Nashoba Regional School District

Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of December 31, 2015 in accordance with GASB Statements No. 43 and No. 45

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January 3, 2017

Ms. Patricia Marone
Interim Business and Operations Manager
Nashoba Regional School District
Central Office
50 Mechanic Street
Bolton, MA 01740

Dear Ms. Marone:

We are pleased to submit this report on our actuarial valuation of postemployment welfare benefits as of December 31, 2015 under Governmental Accounting Standards Board (GASB) Statements Number 43 and 45. It establishes the liabilities of the postemployment welfare benefit plan in accordance with GASB Statements Number 43 and 45 for the fiscal year beginning July 1, 2015 and summarizes the actuarial data.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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 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 range of such future measurements.

This report is based on information received from the Nashoba Regional School District. The actuarial projections were based on the assumptions and methods described in Exhibit II and on the plan of benefits as summarized in Exhibit III.

We look forward to discussing this with you at your convenience.

Sincerely,

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

By: ____

Kathleen A. Riley, FSA, MAAA, EA	*Daniel J. Rhodes, FSA, MAAA*
Senior Vice President and Actuary	*Vice President and Consulting Actuary*

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IMPORTANT INFORMATION ABOUT ACTUARIAL VALUATIONS

An actuarial valuation is an estimate of 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 provide health benefits to post-65 retirees that coordinate with Medicare. If so, changes in the Medicare law or administration may change the plan's costs without any change in the terms of the plan itself. It is important for the Nashoba Regional School District 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. 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, provided by the Nashoba Regional School District. 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.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. To determine the future costs of benefits, Segal collects claims, premiums, and enrollment data in order to establish a baseline cost for the valuation measurement, and then develops short- and long-term health care cost rates to project increases in costs in future years. This forecast also requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year, as well as forecasts of the plan's benefits for each of those events. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved the plan's assets, or if there are no assets, a rate of return on the assets of the employer. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which

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

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 Nashoba Regional School District. It includes information for compliance with accounting standards. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement at a specific date — it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted.
- Sections of this report may include actuarial results that are not rounded, but that does not imply precision.
- Critical events for a plan include, but are not limited to, decisions about changes in benefits and contributions. The basis for such decisions needs to consider many factors such as the risk of changes in plan enrollment, emerging claims experience and health care cost trend, 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 Nashoba Regional School District 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 Nashoba Regional School District upon delivery and review. The Nashoba Regional School District 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 of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

PURPOSE

This report presents the results of our actuarial valuation of the Nashoba Regional School District (the "Employer") postemployment welfare benefit plan as of December 31, 2015. The results are in accordance with the Governmental Accounting Standards, which prescribe an accrual methodology for accumulating the value of other postemployment benefits (OPEB) over participants' active working lifetimes. The accounting standard supplements cash accounting, under which the expense for postemployment benefits is equal to benefit and administrative costs paid on behalf of retirees and their dependents (*i.e.,* a pay-as-you-go basis).

HIGHLIGHTS OF THE VALUATION

During the fiscal year ending June 30, 2016, we project the Nashoba Regional School District will pay benefits (net of retiree contributions) on behalf of retired employees of about $948,000. This amount is less than the annual "cost" (the "Annual Required Contribution," or ARC) of approximately $3,193,000.

The GASB statements provide the method for selecting the investment return assumption (discount rate). If the benefits are fully funded, the discount rate should be based on the estimated long-term investment yield on the investments expected to be used to finance the payment of benefits. If financing continues to be pay-as-you-go, the discount rate should be based on the expected yield on the assets of the employer. If the benefits are partially funded, a blended discount rate can be used that reflects the proportionate amounts of plan and employer assets expected to be used.

Because benefits are not being funded, we have used a 4.5% discount rate (referred to as the pay-as-you-go rate). For illustration purposes, we have also shown what the obligations would be on a fully funded basis, assuming a discount rate of 7.5%. In the prior valuation, the funded discount rate was 7.75%.

To determine the amortization payment on the unfunded actuarial accrued liability (UAAL), an amortization period and amortization method must be selected. We have used a 30-year open amortization of the UAAL, with payments increasing 4.5% per year for the Nashoba Regional School District. The GASB statements allow for either an open or closed amortization period. In open amortization, the period is reset to the initial value every year and the UAAL is reamortized, while under a closed amortization, the remaining period decreases and the UAAL is eventually "paid off."

To be considered a funded plan, the "contribution in relation to the ARC" must equal the ARC. For example, if the ARC is $2,167,000, and the employer pays benefits to retirees of $948,000, then an additional contribution of the difference, or approximately $1,219,000 will need to be added to an OPEB trust fund during the fiscal year ending June 30, 2016.

Assets set aside to fund OPEB liabilities must be held in a trust or equivalent arrangement, through which assets are accumulated and benefits are paid as they come due. Employer contributions to the plan are irrevocable, plan assets are dedicated to providing benefits to retirees and their spouses in accordance with the terms of the plan, and plan assets are legally protected from creditors of the employer.

We have included a funding schedule and a projection of ARC on pages 10 and 11 of this report.

Chapter 68 of the Acts of 2011 permits municipalities, authorities and certain other government entities of the Commonwealth to establish a liability trust fund for funding retiree benefits (other than pension), also known as Other Post-Employment Benefits (OPEB). The legislation also ensures that these entities have access to the state's investment trust, the State Retiree Benefits Trust Fund (SRBTF) for purposes of investment OPEB funds.

GASB guidelines prohibit the offset of OPEB obligations by the future value of Medicare Part D subsidies. Therefore, these calculations do not include an estimate for retiree prescription drug plan federal subsidies that the Employer may be eligible to receive for plan years beginning in 2006.

This valuation does not include the potential impact of any future changes due to the Patient Protection and Affordable Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) of 2010 other than the excise tax on high cost health plans beginning in 2020 (reflected in this valuation) and those previously adopted as of the valuation date.

Employer decisions regarding plan design, cost sharing between the Employer and its retirees, actuarial cost method, amortization techniques, and integration with Medicare are just some of the decisions that affect the magnitude of OPEB obligations. We are available to assist you with any investigation of such options you may wish to undertake.

KEY VALUATION RESULTS

- The **unfunded actuarial accrued liability (UAAL)** as of December 31, 2015 is $38,627,000 based on an actuarial accrued liability of $38,627,000 and an actuarial value of assets of $0. Going forward, net unfunded plan obligations will be expected to change due to normal plan operations, which consist of continuing accruals for active members, plus interest on the unfunded actuarial accrued liability, less expected benefit payments paid by the Employer. Future valuations will analyze the difference between actual and expected unfunded actuarial accrued liabilities.
  - As of December 31, 2015 the ratio of assets to the AAL (the funded ratio) is 0.00%.

    These funded percentages are not necessarily appropriate for assessing the sufficiency of OPEB assets to cover the estimated cost of settling the benefit obligations or the need for or the amount of future contributions.
- The **Annual Required Contribution (ARC)** for fiscal year 2016 is $3,193,000. The ARC is expected to remain relatively level as a percentage of payroll, as long as the ARC is fully funded each year. If the ARC is not fully funded, it may be expected to increase as a percentage of payroll over time.

Plan obligations of $38,627,000 as of December 31, 2015 represent a decrease of $6,780,000 from $45,407,000 as shown in the December 31, 2013 valuation.

Plan obligations had been expected to increase $6,597,000 due to normal plan operations, which consist of continuing accruals for active members, plus interest on the total obligation, less expected benefit payments. The decrease was the net effect of the following:

- An **actuarial experience gain** decreased obligations by $1,690,000. This was the net result of gains and losses due to demographic changes.
- **Valuation assumption changes** decreased obligations by $11,687,000. This was the net result of a *decrease* in obligations due to 1) valuation year per capita health costs not increasing as much as projected mostly due to the replacement of Medex III with both Medex II and a prescription drug plan, 2) a change in the non-Medicare and Medicare enrollment assumption for current and future retirees, partially offset by 3) changes in demographic assumptions as described in Exhibit II, Section 4 and 4) a change in the future trend on per capita health costs based on what is likely to occur in the marketplace. The revision of the excise tax in this valuation resulted in a 0.08% decrease in the actuarial accrued liability and a 0.11% decrease in the normal cost. The complete set of assumptions is shown in Exhibit II.

ACCOUNTING REQUIREMENTS

The Governmental Accounting Standards Board (GASB) issued Statement Number 43 -- *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans,* and Statement Number 45 – *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions.* Under these statements, all state and local governmental entities that provide other post employment benefits (OPEB) are required to report the cost of these benefits on their financial statements.

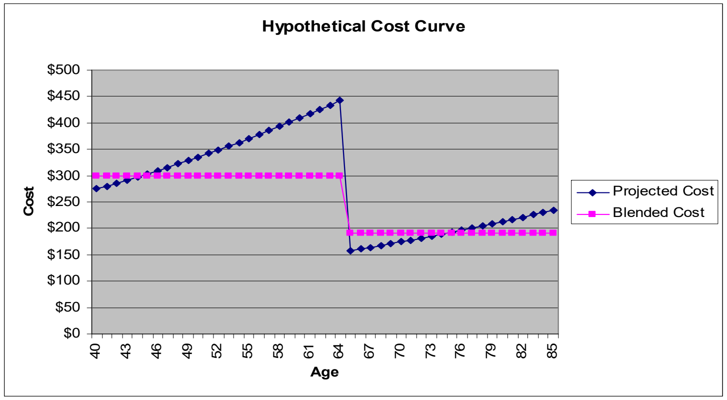
The statements cover postemployment benefits of health, prescription drug, dental, vision and life insurance coverage for retirees; long-term care coverage, life insurance and death benefits that are *not* offered as part of a pension plan; and long-term disability insurance for employees. These benefits, referred to as OPEB, are typically financed on a pay-as-you-go basis. The new standard introduces an accrual-basis accounting requirement; thereby recognizing the employer cost of postemployment benefits over an employee's career. The standards also introduce a consistent accounting requirement for both pension and non-pension benefits.

The total cost of providing postemployment benefits is projected, taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions. This amount is then discounted to determine the actuarial present value of the total projected benefits (APB). The actuarial accrued liability (AAL) is the portion of the present value of the total projected benefits allocated to years of employment prior to the measurement date. The unfunded actuarial accrued liability (UAAL) is the difference between the AAL and actuarial value of assets in the Plan.

Once the UAAL is determined, the Annual Required Contribution (ARC) is determined as the normal cost (the APB allocated to the current year of service) and the amortization of the UAAL. This ARC is compared to actual contributions made and any difference is reported as the net OPEB obligation (NOO). In addition, required supplementary information (RSI) must be reported, including historical information about the UAAL and the progress in funding the Plan.

The benefits valued in this report are limited to those described in Exhibit III of Section 4.

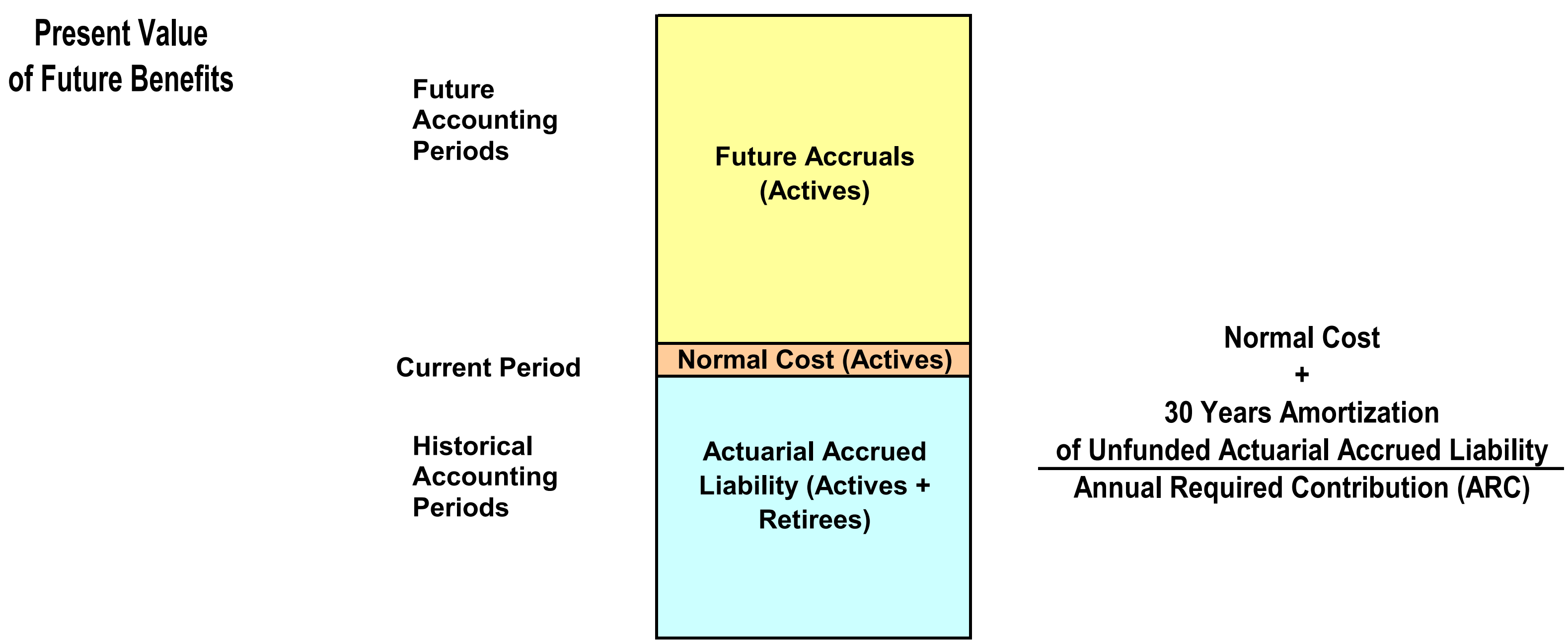
The following graph illustrates why a significant accounting obligation may exist even though the retiree contributes most or all of the blended premium cost of the plan. The average cost for retirees is likely to exceed the average cost for the whole group, leading to an implicit subsidy for these retirees. The accounting standard requires the employer to identify and account for this implicit subsidy as well as any explicit subsidies the employer may provide.



This graph shows how the actuarial present value of the total projected benefits (APB) is broken down and allocated to various accounting periods.

The exact breakdown depends on the actuarial cost method and amortization methods selected by the employer.

GASB 43/45 Measurement



Net OPEB Obligation = $ARC_1 + ARC_2 + ARC_3 + ...$

$- Contribution_1 - Contribution_2 - Contribution_3 - ......$

Actuarial computations under GASB statements are for purposes of fulfilling certain welfare plan accounting requirements. The calculations shown in this report have been made on a basis consistent with our understanding of GASB. Determinations for purposes other than meeting the financial accounting requirements of GASB may differ significantly from the results reported here.

Calculations are based on the benefits provided under the terms of the substantive plan in effect at the time of the valuation and on the pattern of sharing costs between the employer and plan members. The projection of benefits does not incorporate the potential effect of legal or contractual funding limitations on the pattern of cost sharing between the employer and plan members in the future.

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

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

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

The key results for the current year are shown on a funded basis and a pay-as-you-go basis.

SUMMARY OF VALUATION RESULTS
ALL DEPARTMENTS

	December 31, 2015	
	Funded (7.5% interest rate)	**Pay-as-you-go (4.5% interest rate)**
Actuarial Accrued Liability by Participant Category		
1. Current retirees, beneficiaries and dependents	$10,323,410	$14,306,393
2. Current active members	13,808,700	24,320,796
3. Total: (1) + (2)	$24,132,110	$38,627,189
4. Actuarial value of assets	0	0
5. Unfunded actuarial accrued liability (UAAL): (3) – (4)	$24,132,110	$38,627,189
Annual Required Contribution for Fiscal Year Ending June 30, 2016		
6. Normal cost	$990,234	$1,905,858
7. 30-year amortization (increasing 4.5% per year) of the UAAL	1,176,944	1,287,573
8. Total Annual Required Contribution (ARC): (6) + (7)	$2,167,178	$3,193,431
9. Projected benefit payments	947,785	947,785

Note: Assumes payment in the middle of the fiscal year.

FUNDING SCHEDULE

30 Years Closed (7.5% discount rate)

Fiscal Year Ended June 30	(1) Projected Benefit Payments	(2) Normal Cost	(3) Amortization of UAAL	(4) Total Funding Requirement (2) + (3)	(5) Additional Funding (4) - (1)	(6) Assets at Mid-Year	(7) AAL at Mid-Year	(8) UAAL at Mid-Year (7) – (6)
2016	$947,785	$990,234	$1,176,944	$2,167,178	$1,219,393	$1,264,293	$25,064,717	$23,800,424
2017	1,046,466	1,039,746	1,229,906	2,269,652	1,223,186	2,627,341	26,937,603	24,310,262
2018	1,167,454	1,091,733	1,285,252	2,376,985	1,209,531	4,078,460	28,879,414	24,800,954
2019	1,306,755	1,146,320	1,343,088	2,489,408	1,182,653	5,610,545	30,879,028	25,268,483
2020	1,427,272	1,203,636	1,403,527	2,607,163	1,179,891	7,254,673	32,963,084	25,708,411
2021	1,545,654	1,263,818	1,466,686	2,730,504	1,184,850	9,027,252	35,143,102	26,115,850
2022	1,678,884	1,327,009	1,532,687	2,859,696	1,180,812	10,928,588	37,414,003	26,485,415
2023	1,785,400	1,393,359	1,601,658	2,995,017	1,209,617	13,002,390	39,813,576	26,811,186
2024	1,931,224	1,463,027	1,673,733	3,136,760	1,205,536	15,227,496	42,314,157	27,086,661
2025	2,102,309	1,536,178	1,749,051	3,285,229	1,182,920	17,596,036	44,900,742	27,304,706
2026	2,235,994	1,612,987	1,827,758	3,440,745	1,204,751	20,164,851	47,622,350	27,457,499
2027	2,347,794	1,693,636	1,910,007	3,603,643	1,255,849	22,979,307	50,515,781	27,536,474
2028	2,465,184	1,778,318	1,995,957	3,774,275	1,309,091	26,060,049	53,592,307	27,532,258
2029	2,588,443	1,867,234	2,085,775	3,953,009	1,364,566	29,429,365	56,863,965	27,434,600
2030	2,717,865	1,960,596	2,179,635	4,140,231	1,422,366	33,111,308	60,343,609	27,232,301
2031	2,853,758	2,058,626	2,277,719	4,336,345	1,482,587	37,131,835	64,044,969	26,913,134
2032	2,996,446	2,161,557	2,380,216	4,541,773	1,545,327	41,518,952	67,982,710	26,463,758
2033	3,146,269	2,269,635	2,487,326	4,756,961	1,610,692	46,302,874	72,172,500	25,869,626
2034	3,303,582	2,383,117	2,599,256	4,982,373	1,678,791	51,516,197	76,631,079	25,114,882
2035	3,468,761	2,502,273	2,716,223	5,218,496	1,749,735	57,194,076	81,376,334	24,182,258
2036	3,642,199	2,627,387	2,838,453	5,465,840	1,823,641	63,374,423	86,427,380	23,052,957
2037	3,824,309	2,758,756	2,966,183	5,724,939	1,900,630	70,098,120	91,804,645	21,706,525
2038	4,015,525	2,896,694	3,099,661	5,996,355	1,980,830	77,409,247	97,529,965	20,120,718
2039	4,216,301	3,041,529	3,239,146	6,280,675	2,064,374	85,355,329	103,626,683	18,271,354
2040	4,427,116	3,193,605	3,384,908	6,578,513	2,151,397	93,987,595	110,119,753	16,132,158
2041	4,648,472	3,353,285	3,537,229	6,890,514	2,242,042	103,361,263	117,035,856	13,674,593
2042	4,880,895	3,520,949	3,696,404	7,217,353	2,336,458	113,535,849	124,403,523	10,867,674
2043	5,124,940	3,696,996	3,862,742	7,559,738	2,434,798	124,575,490	132,253,263	7,677,773
2044	5,381,187	3,881,846	4,036,565	7,918,411	2,537,224	136,549,302	140,617,708	4,068,406
2045	5,650,247	4,075,938	4,218,210	8,294,148	2,643,901	149,531,755	149,531,755	-

Notes: Assumes payment in the middle of the fiscal year.

Normal cost is projected to increase 5.0% per year and does not reflect the future impact of pension reform for new hires.

Amortization payments calculated to increase 4.5% per year.

Assets are assumed to return 7.5% per year.

Until the liabilities are fully funded, the employer pays projected benefit payments and additional funding amount. Thereafter, projected benefit payments are made from the Trust and employer pays normal cost.

PROJECTION OF ARC

30 Years Open (4.5% discount rate)

Fiscal Year Ended June 30	(1) Projected Benefit Payments	(2) Normal Cost	(3) Amortization of UAAL	(4) ARC (2) + (3)	(5) Additional Funding	(6) Assets at Mid-Year	(7) AAL at Mid-Year	(8) UAAL at Mid-Year (7) – (6)
2016	$947,785	$1,905,858	$1,287,573	$3,193,431	$0	$0	$40,466,129	$40,466,129
2017	1,046,466	2,001,151	1,378,887	3,380,038	-	-	43,263,034	43,263,034
2018	1,167,454	2,101,208	1,474,191	3,575,399	-	-	46,164,403	46,164,403
2019	1,306,755	2,206,269	1,573,056	3,779,325	-	-	49,161,331	49,161,331
2020	1,427,272	2,316,582	1,675,176	3,991,758	-	-	52,282,691	52,282,691
2021	1,545,654	2,432,411	1,781,537	4,213,948	-	-	55,541,902	55,541,902
2022	1,678,884	2,554,032	1,892,595	4,446,627	-	-	58,935,910	58,935,910
2023	1,785,400	2,681,734	2,008,246	4,689,980	-	-	62,504,305	62,504,305
2024	1,931,224	2,815,820	2,129,839	4,945,659	-	-	66,221,279	66,221,279
2025	2,102,309	2,956,611	2,256,495	5,213,106	-	-	70,074,549	70,074,549
2026	2,235,994	3,104,442	2,387,796	5,492,238	-	-	74,115,677	74,115,677
2027	2,347,794	3,259,664	2,525,498	5,785,162	-	-	78,383,044	78,383,044
2028	2,465,184	3,422,647	2,670,909	6,093,556	-	-	82,889,050	82,889,050
2029	2,588,443	3,593,780	2,824,451	6,418,231	-	-	87,646,765	87,646,765
2030	2,717,865	3,773,468	2,986,571	6,760,039	-	-	92,669,962	92,669,962
2031	2,853,758	3,962,142	3,157,736	7,119,878	-	-	97,973,159	97,973,159
2032	2,996,446	4,160,249	3,338,443	7,498,692	-	-	103,571,651	103,571,651
2033	3,146,269	4,368,261	3,529,212	7,897,473	-	-	109,481,560	109,481,560
2034	3,303,582	4,586,675	3,730,593	8,317,268	-	-	115,719,875	115,719,875
2035	3,468,761	4,816,008	3,943,164	8,759,172	-	-	122,304,496	122,304,496
2036	3,642,199	5,056,809	4,167,536	9,224,345	-	-	129,254,286	129,254,286
2037	3,824,309	5,309,649	4,404,350	9,713,999	-	-	136,589,122	136,589,122
2038	4,015,525	5,575,132	4,654,285	10,229,417	-	-	144,329,944	144,329,944
2039	4,216,301	5,853,888	4,918,054	10,771,942	-	-	152,498,819	152,498,819
2040	4,427,116	6,146,583	5,196,410	11,342,993	-	-	161,118,994	161,118,994
2041	4,648,472	6,453,912	5,490,143	11,944,055	-	-	170,214,964	170,214,964
2042	4,880,895	6,776,607	5,800,089	12,576,696	-	-	179,812,534	179,812,534
2043	5,124,940	7,115,438	6,127,127	13,242,565	-	-	189,938,889	189,938,889
2044	5,381,187	7,471,209	6,472,183	13,943,392	-	-	200,622,670	200,622,670
2045	5,650,247	7,844,770	6,836,234	14,681,004	-	-	211,894,046	211,894,046

Notes: Assumes payment in the middle of the fiscal year.
Normal cost is projected to increase 4.5% per year and does not reflect the future impact of pension reform for new hires.
Amortization payments calculated to increase 4.5% per year

DEPARTMENT RESULTS

Actuarial Accrued Liability (AAL) and Annual Required Contribution –Pay-as-you-go (4.5% discount rate)

	All Other	Teachers	Total
Actuarial Accrued Liability by Participant Category			
1. Current retirees, beneficiaries and dependents	$2,563,549	$11,742,844	$14,306,393
2. Current active members	6,906,927	17,413,869	24,320,796
3. Total: (1) + (2)	$9,470,476	$29,156,713	$38,627,189
4. Actuarial value of assets	0	0	0
5. Unfunded actuarial accrued liability (UAAL): (3) – (4)	$9,470,476	$29,156,713	$38,627,189
Annual Required Contribution for Fiscal Year Ending June 30, 2016			
6. Normal cost	$601,878	$1,303,980	$1,905,858
7. 30-year amortization (increasing 4.5% per year) of the UAAL	315,683	971,890	1,287,573
8. Total Annual Required Contribution (ARC): (6) + (7)	$917,561	$2,275,870	$3,193,431
9. Projected benefit payments	211,423	736,362	947,785

Note: Assumes payment in the middle of the fiscal year.

January 3, 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 Nashoba Regional School District other postemployment benefit programs as of December 31, 2015, in accordance with generally accepted actuarial principles and practices. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statements Number 43 and 45 for the determination of the liability for postemployment benefits other than pensions.

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

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

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 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 range of such future measurements.

The signing actuaries are members of the American Academy of Actuaries and collectively meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, this report is complete and accurate and in our opinion presents the information necessary to comply with GASB Statements Number 43 and 45 with respect to the benefit obligations addressed. Further, in our opinion, the assumptions are reasonably related to the experience and expectations of the postemployment benefit programs.

Kathleen A. Riley, FSA, MAAA, EA	Daniel J. Rhodes, FSA, MAAA
Senior Vice President and Actuary	Vice President and Consulting Actuary

CHART 1
Required Supplementary Information – Schedule of Employer Contributions

Fiscal Year Ended June 30,	Annual OPEB Costs	Actual Contributions	Percentage Contributed
2009	$4,118,287	$999,497	24.3%
2010	4,161,462	1,159,649	27.9%
2011	6,882,988	1,198,680	17.4%
2012	3,619,466	797,451	22.0%
2013	3,849,434	888,977	23.1%
2014	3,955,950	1,006,538	25.4%
2015	4,212,116	1,126,521	26.7%
2016	3,451,504	947,785	27.5%
2017	3,665,464	1,046,466	28.5%

Note: 2017 information assumes there will be no plan changes that need to be reflected.

This schedule of funding progress presents multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits.

CHART 2
Required Supplementary Information – Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) - (a) / (c)]
12/31/2006	$0	$49,752,457	$49,752,457	0.00%	N/A	N/A
12/31/2009	0	75,120,075	75,120,075	0.00%	N/A	N/A
12/31/2011	0	40,702,993	40,702,993	0.00%	N/A	N/A
12/31/2013	0	45,407,088	45,407,088	0.00%	N/A	N/A
12/31/2015	0	38,627,189	38,627,189	0.00%	-	-

Note: Enter covered payroll for fiscal 2016.

CHART 3
Required Supplementary Information – Net OPEB Obligation/(Asset) (NOO/NOA)

Fiscal Year Ended June 30,	Annual Required Contribution (a)	Interest on Existing NOO (b)	ARC Adjustment (c)	Annual OPEB Cost (a) + (b) + (c) (d)	Actual Contribution Amount (e)	Net Increase in NOO (d) - (e) (f)	NOO as of Following Date (g)
2009	$4,118,287	$0	$0	$4,118,287	$999,497	$3,118,790	$3,118,790
2010	4,236,507	155,940	(230,985)	4,161,462	1,159,649	3,001,813	6,120,603
2011	6,769,235	423,602	(309,849)	6,882,988	1,198,680	5,684,308	11,804,911
2012	3,490,498	531,221	(402,253)	3,619,466	797,451	2,822,015	14,626,926
2013	3,689,636	658,212	(498,414)	3,849,434	888,977	2,960,457	17,587,383
2014	3,763,809	791,432	(599,291)	3,955,950	1,006,538	2,949,412	20,536,795
2015	3,987,753	924,156	(699,793)	4,212,116	1,126,521	3,085,595	23,622,390
2016	3,193,431	1,063,008	(804,935)	3,451,504	947,785	2,503,719	26,126,109
2017	3,380,038	1,175,675	(890,249)	3,665,464	1,046,466	2,618,998	28,745,107

Notes: 2017 information assumes there will be no plan changes that need to be reflected.

CHART 4
Summary of Required Supplementary Information

Valuation date	December 31, 2015
Actuarial cost method	Projected Unit Credit
Amortization method	Payments increasing at 4.5%
Remaining amortization period	30 years open
Asset valuation method	Market value
Actuarial assumptions:	
Discount rate	4.5%, pay-as-you-go scenario
Inflation rate	4.5%
Medical cost trend rate	7.0% decreasing by 0.5% for 4 years to an ultimate level of 5.0% per year
Part B premium	5.0%
Dental	5.0%
Plan membership:	
Current retirees, beneficiaries, and dependents*	262
Current active participants	357
Total	619

** Includes 59 retirees with life insurance only.*

This exhibit summarizes the participant data used for the current and prior valuations.

EXHIBIT I
Summary of Participant Data

	December 31, 2015	December 31, 2013
Active employees covered for medical benefits		
Number of employees		
Male	90	88
Female	267	262
Total	357	350
Average age	46.6	46.5
Average service	10.7	10.8
Retired employees, spouses and beneficiaries covered for medical benefits		
Number of individuals	203	186
Average age	69.7	68.5
Retired employees with life insurance coverage		
Number of individuals	164	102
Average age	68.8	68.0

EXHIBIT II
Actuarial Assumptions and Actuarial Cost Method

Data:	Detailed census data, premium rates, and summary plan descriptions for postemployment welfare benefits were provided by the School District.
Actuarial Cost Method:	Projected Unit Credit. For active participants, benefits are allocated from date of hire to assumed retirement age.
Per Capita Cost Development:	
Medical and Drug, Dental	Per capita claims costs were based on the insured premium rates effective September 1, 2015. Premiums were combined by taking a weighted average based on the number of participants in each plan, and were then trended to the midpoint of the valuation year at assumed trend rates. Actuarial factors were then applied to the premium to estimate individual retiree and spouse costs by age and by gender.
Measurement Date:	December 31, 2015 The results of the December 31, 2015 actuarial valuation were used to determine the Annual Required Contribution for the fiscal years ending June 30, 2016 and 2017. Liabilities were rolled forward from December 31, 2015 to June 30, 2016 using standard actuarial techniques.
Discount Rate:	4.50% pay-as-you-go. Pay-as-you-go discount rate provided by the Nashoba Regional School District.
Expected Return on Assets:	7.50% Illustrations show hypothetical assets under funding scenarios are based on the long term expected rate of return of a diversified investment portfolio, such as the PRIT Fund. The expected return of the PRIT Fund was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce a long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

Mortality Rates:

Pre-Retirement (Non-Teachers)	RP-2000 Employee Mortality Table projected generationally with Scale BB2D from 2009 (previously, RP-2000 Healthy Employee Mortality Table projected 20 years with Scale AA)
Healthy (Non-Teachers)	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2009 (previously, RP-2000 Healthy Annuitant Mortality Table projected 15 years with Scale AA)
Disabled (Non-Teachers)	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2015 (previously, RP-2000 Healthy Annuitant Mortality Table set forward 2 years)
Pre-Retirement (Teachers)	RP-2014 Employee Mortality Table projected generationally with Scale BB2D from 2014 (previously, RP-2000 Combined Healthy White Collar Mortality Table projected 20 years with Scale AA)
Healthy (Teachers)	RP-2014 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2014 (previously, RP-2000 Healthy Annuitant with Large Benefit Amount Adjustment Mortality Table projected 15 years with Scale AA)
Disabled (Teachers)	RP-2014 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2014 set forward 4 years (previously, RP-2000 Healthy Annuitant with Large Benefit Amount Adjustment Mortality Table projected 15 years with Scale AA)

The underlying tables with 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 the generational projection to reflect future mortality improvement between the measurement date and those years.

Annuitant Non-Teacher Mortality Rates:

	Rate per year (%)			
	Current		Previously	
Age	Male	Female	Male	Female
60	0.82	0.62	0.64	0.58
70	2.22	1.67	1.77	1.55
80	6.44	4.59	5.54	4.13
90	18.34	13.17	17.27	12.59

Note: Rates shown are before generational projection (previously, no generational projection).

Annuitant Teacher Mortality Rates:

	Rate per year (%)*			
	Current		Previously	
Age	Male	Female	Male	Female
60	0.78	0.52	0.51	0.48
70	1.68	1.29	1.33	1.31
80	4.47	3.48	4.38	3.86
90	13.59	10.71	14.37	10.81

Note: Rates shown are before generational projection (previously, no generational projection).

Termination Rates before Retirement:

Non-Teachers - Rate per year (%)

	Mortality				
	Current		Previously		
Age	Male	Female	Male	Female	Disability
20	0.03	0.02	0.02	0.01	0.01
25	0.04	0.02	0.03	0.02	0.02
30	0.04	0.03	0.04	0.02	0.03
35	0.08	0.05	0.07	0.04	0.05
40	0.11	0.07	0.09	0.05	0.10
45	0.15	0.11	0.12	0.08	0.15
50	0.21	0.17	0.15	0.12	0.19
55	0.30	0.25	0.21	0.22	0.24
60	0.49	0.39	0.35	0.36	0.28

Notes: 55% of the rates shown represent accidental disability and death.
Mortality rates shown are before generational projection (previously, no generational projection).

Teachers - Rate per year (%)

	Mortality				
	Current		Previously		
Age	Male	Female	Male	Female	Disability
20	0.04	0.02	0.02	0.01	0.00
25	0.05	0.02	0.03	0.02	0.01
30	0.05	0.02	0.03	0.02	0.01
35	0.05	0.03	0.05	0.04	0.01
40	0.06	0.04	0.08	0.05	0.01
45	0.10	0.07	0.10	0.07	0.03
50	0.17	0.11	0.14	0.11	0.05
55	0.28	0.17	0.23	0.22	0.07
60	0.47	0.24	0.40	0.42	0.07

Notes: 35% of the rates shown represent accidental disability.
55% of the death rates shown represent accidental death.
Mortality rates shown are before generational projection (previously, no generational projection).

Withdrawal Rates:

Years of Service	Non-Teachers Rate per year (%)
0	15.0
1	12.0
2	10.0
3	9.0
4	8.0
5	7.6
6	7.5
7	6.7
8	6.3
9	5.9
10	5.4
11	5.0
12	4.6
13	4.1
14	3.7
15	3.3
16 – 20	2.0
21 – 29	1.0
30+	0.0

Teachers - Rate per year (%)

	0 - 4 Years of Service		5 - 9 Years of Service		10+ Years of Service	
Age	Male	Female	Male	Female	Male	Female
20	13.0	10.0	5.5	7.0	1.5	5.0
30	15.0	15.0	5.4	8.8	1.5	4.5
40	13.3	10.5	5.2	5.0	1.7	2.2
50	16.2	9.8	7.0	5.0	2.3	2.0

Retirement Rates:

	Rate per year (%)	
	Non-Teachers	
Age	Male	Female
45 - 49	- -	- -
50	1.0	1.5
51	1.0	1.5
52	1.0	2.0
53	1.0	2.5
54	2.0	2.5
55	2.0	5.5
56	2.5	6.5
57	2.5	6.5
58	5.0	6.5
59	6.5	6.5
60	12.0	5.0
61	20.0	13.0
62	30.0	15.0
63	25.0	12.5
64	22.0	18.0
65	40.0	15.0
66	25.0	20.0
67	25.0	20.0
68	30.0	25.0
69	30.0	20.0
70	100.0	100.0

Teachers - Rate per year (%)

	Years of Service					
	Less than 20		20 – 29		30 or more	
Age	Male	Female	Male	Female	Male	Female
50 - 52	- -	- -	1.0	1.0	2.0	1.5
53	- -	- -	1.5	1.0	2.0	1.5
54	- -	- -	2.5	1.0	2.0	2.0
55	5.0	3.0	3.0	3.0	6.0	5.0
56	5.0	3.0	6.0	5.0	20.0	15.0
57	5.0	4.0	10.0	8.0	40.0	35.0
58	5.0	8.0	15.0	10.0	50.0	35.0
59	10.0	8.0	20.0	15.0	50.0	35.0
60	10.0	10.0	25.0	20.0	40.0	35.0
61	20.0	12.0	30.0	25.0	40.0	35.0
62	20.0	12.0	35.0	30.0	35.0	35.0
63	25.0	15.0	40.0	30.0	35.0	35.0
64	25.0	20.0	40.0	30.0	35.0	35.0
65	25.0	25.0	40.0	40.0	35.0	35.0
66	30.0	25.0	30.0	30.0	40.0	35.0
67	30.0	30.0	30.0	30.0	40.0	30.0
68	30.0	30.0	30.0	30.0	40.0	30.0
69	30.0	30.0	30.0	30.0	40.0	30.0
70	100.0	100.0	100.0	100.0	100.0	100.0

Dependents: Demographic data was available for spouses of current retirees. For future retirees, husbands were assumed to be three years older than their wives. For future retirees who elect to continue their health coverage at retirement, 70% were assumed to have an eligible spouse who also opts for health coverage at that time.

Per Capita Health Costs: Calendar 2016 medical and prescription drug claims costs 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.

	Non-Medicare Plans				Medicare Plans			
	Retiree		Spouse		Retiree		Spouse	
Age	Male	Female	Male	Female	Male	Female	Male	Female
45	$8,760	$10,989	$5,434	$8,203	N/A	N/A	N/A	N/A
50	10,397	11,843	7,262	9,509	N/A	N/A	N/A	N/A
55	12,348	12,749	9,718	11,007	N/A	N/A	N/A	N/A
60	14,664	13,741	13,010	12,766	N/A	N/A	N/A	N/A
65	17,416	14,804	17,416	14,804	$3,937	$3,346	$3,937	$3,346
70	20,185	15,953	20,185	15,953	4,563	3,606	4,563	3,606
75	21,753	17,172	21,753	17,172	4,917	3,882	4,917	3,882
80	23,425	18,513	23,425	18,513	5,295	4,185	5,295	4,185

Weighted Average Annual Retiree Contribution Amount:

Non-Medicare: $5,836

Medicare: $2,039

Annual Dental Cost: $733

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 December 31	Medical/Drug	Dental	Part B
2016	7.0%	5.0%	5.0%
2017	6.5%	5.0%	5.0%
2018	6.0%	5.0%	5.0%
2019	5.5%	5.0%	5.0%
2020 & later	5.0%	5.0%	5.0%

The trend rate assumptions were developed using Segal's internal guidelines, which are established each year using data sources such as the 2017 Segal Health Trend Survey, internal client results, trends from other published surveys prepared by the S&P Dow Jones Indices, consulting firms and brokers, and CPI statistics published by the Bureau of Labor Statistics.

Retiree Contribution Increase Rate: Retiree contributions for medical and prescription drug coverage are expected to increase with medical trend.

Participation and Coverage Election: 100% of active employees with coverage are assumed to elect retiree coverage.

80% of retirees are assumed to elect dental coverage.

100% of retirees over age 65 are assumed to remain with their current medical plan for life.

For future retirees hired before 1986 and current retirees under age 65, 95% are assumed to be eligible for Medicare and are assumed to enroll in a Medicare Supplement plan upon reaching age 65 and 5% are assumed to be ineligible for Medicare and to remain enrolled in a non-Medicare plan. (Previously, 90% and 10%, respectively)

For future retirees hired after 1986, 100% are assumed to be eligible for Medicare and are assumed to enroll in a Medicare Supplement Plan upon reaching age 65.

Plan Design: Development of plan liabilities was based on the substantive plan of benefits in effect as described in Exhibit III.

Administrative Expenses: Administrative expenses are assumed to be included in the fully insured premium rates.

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.

Health Care Reform Assumption: This valuation does not include the potential impact of any future changes due to the Patient Protection and Affordable Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) of 2010 other than the excise tax on high cost health plans beginning in 2020 (reflected with this valuation) and those previously adopted as of the valuation date. The revision of the excise tax in this valuation decreased the actuarial accrued liability by 0.08% and normal cost by 0.11%.

Rationale for Demographic Assumptions: Many of the demographic assumptions used in this valuation for non-teachers (including mortality, disability, turnover and retirement) are the same as used in the Worcester Regional Retirement System Actuarial Valuation as of January 1, 2016 dated December 5, 2016 completed by KMS Actuaries, LLC, with the exception of the mortality assumption projection, which was based on an experience study done by PERAC.

Many of the demographic assumptions used in this valuation for teachers (including mortality, disability, turnover and retirement) are the same as used in the Massachusetts State Teachers' Retirement System Actuarial Valuation Report as of January 1, 2016 dated October 13, 2016.

A review of these demographic assumptions is beyond the scope of this assignment; however, we have no reason to doubt the reasonableness of these assumptions.

The remaining demographic assumptions, such as percent married, relative age of spouses and enrollment elections were based on the experience of the Plan and the experience of similar plans.

Justification for Assumption Changes Since Prior Valuation:

The following actuarial assumptions were changed to reflect recent experience and future expectations:

The per capita health costs were updated to reflect current experience.

The mortality assumptions for Non-Teachers and Teachers were updated based on an experience study done by PERAC.

The medical trend assumption was revised to reflect current experience and future expectations.

The excise tax on high-cost health plans beginning in 2020 was recalculated with this valuation.

The non-Medicare and Medicare enrollment assumptions for current retirees under age 65 and future retirees hired prior to 1986 were updated to reflect current experience.

The funded discount rate was decreased from 7.75% to 7.50%.

EXHIBIT III
Summary of Plan

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

Eligibility:	Retired and receiving a pension from the Worcester Regional Retirement System or Massachusetts State Teachers Retirement System.
Members hired before April 2, 2012	**Group 1 (including Teachers):** ➤ Retirees with at least 10 years of creditable service are eligible at age 55; ➤ Retirees with at least 20 years of creditable service are eligible at any age.
Members hired on or after April 2, 2012	**Group 1 (including Teachers):** ➤ Retirees with at least 10 years of creditable service are eligible at age 60. **Disability:** Accidental (job-related) Disability has no age or service requirement. Ordinary (non-job related) Disability has no age requirement but requires 10 years of creditable service. **Pre-Retirement Death:** Surviving spouses of members who die in active service on Accidental (job-related) Death are eligible at any age. Surviving spouses of members who die in active service on Ordinary (non-job related) Death are eligible after two years of service. **Post-Retirement Death:** Surviving spouse is eligible.

Benefit Types:	Medical and prescription drug benefits are provided to all eligible retirees through plans offered by Blue Cross Blue Shield of Massachusetts. Dental benefits are provided through Delta Dental. The Nashoba Regional School District pays 50% of the retiree life insurance premium and reimburses the Medicare Part B penalty for 28 retirees and spouses.
Duration of Coverage:	Lifetime.
Dependent Benefits:	Medical and Prescription Drugs.
Dependent Coverage:	Benefits are payable to a spouse for their lifetime, regardless of when the retirees dies.
MGL Chapter 32B, Section 18A:	Effective July 1, 2011.

Retiree Contributions: Premium rates and retiree contributions as of September 1, 2015 are summarized below:

	Subscribers						
	Active	Retiree	Total	*Retirees 65 and over**	Monthly Premium (eff. 9/1/2015)	School District Cost	Retiree cost
Non-Medicare Plans							
HMO Blue							
Individual	97	13	110	*3*	$715.69	$357.85	$357.85
Family	211	9	220	*0*	$1,892.79	$946.40	$946.40
Blue Choice							
Individual	8	1	9	*2*	$874.68	$437.34	$437.34
Family	15	1	16	*0*	$2,294.41	$1,147.21	$1,147.21
Blue Care Elect PPO							
Individual	13	12	25	*1*	$917.81	$458.91	$458.91
Family	13	2	15	*1*	$2,407.64	$1,203.82	$1,203.82
Non-Medicare Total	357	38	395	*7*			

	Subscribers					
	Active	Retiree	Total	Monthly Premium (eff. 9/1/2015)	School District Cost	Retiree cost
Medicare Supplement Plans						
Medex	N/A	93	93	$335.42	$167.71	$167.71
MBFS	N/A	6	6	$257.44	$128.72	$128.72
Medicare Total		99	99			
Retiree Total**		137				

* 7 of 106 over-65 retirees are in a non-Medicare plan
** In addition, there are 66 spouses of retirees covered under an individual or family policy

Retiree Life: $5,000

Plan Changes Since the Prior Valuation: None

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