may be paid in various optional forms at the election of the member.	The allowance may be paid in various optional forms at the election of the member.
Post-retirement Adjustments	On each December 31 allowances in payment for at least one year are adjusted for cost-of-living changes based on the Consumer Price Index, but not in excess of 5%.	On each December 31, allowances in payment for at least one year are adjusted for cost-of-living changes based on one-half of the increase in the Consumer Price Index, but not in excess of 5%. For members receiving a reduced early retirement allowance, the adjustment will not apply before age 62.
Contributions		
Members	5.5% of earnable compensation. Contributions stop after 25 years of creditable service.	5% of earnable compensation; for non-vested participants and future new hires, 6% of earnable compensation effective July 1, 2014.
State	Normal and accrued liability contributions actuarially determined to keep the system financially sound.	Normal and accrued liability contributions actuarially determined to keep the system financially sound.