

Nashoba Regional School District

Actuarial Valuation and Review of Other Postemployment Benefits (OPEB)

Measured at December 31, 2019



This report has been prepared at the request of the Nashoba Regional School District to assist in administering the Plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Nashoba Regional School District and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Copyright © 2020 by The Segal Group, Inc. All rights reserved.

Segal



30 Waterside Drive, Suite 300
Farmington, CT 06032-3069
segalco.com

August 28, 2020

Ms. Patricia Marone
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, 2019. The purpose of this report is to calculate an Actuarially Determined Contribution for the Nashoba Regional School District Other Postemployment Benefit (OPEB) Plan for the fiscal year ending June 30, 2020. It summarizes the actuarial data used in the valuation and analyzes the experience and changes in assumptions since the prior valuation. The GASB Statements No. 74 and 75 disclosure information for the District for the fiscal year ending June 30, 2020 will be provided in a separate report.

This report is based on information received from the Nashoba Regional School District and vendors employed by the Nashoba Regional School District. Segal 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 measurements shown in this actuarial valuation may not be applicable for other purposes. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security at termination of the plan, or determining short-term cash flow requirements.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience or rates of return on assets differing from that anticipated by the assumptions; changes in assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

August 28, 2020

The actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. The actuarial calculations were directed under my supervision. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in my opinion, the assumptions as approved by the Nashoba Regional School District are reasonably related to the experience of and the expectations for the Plan.

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

Sincerely,

Segal S. Boustani

Samuel Boustani, ASA, MAAA
Consulting Actuary

Table of Contents

Section 1: Actuarial Valuation Summary.....	5
Purpose and basis.....	5
Highlights of the valuation	5
Other considerations	7
Summary of key valuation results.....	8
Department results	9
Funding schedule 1	10
Funding schedule 2	11
Important information about actuarial valuations.....	12
Section 2: Supporting Information.....	14
Exhibit I: Summary of participant data.....	14
Exhibit II: Actuarial Assumptions and Actuarial Cost Method.....	15
Exhibit III: Summary of Plan	27
Exhibit IV: Definition of Terms	29

Section 1: Actuarial Valuation Summary

Purpose and basis

This report presents the results of our actuarial valuation of the Nashoba Regional School District other postemployment welfare benefit (OPEB) plan as of December 31, 2019. The purpose of this report is to calculate a recommended Actuarially Determined Contribution for the OPEB plan for the fiscal year ending June 30, 2020. Determinations for other purposes may be significantly different from the results reported here. This valuation is based on:

- The provisions of the OPEB plan;
- The characteristics of covered active members, retired members and beneficiaries as of December 31, 2019 provided by the Nashoba Regional School District;
- The assets of the Plan as of December 31, 2019, provided by the Nashoba Regional School District;
- Economic assumptions regarding future salary increases and investment earnings;
- Health care assumptions regarding per capita costs, trend rates and participation; and
- Other actuarial assumptions regarding employee terminations, retirement, death, etc.

Highlights of the valuation

- The discount rate used to determine the liabilities that are the basis of the Actuarially Determined Contribution is the expected return on assets. Based on the current investment allocation of the OPEB trust assets invested in the State Retiree Benefits Trust Fund, we recommend decreasing the expected return on assets from 7.25% to 7.00%.
- The unfunded actuarial accrued liability (UAAL) as of December 31, 2019 is \$28,420,586 based on an actuarial accrued liability (AAL) of \$28,888,223, and an actuarial value of assets of \$467,637. 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 employer contributions. Future valuations will analyze the difference between actual and expected unfunded actuarial accrued liabilities.
- As of December 31, 2019 the ratio of assets to the AAL (the funded ratio) is 1.62% compared to 0.00% in the prior valuation. This funded percentage is 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.

Section 1: Actuarial Valuation Summary

- The following assumptions were revised with this valuation:
 - The impact of the excise tax on high cost health plans (part of the Patient Protection and Affordable Care Act) was removed, as the tax was repealed effective December 20, 2019.
 - The disabled mortality assumption for Teachers was updated.
 - The per capita health costs and contributions were updated to reflect current experience.
 - The per capita health cost trend assumptions were revised to reflect current experience and future expectations.
 - The funded discount rate was decreased from 7.25% to 7.00%.
- The UAAL of \$28,421,000 as of December 31, 2019 represents an increase of \$2,289,000 from \$26,132,000 as shown in the December 31, 2017 valuation. The unfunded liability had been expected to increase by \$3,052,000 due to normal plan operations. The difference between the actual decrease and expected increase was the net effect of the following:

	(In Thousands)
December 31, 2017 unfunded actuarial liability	\$26,132
December 31, 2019 expected unfunded liability	\$29,184
Changes due to:	
• Experience loss	350
• Removal of excise tax projection	-458
• Updating mortality assumption	3
• Updating per capita costs, contributions and future trends	-1,541
• Updating discount rate	883
Net decrease	-763
December 31, 2019 unfunded actuarial accrued liability	28,421

- The Actuarially Determined Contribution (ADC) for fiscal year 2020 is \$2,286,847. The ADC is calculated using a 30-year amortization of the UAAL, with payments increasing at 4.0% per year.
- We have included two funding schedules for the Nashoba Regional School District. Both schedules are based on the 7.00% discount rate with one schedule (Funding Schedule 1) using a 30-year closed amortization and one schedule (Funding Schedule 2) using a 30-year open amortization. In Funding Schedule 1, the employer contribution to the OPEB trust is equal to the excess of the Actuarial Determined Contribution over benefit payments. With a closed amortization (Funding Schedule 1) the District will pay projected benefits plus a contribution to the OPEB Trust and will be fully funded in 30 years. With Funding Schedule 2, the

Section 1: Actuarial Valuation Summary

District will pay projected benefits plus the actual contribution of \$100,000 for fiscal year 2020 and expected contributions of \$50,000 thereafter to the OPEB trust, which is not sufficient to fully fund the plan. The two funding schedules assume that there are no assumption or plan changes and that experience develops as assumed.

- The Coronavirus (COVID-19) pandemic is rapidly evolving and is having a significant impact on the US economy in 2020, including most retiree health plans, and will likely continue to have an impact in the future. Our results do not include the impact of the following:
 - Short-term increases in health plan costs related to the testing or treatment of COVID-19;
 - Changes in the market value of plan assets since December 31, 2019;
 - Changes in interest rates since December 31, 2019;
 - Short-term or long-term impacts on mortality of the covered population; or
 - The potential for federal or state fiscal relief.

Other considerations

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.

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.

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.

Section 1: Actuarial Valuation Summary

Summary of key valuation results

	December 31, 2019 (7.00% interest rate)	December 31, 2017 (7.25% interest rate)	
Actuarial Accrued Liability (AAL) by Participant Category			
1. Current retirees, beneficiaries and dependents	\$13,968,681	\$11,681,542	
2. Current active employees	<u>14,919,542</u>	<u>14,450,460</u>	
3. Total AAL: (1) + (2)	\$28,888,223	\$26,132,002	
4. Actuarial value of assets	<u>467,637</u>	<u>0</u>	
5. Unfunded actuarial accrued liability (UAAL): (3) - (4)	\$28,420,586	\$26,132,002	
6. Funded ratio: (4) / (3)	1.62%	0.00%	
Actuarially Determined Contribution for fiscal year ending			
	June 30, 2020	June 30, 2019	June 30, 2018
7. Normal cost	\$898,443	\$923,903	\$894,779
8. Amortization method for UAAL	30-year closed, increasing at 4.0% per year	29-year closed, increasing at 4.5% per year	30-year closed, increasing at 4.5% per year
9. Amortization payment on UAAL	1,388,404	1,293,663	1,237,955
10. Total Actuarially Determined Contribution: (7) + (9)	\$2,286,847	\$2,217,566	\$2,132,734
11. Projected benefit payments	1,138,141	1,161,686	1,093,953

Note: Payments are assumed to be made in the middle of the fiscal year.

Section 1: Actuarial Valuation Summary

Department results

	All Other	Teachers	Total
Actuarial Accrued Liability (AAL) by Participant Category			
1. Current retirees, beneficiaries and dependents	\$2,902,166	\$11,066,515	\$13,968,681
2. Current active employees	<u>4,206,179</u>	<u>10,713,363</u>	<u>14,919,542</u>
3. Total AAL as of December 31, 2019: (1) + (2)	\$7,108,345	\$21,779,878	\$28,888,223
4. Actuarial value of assets as of December 31, 2019*	<u>115,069</u>	<u>352,568</u>	<u>467,637</u>
5. Unfunded actuarial accrued liability (UAAL) as of December 31, 2019: (3) - (4)	\$6,993,276	\$21,427,310	\$28,420,586
6. Funded ratio: (4) / (3)	1.62%	1.62%	1.62%
Actuarially Determined Contribution for fiscal year ending June 30, 2020			
7. Normal cost as of December 31, 2019	\$303,307	\$595,136	\$898,443
8. 30-year closed amortization (increasing at 4.0% per year) of the unfunded actuarial accrued liability (UAAL) as of December 31, 2019	<u>341,636</u>	<u>1,046,768</u>	<u>1,388,404</u>
9. Total Actuarially Determined Contribution: (7) + (8)	\$644,943	\$1,641,904	\$2,286,847
10. Projected benefit payments	284,624	853,517	1,138,141

* Assets have been prorated by group based on AAL.

Note: Payments are assumed to be made in the middle of the fiscal year.

Section 1: Actuarial Valuation Summary

Funding Schedule 1

7.00% Discount Rate – Fully Funded in Fiscal Year 2049, 30-Year Closed Amortization

Fiscal Year Ending June 30	(1) Normal Cost	(2) Amortization of UAAL	(3) Actuarially Determined Contribution (1) + (2)	(4) Projected Benefit Payments paid by the District	(5) Contributions to OPEB Trust (3) - (4)	(6) Assets at End of Year	(7) AAL at End of Year	(8) UAAL at End of Year (7) - (6)
2020	\$898,443	\$1,388,404	\$2,286,847	\$1,138,141	\$1,148,706	\$1,188,231	\$29,634,265	\$28,446,034
2021	929,034	1,443,940	2,372,974	1,238,040	1,134,934	2,445,392	31,389,025	28,943,633
2022	960,666	1,501,698	2,462,364	1,356,500	1,105,864	3,760,484	33,176,803	29,416,319
2023	993,375	1,561,766	2,555,141	1,450,919	1,104,222	5,165,934	35,025,892	29,859,958
2024	1,027,198	1,624,236	2,651,434	1,551,120	1,100,314	6,665,723	36,935,755	30,270,032
2025	1,062,173	1,689,206	2,751,379	1,698,634	1,052,745	8,221,291	38,862,897	30,641,606
2026	1,098,339	1,756,774	2,855,113	1,851,137	1,003,976	9,835,302	40,804,599	30,969,297
2027	1,135,736	1,827,045	2,962,781	1,999,135	963,646	11,520,576	42,767,814	31,247,238
2028	1,174,406	1,900,127	3,074,533	2,184,628	889,905	13,247,541	44,716,579	31,469,038
2029	1,214,393	1,976,132	3,190,525	2,363,994	826,531	15,029,839	46,657,583	31,627,744
2030	1,255,742	2,055,177	3,310,919	2,495,025	815,894	16,925,895	48,641,690	31,715,795
2031	1,298,498	2,137,384	3,435,882	2,609,425	826,457	18,965,602	50,690,575	31,724,973
2032	1,342,710	2,222,880	3,565,590	2,726,849	838,741	21,160,794	52,807,151	31,646,357
2033	1,388,428	2,311,795	3,700,223	2,849,557	850,666	23,521,985	54,992,248	31,470,263
2034	1,435,702	2,404,267	3,839,969	2,977,788	862,181	26,060,370	57,246,559	31,186,189
2035	1,484,586	2,500,437	3,985,023	3,111,788	873,235	28,787,877	59,570,627	30,782,750
2036	1,535,134	2,600,455	4,135,589	3,251,818	883,771	31,717,208	61,964,819	30,247,611
2037	1,587,403	2,704,473	4,291,876	3,398,150	893,726	34,861,890	64,429,305	29,567,415
2038	1,641,452	2,812,652	4,454,104	3,551,067	903,037	38,236,331	66,964,035	28,727,704
2039	1,697,341	2,925,158	4,622,499	3,710,865	911,634	41,855,876	69,568,712	27,712,836
2040	1,755,133	3,042,164	4,797,297	3,877,854	919,443	45,736,867	72,242,762	26,505,895
2041	1,814,893	3,163,851	4,978,744	4,052,357	926,387	49,896,710	74,985,305	25,088,595
2042	1,876,688	3,290,405	5,167,093	4,234,713	932,380	54,353,941	77,795,116	23,441,175
2043	1,940,587	3,422,021	5,362,608	4,425,276	937,332	59,128,301	80,670,592	21,542,291
2044	2,006,662	3,558,902	5,565,564	4,624,413	941,151	64,240,816	83,609,711	19,368,895
2045	2,074,986	3,701,258	5,776,244	4,832,512	943,732	69,713,877	86,609,984	16,896,107
2046	2,145,637	3,849,308	5,994,945	5,049,975	944,970	75,571,333	89,668,412	14,097,079
2047	2,218,693	4,003,280	6,221,973	5,277,223	944,750	81,838,584	92,781,433	10,942,849
2048	2,294,237	4,163,412	6,457,649	5,514,699	942,950	88,542,680	95,944,862	7,402,182
2049	2,372,353	4,329,948	6,702,301	5,762,860	939,441	95,712,433	95,712,433	-

Notes:

Assumes payment at the middle of the fiscal year.

Normal cost is projected to increase 3.25% per year for inflation and 0.15% for future mortality improvement.

Assets are assumed to return 7.00% per year.

Amortization payments calculated to increase 4.00% per year.

Section 1: Actuarial Valuation Summary

Funding Schedule 2

7.00% Discount Rate – Funding Policy Contributions of \$50,000 per year, 30-Year Open Amortization

Fiscal Year Ending June 30	(1) Normal Cost	(2) Amortization of UAAL	(3) Actuarially Determined Contribution (1) + (2)	(4) Projected Benefit Payments paid by the District	(5) Expected District Contributions to OPEB Trust	(6) Total District Cost (4) + (5)	(7) Assets at End of Year	(8) AAL at End of Year	(9) UAAL at End of Year (8) - (7)
2020	\$898,443	\$1,388,404	\$2,286,847	\$1,138,141	\$100,000	\$1,238,141	\$450,602	\$29,634,265	\$29,183,663
2021	929,034	1,425,682	2,354,716	1,238,040	50,000	1,288,040	533,865	31,389,025	30,855,160
2022	960,666	1,507,338	2,468,004	1,356,500	50,000	1,406,500	622,956	33,176,803	32,553,847
2023	993,375	1,590,323	2,583,698	1,450,919	50,000	1,500,919	718,283	35,025,892	34,307,609
2024	1,027,198	1,675,998	2,703,196	1,551,120	50,000	1,601,120	820,283	36,935,755	36,115,472
2025	1,062,173	1,764,315	2,826,488	1,698,634	50,000	1,748,634	929,423	38,862,897	37,933,474
2026	1,098,339	1,853,129	2,951,468	1,851,137	50,000	1,901,137	1,046,203	40,804,599	39,758,396
2027	1,135,736	1,942,280	3,078,016	1,999,135	50,000	2,049,135	1,171,158	42,767,814	41,596,656
2028	1,174,406	2,032,083	3,206,489	2,184,628	50,000	2,234,628	1,304,859	44,716,579	43,411,720
2029	1,214,393	2,120,752	3,335,145	2,363,994	50,000	2,413,994	1,447,920	46,657,583	45,209,663
2030	1,255,742	2,208,585	3,464,327	2,495,025	50,000	2,545,025	1,600,995	48,641,690	47,040,695
2031	1,298,498	2,298,035	3,596,533	2,609,425	50,000	2,659,425	1,764,785	50,690,575	48,925,790
2032	1,342,710	2,390,126	3,732,836	2,726,849	50,000	2,776,849	1,940,040	52,807,151	50,867,111
2033	1,388,428	2,484,963	3,873,391	2,849,557	50,000	2,899,557	2,127,563	54,992,248	52,864,685
2034	1,435,702	2,582,549	4,018,251	2,977,788	50,000	3,027,788	2,328,213	57,246,559	54,918,346
2035	1,484,586	2,682,875	4,167,461	3,111,788	50,000	3,161,788	2,542,908	59,570,627	57,027,719
2036	1,535,134	2,785,922	4,321,056	3,251,818	50,000	3,301,818	2,772,632	61,964,819	59,192,187
2037	1,587,403	2,891,661	4,479,064	3,398,150	50,000	3,448,150	3,018,437	64,429,305	61,410,868
2038	1,641,452	3,000,048	4,641,500	3,551,067	50,000	3,601,067	3,281,448	66,964,035	63,682,587
2039	1,697,341	3,111,026	4,808,367	3,710,865	50,000	3,760,865	3,562,870	69,568,712	66,005,842
2040	1,755,133	3,224,522	4,979,655	3,877,854	50,000	3,927,854	3,863,991	72,242,762	68,378,771
2041	1,814,893	3,340,444	5,155,337	4,052,357	50,000	4,102,357	4,186,191	74,985,305	70,799,114
2042	1,876,688	3,458,683	5,335,371	4,234,713	50,000	4,284,713	4,530,945	77,795,116	73,264,171
2043	1,940,587	3,579,106	5,519,693	4,425,276	50,000	4,475,276	4,899,832	80,670,592	75,770,760
2044	2,006,662	3,701,558	5,708,220	4,624,413	50,000	4,674,413	5,294,541	83,609,711	78,315,170
2045	2,074,986	3,825,858	5,900,844	4,832,512	50,000	4,882,512	5,716,879	86,609,984	80,893,105
2046	2,145,637	3,951,795	6,097,432	5,049,975	50,000	5,099,975	6,168,781	89,668,412	83,499,631
2047	2,218,693	4,079,129	6,297,822	5,277,223	50,000	5,327,223	6,652,316	92,781,433	86,129,117
2048	2,294,237	4,207,585	6,501,822	5,514,699	50,000	5,564,699	7,169,699	95,944,862	88,775,163
2049	2,372,353	4,336,850	6,709,203	5,762,860	50,000	5,812,860	7,723,298	99,153,835	91,430,537

Notes:

Assumes payment at the middle of the fiscal year.

Normal cost is projected to increase 3.25% per year for inflation and 0.15% for future mortality improvement.

Assets are assumed to return 7.00% per year.

Amortization payments calculated to increase 4.00% per year.

Section 1: Actuarial Valuation Summary

Important information about actuarial valuations

An actuarial valuation is a budgeting tool with respect to defining future uncertain obligations of a postretirement health plan. As such, it will never forecast the precise future stream of benefit payments. It is an estimated forecast – the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation. In order to prepare a valuation, Segal 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 coordinates with Medicare. If so, changes in the Medicare law or administration may change the plan's costs without any change in the terms of the plan itself. It is important for the 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	The valuation is based on the market value of assets as of the valuation date, as provided by the Nashoba Regional School District.
Actuarial assumptions	In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. To determine the future costs of benefits, Segal collects claims, premiums, and enrollment data in order to establish a baseline cost for the valuation measurement, and then develops short- and long-term health care cost trend rates to project increases in costs in future years. This forecast also requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year, as well as forecasts of the plan's benefits for each of those events. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan's assets or, if there are no assets, a rate of return based on a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale). All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions the actuary selects within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model necessarily uses approximations and estimates that may lead to significant changes in our results but will have no impact on the actual cost of the plan. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

Section 1: Actuarial Valuation Summary

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

The actuarial valuation is prepared for use by the Nashoba Regional School District. It includes information for compliance with accounting standards and for the plan's auditor. Segal is not responsible for the use or misuse of its report, particularly by any other party.

If the Nashoba Regional School District is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.

An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

Sections of this report include actuarial results that are 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, health care trend, and investment losses, not just the current valuation results.

Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The 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. Nashoba Regional School District should notify Segal immediately of any questions or concerns about the final content.

As Segal 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 2: Supporting Information

Exhibit I: Summary of participant data

	December 31, 2019	December 31, 2017
Active employees covered for medical benefits		
• Number		
– Male	97	91
– Female	<u>280</u>	<u>289</u>
– Total	377	380
• Average age	46.6	46.9
• Average service	11.3	10.9
Retired employees, spouses and beneficiaries covered for medical benefits		
• Number	258	227
• Average age	71.5	70.8
Retired employees with dental and/or life insurance coverage only		
• Number	81	58

Section 2: Supporting Information

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 Nashoba Regional School District.
Actuarial Cost Method:	Entry Age Normal – Level percentage of payroll.
Per Capita Cost Development: Medical and Drug, Dental	Per capita costs were based on the fully-insured premium rates for all participants in the Nashoba Regional School District health plans effective September 1, 2020 for non-Medicare plans and January 1, 2020 for Medicare plans. The 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 applied to the premium to estimate individual retiree and spouse costs by age and by gender.
Valuation Date:	December 31, 2019 The results of the December 31, 2019 actuarial valuation were used to determine the Actuarial Determined Contribution as of June 30, 2020.
Expected Return on Assets:	7.00% (previously 7.25%) The long-term expected rate of return on a portfolio assuming future assets will be invested in 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.
Discount Rate:	7.00% (previously 7.25%) The discount rate is set equal to the expected return on assets.

Section 2: Supporting Information

Salary Increases:	Years of Service	Rate per year (%)		Years of Service	Rate per year (%)	
		Non-Teachers	Teachers		Non-Teachers	Teachers
	0	6.00	7.50	9	4.25	6.10
	1	5.50	7.10	10	4.25	5.90
	2	5.50	7.00	11	4.25	5.70
	3	5.25	6.90	12	4.25	5.20
	4	5.25	6.80	13	4.25	4.70
	5	4.75	6.70	14	4.25	4.35
	6	4.75	6.60	15-16	4.25	4.20
	7	4.50	6.50	17-19	4.25	4.10
	8	4.50	6.30	20 and later	4.25	4.00
Asset Valuation Method:	Market Value					
Mortality Rates:	<p><i>Pre-Retirement (Non-Teachers):</i> RP-2000 Employee Mortality Table projected generationally with Scale BB2D from 2009</p> <p><i>Healthy (Non-Teachers):</i> RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2009</p> <p><i>Disabled (Non-Teachers):</i> RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2012</p> <p><i>Pre-Retirement (Teachers):</i> RP-2014 White Collar Employee Mortality Table projected generationally with Scale MP2016</p> <p><i>Healthy (Teachers):</i> RP-2014 White Collar Annuitant Mortality Table projected generationally with Scale MP2016</p> <p><i>Disabled (Teachers):</i> RP-2014 White Collar Annuitant Mortality Table projected generationally with Scale MP2016 (previously, RP-2014 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2014 set forward 4 years)</p> <p>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.</p>					

Section 2: Supporting Information

Annuitant Mortality Rates:

- Non-Teachers

Age	Rate per year (%)	
	Male	Female
60	0.82	0.62
70	0.22	1.67
80	6.44	4.59
90	18.34	13.17

Note: Rates shown are before generational projection.

- Teachers

Age	Rate per year (%)					
	Healthy Annuitant		Disabled Annuitant			
	Male	Female	Current		Previously	
	Male	Female	Male	Female	Male	Female
60	0.52	0.39	0.52	0.39	1.02	0.74
70	1.24	1.06	1.24	1.06	2.43	1.90
80	3.73	3.04	3.73	3.04	6.93	5.40
90	12.62	10.02	12.62	10.02	20.11	16.30

Note: Rates shown are before generational projection.

Section 2: Supporting Information

Termination Rates Before Retirement:

- Non-Teachers

Age	Rate per year (%)		
	Mortality		
	Male	Female	Disability
20	0.03	0.02	0.01
25	0.04	0.02	0.02
30	0.04	0.03	0.03
35	0.08	0.05	0.05
40	0.11	0.07	0.10
45	0.15	0.11	0.15
50	0.21	0.17	0.19
55	0.30	0.25	0.24
60	0.49	0.39	0.28

Notes:

55% of the rates shown represent accidental disability and death.
Rates shown are before generational projection.

Section 2: Supporting Information

Termination Rates Before Retirement (continued):

- Teachers

Age	Rate per year (%)		
	Mortality		
	Male	Female	Disability
20	0.02	0.01	0.00
25	0.02	0.01	0.01
30	0.02	0.01	0.01
35	0.03	0.02	0.01
40	0.03	0.02	0.01
45	0.05	0.04	0.03
50	0.09	0.07	0.05
55	0.15	0.11	0.07
60	0.25	0.15	0.07

Notes:

75% of the death rates shown represent accidental death.

35% of the disability rates shown represent accidental disability.

Rates shown are before generational projection.

Section 2: Supporting Information

Withdrawal Rates:	Years of Service	Rate per year (%)
• Non-Teachers	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	

Section 2: Supporting Information

Withdrawal Rates (continued):

- Teachers

Age	Rate per year (%)					
	0 – 4 Years of Service		5 – 9 Years of Service		10+ Years of Service	
	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

Section 2: Supporting Information

Retirement Rates:

- Non-Teachers

Age	Rate per Year (%)	
	Male	Female
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

Section 2: Supporting Information

Retirement Rates (continued):

- Teachers

Age	Rate per year (%)					
	Years of Service					
	Less than 20		20 – 29		30 or more	
	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, 60% were assumed to have an eligible spouse who also opts for health coverage at that time.

Section 2: Supporting Information

Per Capita Health Costs:

2020 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.

Age	Non-Medicare Plans				Medicare Plans			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
45	\$10,129	\$12,707	\$6,283	\$9,485	N/A	N/A	N/A	N/A
50	12,022	13,694	8,398	10,995	N/A	N/A	N/A	N/A
55	14,278	14,741	11,237	12,727	N/A	N/A	N/A	N/A
60	16,956	15,889	15,043	14,761	N/A	N/A	N/A	N/A
65	20,138	17,117	20,138	17,117	\$4,314	\$3,667	\$4,314	\$3,667
70	23,340	18,446	23,340	18,446	5,000	3,952	5,000	3,952
75	25,152	19,856	25,152	19,856	5,388	4,254	5,388	4,254
80	27,086	21,407	27,086	21,407	5,802	4,586	5,802	4,586

Weighted Average Annual Retiree Contribution Amounts:

Non-Medicare Plans: \$6,749
Medicare Plans: \$2,267

Annual Dental Cost:

\$702

Note: Medical, prescription drug and dental rates were trended back at assumed trend rates to December 31, 2019 (for non-Medicare plans) since the valuation is based on September 1, 2020 premium rates.

Section 2: Supporting Information

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/ Prescription Drug	Dental	Medicare Part B
2020	7.00%*	3.50%*	4.50%*
2021	6.75%	3.50%	4.50%
2022	6.50%	3.50%	4.50%
2023	6.25%	3.50%	4.50%
2024	6.00%	3.50%	4.50%
2025	5.75%	3.50%	4.50%
2026	5.50%	3.50%	4.50%
2027	5.25%	3.50%	4.50%
2028	5.00%	3.50%	4.50%
2029	4.75%	3.50%	4.50%
2030 and later	4.50%	3.50%	4.50%

* Trend rates used to roll backward for purposes of the Entry Age Actuarial Cost Method.

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

Administrative Expenses:

Administrative expenses are assumed to be included in the fully-insured premium rates, as these expenses are a component of the rate.

Section 2: Supporting Information

Participation and Coverage Election:	<ul style="list-style-type: none"> • 85% 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 remain enrolled in the non-Medicare plans. • For future retirees hired after 1986, 100% are assumed to enroll in a Medicare Supplement Plan upon reaching age 65. <p>The participation and coverage election assumptions were based on a review of recent experience.</p>
Plan Design:	<p>Development of plan liabilities was based on the substantive plan of benefits in effect as described in Exhibit III.</p>
Missing Participant Data:	<p>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.</p>
Health Care Reform Assumption:	<p>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, including the excise tax on high cost health plans beginning in 2022. The excise tax was repealed effective December 20, 2019, and as such has been removed from this valuation.</p>
Demographic and Salary Increase Assumptions:	<p>Many of the non-teacher demographic assumptions (including mortality, disability, turnover, retirement and salary scale) used in this valuation are the same as used in the Worcester Regional Retirement System Actuarial Valuation as of January 1, 2018, dated September 13, 2018, completed by KMS Actuaries LLC.</p> <p>Many of the teacher demographic assumptions (including mortality, disability, turnover, retirement and salary scale) used in this valuation are based on the Teachers' Retirement System Actuarial Valuation Report as of January 1, 2019, dated October 17, 2019, completed by PERAC.</p> <p>A review of the demographic assumptions is beyond the scope of this assignment, however, we have no reason to doubt the reasonableness of the assumptions.</p> <p>The remaining demographic assumptions, such as percent married, relative ages of spouses and enrollment elections, were based on the experience of the Plan and the experience of similar plans.</p>
Justification for Assumption Changes Since Prior Valuation:	<p>Based on past experience and future expectations, the following actuarial assumptions were changed:</p> <ul style="list-style-type: none"> • The impact of the excise tax on high cost health plans scheduled to begin in 2022 was repealed effective December 20, 2019 and as such has been removed with this valuation. • The disabled mortality assumption was updated for Teachers. • The per capita health care costs were updated to reflect recent experience. • The trend assumptions were revised to better reflect future expectations. • The funded discount rate was decreased from 7.25% to 7.00%.

Section 2: Supporting Information

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. <ul style="list-style-type: none">• Members hired before April 2, 2012<ul style="list-style-type: none">– Group 1 (including Teachers):<ul style="list-style-type: none">• 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<ul style="list-style-type: none">– Group 1 (including Teachers):<ul style="list-style-type: none">• 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, dental and prescription drug benefits are provided to all eligible retirees through plans offered by Blue Cross Blue Shield of Massachusetts. The Nashoba Regional School District pays 50% of the retiree life insurance premium and reimburses the Medicare Part B penalty for 22 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 Life:	\$5,000

Section 2: Supporting Information

Retiree Contributions:

Premium rates and retiree contributions as of September 1, 2020 for non-Medicare plans and as of January 1, 2020 for Medicare plans are summarized below:

	Active	Retiree	Total	Retirees 65 and over ¹	Monthly Premium (eff. 9/1/2020)	School District Cost	Retiree cost
HMO Blue							
• Individual	108	20	128	4	\$883.29	\$441.64	\$441.65
• Family	221	6	227	1	\$2,336.06	\$1,168.03	\$1,168.03
Blue Choice							
• Individual	8	3	11	0	\$1,099.30	\$549.65	\$549.65
• Family	15	0	15	0	\$2,883.64	\$1,441.82	\$1,441.82
Blue Care Elect PPO							
• Individual	9	6	15	1	\$1,153.51	\$576.75	\$576.76
• Family	16	2	18	0	\$3,025.93	\$1,512.96	\$1,512.97
Non-Medicare Total	377	37	414	6			
	Active	Retiree	Total		Monthly Premium (eff. 1/1/20)	School District Cost	Retiree cost
Medicare Supplement Plans							
• Medex	N/A	131	131		\$381.30	\$190.65	\$190.65
• MBFS	N/A	9	9		\$319.78	\$159.89	\$159.89
Medicare Total		140	140				
Retiree Total²		177	177				

Plan Changes Since the Prior Valuation:

None.

¹ 6 of 146 over-65 retirees are in a non-Medicare plan.

² In addition, there are 81 spouses of retirees covered under an individual or family policy.

Section 2: Supporting Information

Exhibit IV: Definition of Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions:	The estimates on which the cost of the Plan is calculated including: <ol style="list-style-type: none">1. Investment return — the rate of investment yield that the Plan will earn over the long-term future;2. Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;3. Retirement rates — the rate or probability of retirement at a given age;4. Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.
Actuarial Accrued Liability (AAL):	Present value of all future benefit payments for current retirees and active employees taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions.
Unfunded Actuarial Accrued Liability (UAAL):	The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There are many approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.
Normal Cost:	The amount of contributions required to fund the benefit allocated to the current year of service.
Actuarially Determined Contribution:	A target or recommended contribution to an OPEB plan for the reporting period based on the most recent measurement available.
Valuation Date:	The date at which the actuarial valuation is performed
Covered Employee Payroll:	The payroll of the employees that are provided OPEB benefits
Entry Age Actuarial Cost Method:	An actuarial cost method where the present value of the projected benefits for an individual is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age
Health Care Cost Trend Rates:	The rate of change in per capita health costs over time
Discount Rate:	The interest rate used to determine the actuarial present value of projected benefit payments.
Expected Return on Assets:	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Real Rate of Return:	The rate of return on an investment after removing inflation