

Nashoba Regional School District

Actuarial Valuation and Review of Other Postemployment Benefits (OPEB)

Measured at December 31, 2021



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.

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Segal



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August 4, 2022

Ms. Patricia Marone
Director of Business and Operations
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, 2021. 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, 2022. 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, 2022 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.

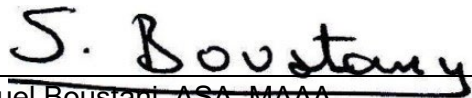
August 4, 2022

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, including the assumptions selected by the plan sponsor 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

A handwritten signature in black ink that reads "S. Boustany". The signature is written in a cursive style and is positioned above a horizontal line.

Samuel Boustani, ASA, MAAA
Consulting Actuary

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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, 2021. The purpose of this report is to calculate a recommended Actuarially Determined Contribution for the OPEB plan for the fiscal year ending June 30, 2022. 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, 2021 provided by the Nashoba Regional School District;
- The assets of the Plan as of December 31, 2021, 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 unfunded actuarial accrued liability (UAAL) as of December 31, 2021 is \$28,750,305 based on an actuarial accrued liability (AAL) of \$29,608,609, and an actuarial value of assets of \$858,304. 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, 2021 the ratio of assets to the AAL (the funded ratio) is 2.90% compared to 1.62% 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.
- The following assumptions were revised with this valuation:
 - 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 mortality assumptions for both Teachers and non-Teachers were updated.

Section 1: Actuarial Valuation Summary

- The UAAL of \$28,750,000 as of December 31, 2021 represents an increase of \$329,000 from \$28,421,000 as shown in the December 31, 2019 valuation. The unfunded liability had been expected to increase by \$3,390,000 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, 2019 unfunded actuarial liability	\$28,421
December 31, 2021 expected unfunded liability	\$31,811
Changes due to:	
• Updated census	714
• Investment gain	-219
• Updating per capita costs, contributions and future trends	-3,362
• Updating mortality assumption	-194
Net decrease	-3,061
December 31, 2021 unfunded actuarial accrued liability	28,750

- The Actuarially Determined Contribution (ADC) for fiscal year 2022 is \$2,176,924. 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, beginning in fiscal year 2023, and will be fully funded in 30 years. With Funding Schedule 2, the District will pay projected benefits plus the actual contribution of \$50,000 for fiscal year 2022 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 has had a significant impact on the US economy, including 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;
 - Short-term or long-term impacts on mortality of the covered population;

Section 1: Actuarial Valuation Summary

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, 2021 (7.00% interest rate)	December 31, 2019 (7.00% interest rate)	
Actuarial Accrued Liability (AAL) by Participant Category			
1. Current retirees, beneficiaries and dependents	\$14,044,090	\$13,968,681	
2. Current active employees	<u>15,564,519</u>	<u>14,919,542</u>	
3. Total AAL: (1) + (2)	\$29,608,609	\$28,888,223	
4. Actuarial value of assets	<u>858,304</u>	<u>467,637</u>	
5. Unfunded actuarial accrued liability (UAAL): (3) - (4)	\$28,750,305	\$28,420,586	
6. Funded ratio: (4) / (3)	2.90%	1.62%	
Actuarially Determined Contribution for fiscal year ending			
	June 30, 2022	June 30, 2021	June 30, 2020
7. Normal cost	\$772,412	\$929,034	\$898,443
8. Amortization method for UAAL	30-year closed, increasing at 4.0% per year	29-year closed, increasing at 4.0% per year	30-year closed, increasing at 4.0% per year
9. Amortization payment on UAAL	<u>1,404,512</u>	<u>1,443,940</u>	<u>1,388,404</u>
10. Total Actuarially Determined Contribution: (7) + (9)	\$2,176,924	\$2,372,974	\$2,286,847
11. Projected benefit payments	1,243,812	1,238,040	1,138,141

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	\$3,689,213	\$10,354,877	\$14,044,090
2. Current active employees	<u>3,975,373</u>	<u>11,589,146</u>	<u>15,564,519</u>
3. Total AAL as of December 31, 2021: (1) + (2)	\$7,664,586	\$21,944,023	\$29,608,609
4. Actuarial value of assets as of December 31, 2021*	<u>222,184</u>	<u>636,120</u>	<u>858,304</u>
5. Unfunded actuarial accrued liability (UAAL) as of December 31, 2021: (3) - (4)	\$7,442,402	\$21,307,903	\$28,750,305
6. Funded ratio: (4) / (3)	2.90%	2.90%	2.90%
Actuarially Determined Contribution for fiscal year ending June 30, 2022			
7. Normal cost as of December 31, 2021	\$232,166	\$540,246	\$772,412
8. 30-year closed amortization (increasing at 4.0% per year) of the unfunded actuarial accrued liability (UAAL) as of December 31, 2021	<u>363,577</u>	<u>1,040,935</u>	<u>1,404,512</u>
9. Total Actuarially Determined Contribution: (7) + (8)	\$595,743	\$1,581,181	\$2,176,924
10. Projected benefit payments	348,533	895,279	1,243,812

* 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 2052, 30-Year Closed Amortization

Fiscal Year Ending June 30	(1) Normal Cost	(2) Amortization of UAAL	(3) Actuarially Determined Contribution (ADC) (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)
2022	\$772,412	\$1,404,512	\$2,176,924	\$1,243,812	\$50,000	\$766,037	\$30,139,763	\$29,373,726
2023*	798,712	1,434,967	2,233,679	1,317,749	915,930	1,767,105	31,712,650	29,945,545
2024	825,907	1,494,915	2,320,822	1,412,636	908,186	2,830,237	33,325,618	30,495,381
2025	854,028	1,557,429	2,411,457	1,556,622	854,835	3,912,602	34,931,642	31,019,040
2026	883,107	1,622,626	2,505,733	1,709,348	796,385	5,010,271	36,522,187	31,511,916
2027	913,176	1,690,630	2,603,806	1,852,090	751,716	6,138,571	38,107,520	31,968,949
2028	944,269	1,761,571	2,705,840	2,024,580	681,260	7,272,972	39,657,564	32,384,592
2029	976,420	1,835,587	2,812,007	2,206,998	605,009	8,407,906	41,160,674	32,752,768
2030	1,009,666	1,912,826	2,922,492	2,354,207	568,285	9,584,298	42,651,117	33,066,819
2031	1,044,044	1,993,444	3,037,488	2,488,741	548,747	10,822,827	44,142,289	33,319,462
2032	1,079,592	2,077,606	3,157,198	2,643,937	513,261	12,111,346	45,614,078	33,502,732
2033	1,116,351	2,165,489	3,281,840	2,792,333	489,507	13,465,490	47,073,414	33,607,924
2034	1,154,361	2,257,286	3,411,647	2,917,988	493,659	14,918,719	48,544,243	33,625,524
2035	1,193,666	2,353,199	3,546,865	3,049,297	497,568	16,477,718	50,022,860	33,545,142
2036	1,234,309	2,453,453	3,687,762	3,186,516	501,246	18,149,651	51,505,082	33,355,431
2037	1,276,336	2,558,289	3,834,625	3,329,909	504,716	19,942,209	52,986,205	33,043,996
2038	1,319,794	2,667,972	3,987,766	3,479,755	508,011	21,863,654	54,460,958	32,597,304
2039	1,364,731	2,782,798	4,147,529	3,636,344	511,185	23,922,884	55,923,450	32,000,566
2040	1,411,198	2,903,095	4,314,293	3,799,979	514,314	26,129,496	57,367,117	31,237,621
2041	1,459,248	3,029,238	4,488,486	3,970,978	517,508	28,493,875	58,784,661	30,290,786
2042	1,508,934	3,161,662	4,670,596	4,149,672	520,924	31,027,294	60,167,987	29,140,693
2043	1,560,311	3,300,875	4,861,186	4,336,408	524,778	33,742,039	61,508,129	27,766,090
2044	1,613,438	3,447,497	5,060,935	4,531,546	529,389	36,651,586	62,795,184	26,143,598
2045	1,668,374	3,602,304	5,270,678	4,735,466	535,212	39,770,825	64,018,222	24,247,397
2046	1,725,180	3,766,311	5,491,491	4,948,562	542,929	43,116,393	65,165,205	22,048,812
2047	1,783,920	3,940,923	5,724,843	5,171,247	553,596	46,707,185	66,222,891	19,515,706
2048	1,844,660	4,128,231	5,972,891	5,403,953	568,938	50,565,202	67,176,732	16,611,530
2049	1,907,468	4,331,674	6,239,142	5,647,131	592,011	54,717,147	68,010,766	13,293,619
2050	1,972,415	4,557,801	6,530,216	5,901,252	628,964	59,197,953	68,707,499	9,509,546
2051	2,039,573	4,822,376	6,861,949	6,166,808	695,141	64,060,869	69,247,779	5,186,910
2052	2,109,018	5,186,910	7,295,928	6,444,314	851,614	69,426,046	69,426,046	-

* Contributing the full ADC beginning in fiscal year 2023 with the plan being fully funded in fiscal year 2052.

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 (ADC) (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)
2022	\$772,412	\$1,404,512	\$2,176,924	\$1,243,812	\$50,000	\$1,293,812	\$766,037	\$30,139,763	\$29,373,726
2023	798,712	1,434,967	2,233,679	1,317,749	50,000	1,367,749	871,380	31,712,650	30,841,270
2024	825,907	1,506,660	2,332,567	1,412,636	50,000	1,462,636	984,097	33,325,618	32,341,521
2025	854,028	1,579,950	2,433,978	1,556,622	50,000	1,606,622	1,104,704	34,931,642	33,826,938
2026	883,107	1,652,516	2,535,623	1,709,348	50,000	1,759,348	1,233,754	36,522,187	35,288,433
2027	913,176	1,723,913	2,637,089	1,852,090	50,000	1,902,090	1,371,837	38,107,520	36,735,683
2028	944,269	1,794,614	2,738,883	2,024,580	50,000	2,074,580	1,519,586	39,657,564	38,137,978
2029	976,420	1,863,119	2,839,539	2,206,998	50,000	2,256,998	1,677,677	41,160,674	39,482,997
2030	1,009,666	1,928,826	2,938,492	2,354,207	50,000	2,404,207	1,846,835	42,651,117	40,804,282
2031	1,044,044	1,993,373	3,037,417	2,488,741	50,000	2,538,741	2,027,834	44,142,289	42,114,455
2032	1,079,592	2,057,378	3,136,970	2,643,937	50,000	2,693,937	2,221,503	45,614,078	43,392,575
2033	1,116,351	2,119,817	3,236,168	2,792,333	50,000	2,842,333	2,428,729	47,073,414	44,644,685
2034	1,154,361	2,180,985	3,335,346	2,917,988	50,000	2,967,988	2,650,460	48,544,243	45,893,783
2035	1,193,666	2,242,006	3,435,672	3,049,297	50,000	3,099,297	2,887,713	50,022,860	47,135,147
2036	1,234,309	2,302,649	3,536,958	3,186,516	50,000	3,236,516	3,141,573	51,505,082	48,363,509
2037	1,276,336	2,362,657	3,638,993	3,329,909	50,000	3,379,909	3,413,204	52,986,205	49,573,001
2038	1,319,794	2,421,743	3,741,537	3,479,755	50,000	3,529,755	3,703,849	54,460,958	50,757,109
2039	1,364,731	2,479,590	3,844,321	3,636,344	50,000	3,686,344	4,014,839	55,923,450	51,908,611
2040	1,411,198	2,535,843	3,947,041	3,799,979	50,000	3,849,979	4,347,598	57,367,117	53,019,519
2041	1,459,248	2,590,113	4,049,361	3,970,978	50,000	4,020,978	4,703,650	58,784,661	54,081,011
2042	1,508,934	2,641,969	4,150,903	4,149,672	50,000	4,199,672	5,084,626	60,167,987	55,083,361
2043	1,560,311	2,690,936	4,251,247	4,336,408	50,000	4,386,408	5,492,270	61,508,129	56,015,859
2044	1,613,438	2,736,490	4,349,928	4,531,546	50,000	4,581,546	5,928,449	62,795,184	56,866,735
2045	1,668,374	2,778,057	4,446,431	4,735,466	50,000	4,785,466	6,395,161	64,018,222	57,623,061
2046	1,725,180	2,815,006	4,540,186	4,948,562	50,000	4,998,562	6,894,543	65,165,205	58,270,662
2047	1,783,920	2,846,642	4,630,562	5,171,247	50,000	5,221,247	7,428,881	66,222,891	58,794,010
2048	1,844,660	2,872,209	4,716,869	5,403,953	50,000	5,453,953	8,000,623	67,176,732	59,176,109
2049	1,907,468	2,890,875	4,798,343	5,647,131	50,000	5,697,131	8,612,387	68,010,766	59,398,379
2050	1,972,415	2,901,733	4,874,148	5,901,252	50,000	5,951,252	9,266,974	68,707,499	59,440,525
2051	2,039,573	2,903,792	4,943,365	6,166,808	50,000	6,216,808	9,967,383	69,247,779	59,280,396

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, 2021	December 31, 2019
Active employees covered for medical benefits		
• Number		
– Male	86	97
– Female	<u>286</u>	<u>280</u>
– Total	372	377
• Average age	46.9	46.6
• Average service	12.0	11.3
Retired employees, spouses and beneficiaries covered for medical benefits		
• Number	283	258
• Average age	72.1	71.5
Retired employees with dental and/or life insurance coverage only		
• Number	89	81

Section 2: Supporting Information

Exhibit II: Actuarial Assumptions, Methods and Models

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	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, 2021 for non-Medicare plans and January 1, 2022 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, 2021 The results of the December 31, 2021 actuarial valuation were used to determine the Actuarial Determined Contribution as of June 30, 2022.
Expected Return on Assets:	7.00% 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% 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					

Section 2: Supporting Information

Mortality Rates:

Pre-Retirement (Non-Teachers): RP-2014 Blue Collar Employee Mortality Table projected generationally with Scale MP-2021 (previously, RP-2000 Employee Mortality Table projected generationally with Scale BB2D from 2009)

Healthy (Non-Teachers): RP-2014 Blue Collar Healthy Annuitant Mortality Table projected generationally with Scale MP-2021 (previously, RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2009)

Disabled (Non-Teachers): RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally with Scale MP-2021 (previously, RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2012)

Pre-Retirement (Teachers): Pub-2010 Teacher Employee Headcount-weighted Mortality Table projected generationally with Scale MP-2021 (previously, RP-2014 White Collar Employee Mortality Table projected generationally with Scale MP2016)

Healthy (Teachers): Pub-2010 Teacher Healthy Retiree Headcount-weighted Mortality Table projected generationally with Scale MP-2021 (previously, RP-2014 White Collar Annuitant Mortality Table projected generationally with Scale MP2016)

Disabled (Teachers): Pub-2010 Teacher Healthy Retiree Headcount-weighted Mortality Table projected generationally with Scale MP-2021 (previously, RP-2014 White Collar Annuitant Mortality Table projected generationally with Scale MP2016)

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.

Disability Rates Before Retirement:

Age	Rate per year (%)	
	Non-Teachers	Teachers
20	0.01	0.00
25	0.02	0.01
30	0.03	0.01
35	0.05	0.01
40	0.10	0.01
45	0.15	0.03
50	0.19	0.05
55	0.24	0.07
60	0.28	0.07

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:

2022 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	\$11,318	\$14,198	\$7,020	\$10,598	N/A	N/A	N/A	N/A
50	13,433	15,300	9,383	12,285	N/A	N/A	N/A	N/A
55	15,953	16,470	12,555	14,220	N/A	N/A	N/A	N/A
60	18,945	17,753	16,808	16,493	N/A	N/A	N/A	N/A
65	22,500	19,125	22,500	19,125	\$4,006	\$3,405	\$4,006	\$3,405
70	26,078	20,610	26,078	20,610	4,643	3,669	4,643	3,669
75	28,103	22,185	28,103	22,185	5,003	3,950	5,003	3,950
80	30,263	23,918	30,263	23,918	5,388	4,258	5,388	4,258

Weighted Average Annual Retiree Contribution Amounts:

Non-Medicare Plans: \$7,514
Medicare Plans: \$2,121

Annual Dental Cost:

\$723

Note: Medical, prescription drug and dental rates were trended at assumed trend rates to December 31, 2021 (for non-Medicare plans) since the valuation is based on September 1, 2021 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
2022	7.00%*	3.50%*	4.50%*
2023	6.75%	3.50%	4.50%
2024	6.50%	3.50%	4.50%
2025	6.25%	3.50%	4.50%
2026	6.00%	3.50%	4.50%
2027	5.75%	3.50%	4.50%
2028	5.50%	3.50%	4.50%
2029	5.25%	3.50%	4.50%
2030	5.00%	3.50%	4.50%
2031	4.75%	3.50%	4.50%
2032 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:

- 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.
 - 100% of current and future retirees with medical coverage are assumed to have life insurance coverage.
- The participation and coverage election assumptions were based on a review of recent experience.

Plan Design:

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

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.

Demographic and Salary Increase Assumptions:

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, 2020, dated November 20, 2020, completed by KMS Actuaries LLC.

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, 2021, dated November 4, 2021, completed by PERAC.

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.

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.

Section 2: Supporting Information

Actuarial models

Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Our Actuarial Technology and Systems Unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the model and reviews the test lives and results, under the supervision of the responsible actuary.

Our claims costs assumptions are based on proprietary modeling software as well as models that were developed by others. These models generate per capita claims cost calculations that are used in our valuation software. Our Health Technical Services Unit, comprised of actuaries and programmers, is responsible for the initial development and maintenance of our health models. They are also responsible for testing models that we purchase from other vendors for reasonableness. The client team inputs the paid claims, enrollments, plan provisions and assumptions into these models and reviews the results for reasonableness, under the supervision of the responsible actuary.

Justification for Assumption Changes Since Prior Valuation:

Based on past experience and future expectations, the following actuarial assumptions were changed:

- The per capita health care costs were updated to reflect recent experience.
- The trend assumptions were revised to better reflect current experience and future expectations.
- The mortality assumptions were updated for both Teachers and Non-Teachers. These updates are consistent with similar plans and recent companion pension valuations and better reflect current experience and future expectations.

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 20 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

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