

# Town of Orleans

**Actuarial Valuation and Review of Other  
Postemployment Benefits (OPEB) as of June 30, 2020  
and Governmental Accounting Standards Board  
(GASB) Statements No. 74 and 75 Accounting  
Valuation Report for Reporting Date June 30, 2021**



This report has been prepared at the request of the Town of Orleans to assist in administering the Plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Town of Orleans 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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December 9, 2021

Ms. Cathy Doane  
Town Accountant  
Town of Orleans  
19 School Road  
Orleans, MA 02653

Dear Ms. Doane:

We are pleased to submit this report on our actuarial valuation of postemployment welfare benefits as of June 30, 2020. The purpose of this report is to calculate an Actuarially Determined Contribution for the Town of Orleans Other Postemployment Benefit (OPEB) Plan for the fiscal year ending June 30, 2021. It contains the actuarial information that will need to be disclosed in order to comply with Governmental Accounting Standards Board (GASB) Statements No. 74 and 75 as of June 30, 2021 and also summarizes the actuarial data used in the valuation.

This report is based on information received from the Town of Orleans and vendors employed by the Town of Orleans. 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.

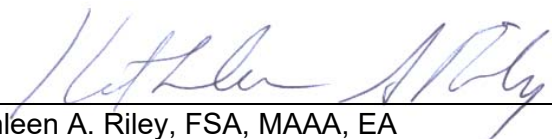
The measurements shown in this actuarial valuation may not be applicable for other purposes. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security at termination of the plan, or determining short-term cash flow requirements.

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.

The actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. The actuarial calculations were directed under our supervision. We 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, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Town of Orleans are reasonably related to the experience of and the expectations for the Plan.

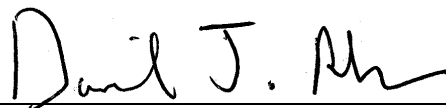
We look forward to discussing this with you at your convenience. Once you've reviewed this report, please send a copy (preferably the electronic version) to Jim Lamenzo at PERAC. His email address is [jlamenzo@per.state.ma.us](mailto:jlamenzo@per.state.ma.us).

Sincerely,  
Segal



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Kathleen A. Riley, FSA, MAAA, EA  
Senior Vice President and Actuary



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Daniel J. Rhodes, FSA, MAAA  
Vice President and Consulting Actuary

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# Section 1: Executive Summary

## Purpose

This report presents the results of our actuarial valuation of the postemployment welfare benefit program for certain towns, school districts and other member units in Barnstable County as of June 30, 2020. The purpose of this report is to calculate a recommended Actuarially Determined Contribution for the Other Postemployment Benefits (OPEB) plan for the fiscal year ending June 30, 2021 and to present certain disclosure information for the Town of Orleans (the “Employer”) OPEB plan and the Town of Orleans OPEB Trust (the “Plan”) as of June 30, 2021, required by Governmental Accounting Standards Board (GASB) Statements No. 74 and 75. 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. This report is based on:

- The benefit provisions of the OPEB plan, as administered by the Town of Orleans;
- The characteristics of covered active members, retired members and beneficiaries as of June 30, 2020, provided by the Town of Orleans;
- Economic assumptions regarding future salary increases and investment earnings;
- The assets as of June 30, 2020;
- Health care assumptions regarding per capita costs, trend rates and participation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

## Valuation approach

We completed an actuarial valuation of the postemployment welfare benefit program for certain towns, school districts and other member units in Barnstable County as of June 30, 2020. With the exception of the retired teachers who receive retiree health benefits through the Group Insurance Commission, per capita claims costs were based on the insured premium rates charged by the Cape Cod Municipal Health Group (CCMHG). Per capita claims costs for retired teachers participating in the Group Insurance Commission’s (GIC) Retired Municipal Teachers plans were taken from the June 30, 2020 Commonwealth of Massachusetts Postemployment Benefit Plans Other than Pensions GASB Statement No. 74 Valuation Report, dated January 2021, completed by Deloitte Consulting. Trend assumptions were established separately for the retirees in the CCMHG and retired teachers in the GIC. Detailed information on the development of the per capita claims costs, the trend, and assumptions related to elections and enrollment are included in Section 3.

## Section 1: Executive Summary

The demographic assumptions used in the valuation are the same as used in the Barnstable County Retirement Association Actuarial Valuation as of January 1, 2020, dated July 20, 2020, completed by Segal, and the Massachusetts Teachers' Retirement System Actuarial Valuation Report as of January 1, 2021, dated November 4, 2021, completed by PERAC, and are summarized in Section 3. The mortality assumptions for teachers included in this valuation have been updated to the most recent public plans mortality tables released by the Society of Actuaries.

The discount rate used to determine the Actuarially Determined Contribution (ADC) for fiscal 2021 is equal to the expected return on assets. Based on the investment allocation of the OPEB Trust, we have lowered the expected return on assets from 7.25% to 7.00%. The amortization payment on the unfunded actuarial accrued liability (UAAL) included in the ADC is based on a 26-year amortization period, with payments increasing 3.25% per year.

GASB 74 and 75 specify that the discount rate to be used is a blend of the long-term expected rate of return on OPEB Trust assets and a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher. The blending is based on the sufficiency of projected assets to make projected benefit payments. The applicable municipal bond index was 2.21% as of June 30, 2020 and 2.16% as of June 30, 2021.

Based on the Town of Orleans's Trust assets, funding policy to contribute \$450,000 per year, and projected benefit payments, projected assets are expected to be sufficient to make projected benefit payments. Therefore, a 7.0% discount rate was used to determine the total OPEB liability as of June 30, 2021. A projection of the ADC appears on page 10.

The long term impact of the Coronavirus (COVID-19) pandemic is still unknown. Our results do not include the impact of the following:

- Direct or indirect effects of COVID-19 on short-term health plan costs
- Short-term or long-term impacts on mortality of the covered population
- The potential for federal or state fiscal relief

Section 2 summarizes the participant data used in the current and prior valuations and the liabilities that are used to determine the fiscal 2019 and 2021 ADC.

Section 3 includes the information required under GASB 74 and 75.

Section 4 includes a summary of the assumptions and methods used in the valuation and a summary of the benefits reflected in the valuation.

## Section 1: Executive 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.

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.

## Section 1: Executive 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 (“Segal”) relies on a number of input items. These include:

<b>Plan of benefits</b>	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 Town of Orleans 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.
<b>Participant data</b>	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.
<b>Assets</b>	The valuation is based on the market value of assets as of the valuation date, as provided by the Town of Orleans.
<b>Actuarial assumptions</b>	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: Executive Summary

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 Town of Orleans. 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 Town of Orleans 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 cost 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 Town of Orleans 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 Town of Orleans upon delivery and review. The Town of Orleans 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: Valuation Results

## Summary of valuation results

	7.00% Discount Rate June 30, 2020	7.25% Discount Rate June 30, 2018
<b>Actuarial Accrued Liability by Participant Category</b>		
1. Current retirees, beneficiaries and dependents	\$9,484,929	\$9,148,123
2. Current active members	<u>10,338,808</u>	<u>10,452,058</u>
3. Total as of June 30: (1) + (2)	\$19,823,737	\$19,600,181
4. Actuarial value of assets as of June 30	<u>2,130,786</u>	<u>1,113,823</u>
5. Unfunded actuarial accrued liability (UAAL) as of June 30: (3) - (4)	\$17,692,951	\$18,486,358
<b>Actuarially Determined Contribution for Fiscal Year Ending June 30</b>		
	<b>2021</b>	<b>2019</b>
6. Normal cost, adjusted for timing	\$662,784	\$615,340
7. Amortization payment, adjusted for timing	<u>1,061,095</u>	<u>1,090,084</u>
8. Total Actuarially Determined Contribution (ADC): (6) + (7)	\$1,723,879	\$1,705,424
9. Projected benefit payments	887,978	894,976
<b>Actuarially Determined Contribution for Fiscal Year Ending June 30</b>		
	<b>2022</b>	<b>2020</b>
10. Normal cost, adjusted for timing	\$685,351	\$635,339
11. Amortization payment, adjusted for timing	<u>1,095,581</u>	<u>1,125,512</u>
12. Total Actuarially Determined Contribution (ADC): (10) + (11)	\$1,780,932	\$1,760,851
13. Projected benefit payments	1,027,702	977,606

**Notes:**

Adjustment for timing assumes payment in the middle of the year.

Amortization payments for fiscal 2019 and 2020 are 28-year and 27-year payments, respectively, increasing 3.25% per year.

Amortization payments for fiscal 2021 and 2022 are 26-year and 25-year payments, respectively, increasing 3.25% per year.

## Section 2: Valuation Results

### Summary of participant data

	June 30, 2020	June 30, 2018
<b>Active employees covered for medical benefits</b>		
Number of employees		
• Male	81	75
• Female	<u>71</u>	<u>63</u>
• Total	152	138
Average age	50.5	50.3
Average service	13.0	13.7
<b>Retired employees, spouses and beneficiaries covered for medical benefits</b>		
Number of individuals	162	153
Average age	71.6	70.9

Note:

The counts reflect retired employees, spouses and beneficiaries covered for medical benefits as of June 30, 2020 and June 30, 2018 and does not include retirees, if any, eligible for life insurance benefits only.

# Section 3: GASB Information

## General information about the OPEB plan

### Plan Description

*Plan membership.* At June 30, 2020, the Town of Orleans’s plan membership consisted of the following:

	<b>June 30, 2020</b>
<b>Retired members or beneficiaries currently receiving benefits</b>	162
<b>Active members</b>	<u>152</u>
<b>Total</b>	314

We have assumed other general information about the Plan will be provided by the Town of Orleans’s auditors.

## Section 3: GASB Information

### Net OPEB liability

The components of the net OPEB liability of the Town of Orleans are as follows:

Components of the Net OPEB Liability	June 30, 2021	June 30, 2020
Total OPEB Liability	\$20,359,358	\$21,175,778
Plan Fiduciary Net Position	3,322,258	2,130,786
Net OPEB Liability	17,037,100	19,044,992
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability*	16.32%	10.06%

\* These funded percentages are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for or the amount of future contributions.

*Actuarial assumptions.* The Total OPEB Liability as of June 30, 2021 was measured by an actuarial valuation as of June 30, 2020, using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

<b>Wage inflation</b>	3.25%
<b>Salary increases</b>	<ul style="list-style-type: none"> <li>• Service-related increases for Group 1 (excluding Teachers) and Group 2 employees: 6.0% decreasing over 11 years to an ultimate level of 4.0%</li> <li>• Service-related increases for Group 4 employees: 7.0% decreasing over 8 years to an ultimate level of 4.5%</li> <li>• Service-related increases for Teachers: 7.5% decreasing over 20 years to an ultimate level of 4.0%</li> </ul>
<b>Discount rate</b>	7.0% as of June 30, 2021 and 7.25% as of June 30, 2020
<b>Investment rate of return</b>	7.0% as of June 30, 2021 and 7.25% as of June 30, 2020

## Section 3: GASB Information

### Health care cost trend rates

- CCMHG:
    - Non-Medicare\*: 2.50% for 1 year, then 6.75% decreasing by 0.25% each year to an ultimate level of 4.50% per year
    - Medicare\*: 2.50% for 1 year, then 6.75% decreasing by 0.25% each year to an ultimate level of 4.50% per year
  - GIC:
    - Non-Medicare: 6.60%, 6.50%, 6.40%, 6.20%, then 6.00% decreasing by 0.25% each year to an ultimate level of 4.50% per year
    - Medicare: 4.80%, 4.70%, 4.60%, 4.70%, then 6.00% decreasing by 0.25% each year to an ultimate level of 4.50% per year
  - Dental: 3.00%
  - Part B\*: 8.70% for 1 year, then 4.50%
  - Contributions: Retiree contributions are expected to increase with respective trend shown above.
- \*First year trends reflect known increases

### Mortality rates

- Preretirement mortality rates:
  - Healthy Non-Teachers: RP-2014 Blue Collar Employee Mortality Table projected generationally with Scale MP-2017
  - Healthy Teachers: Pub-2010 Teachers Employee Headcount-Weighted Mortality Table projected generationally with Scale MP-2020
- Postretirement mortality rates:
  - Healthy Non-Teachers: RP-2014 Blue Collar Healthy Annuitant Mortality Table projected generationally with Scale MP-2017
  - Healthy Teachers: Pub-2010 Teacher Healthy Retiree Headcount-Weighted Mortality Table projected generationally with Scale MP-2020
  - Disabled Non-Teachers: RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally with Scale MP-2017
  - Disabled Teachers: Pub-2010 Teacher Healthy Retiree Headcount-Weighted Mortality Table projected generationally with Scale MP-2020

## Section 3: GASB Information

### Determination of discount rate and investment rate of return

#### Development of long-term rate

The long-term expected rate of return on OPEB plan investments was determined using a building block method in which expected future rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the 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. The target allocation as of June 30, 2021 and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	22.00%	6.28%
International developed markets equity	12.00%	7.00%
International emerging markets equity	5.00%	8.82%
Core fixed income	15.00%	0.38%
High-yield fixed income	8.00%	2.97%
Real estate	10.00%	3.50%
Commodities	4.00%	3.45%
Hedge fund, GTAA, Risk parity	10.00%	2.35%
Private equity	<u>14.00%</u>	10.11%
Total	100.00%	

Notes:

Some asset classes included in the target asset allocation have been combined.  
Target allocation of assets invested in the State Retiree Benefits Trust Fund.

Nature of Assets: The assets are in an irrevocable OPEB Trust and the majority are invested in the State Retiree Benefits Trust Fund.

#### Development of blended discount rate

The discount rate used to measure the total OPEB liability was 7.00% as of June 30, 2021. The OPEB plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investment was applied to all periods of projected benefit payments to determine the total OPEB liability.

## Section 3: GASB Information

### Sensitivity

The following presents the NOL of the Town of Orleans as well as what the NOL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.0%) or 1-percentage-point higher (8.0%) than the current rate. Also, shown is the NOL as if it were calculated using health care cost trend rates that were 1-percentage-point lower or 1-percentage-point higher than the current health care cost trend rates.

	<b>1% Decrease (6.0%)</b>	<b>Current Discount Rate (7.0%)</b>	<b>1% Increase (8.0%)</b>
Net OPEB Liability (Asset)	\$19,475,067	\$17,037,100	\$14,993,326
	<b>1% Decrease in Health Care Cost Trend Rates</b>	<b>Current Health Care Cost Trend Rates</b>	<b>1% Increase in Health Care Cost Trend Rates</b>
Net OPEB Liability (Asset)	\$14,610,082	\$17,037,100	\$19,995,896



## Section 3: GASB Information

### Schedule of changes in net OPEB liability – last two fiscal years

Reporting Date for Employer under GASB 75	June 30, 2021	June 30, 2020
Measurement Date for Employer under GASB 75	June 30, 2021	June 30, 2020
<b>Total OPEB Liability</b>		
Service cost	\$604,258	\$613,489
Interest	1,547,427	1,512,081
Changes of benefit terms	0	0
Differences between expected and actual experience	95,988	0
Changes of assumptions	-2,176,115	-703,785
Benefit payments, including refunds of member contributions	-887,978	-977,606
Net change in Total OPEB Liability	-816,420	\$444,179
Total OPEB Liability – beginning	<u>21,175,778</u>	<u>20,731,599</u>
Total OPEB Liability – ending	\$20,359,358	\$21,175,778
<b>Plan Fiduciary Net Position</b>		
Contributions – employer	\$1,337,978	\$1,427,606
Contributions – employee	0	0
Net investment income	741,472	36,081
Benefit payments, including refunds of member contributions	-887,978	-977,606
Administrative expenses	<u>0</u>	<u>0</u>
Net change in Plan Fiduciary Net Position	\$1,191,472	\$486,081
Plan Fiduciary Net Position – beginning	<u>2,130,786</u>	<u>1,644,705</u>
Plan Fiduciary Net Position – ending	\$3,322,258	\$2,130,786
Net OPEB Liability – ending	17,037,100	19,044,992
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	16.32%	10.06%
Covered employee payroll	N/A	N/A
Plan Net OPEB Liability as percentage of covered employee payroll	N/A	N/A

Note:

Please enter covered payroll for missing years.

## Section 3: GASB Information

### Notes to schedule:

#### Changes in Actuarial Assumptions:

Changes as of June 30, 2020:

- This valuation includes the repeal of the excise tax on high cost health plans, which was effective December 20, 2019.

Changes as of June 30, 2021:

- Per capita health costs, contributions, and trends for CCMHG retirees were updated to reflect current experience and future expectations.
- Per capita health costs, contributions and trends for GIC retirees were updated based on June 30, 2020 Commonwealth of Massachusetts Postemployment Benefit Other than Pensions GASB Statement No. 74 Valuation Report, dated January 2021, completed by Deloitte Consulting.
- The mortality assumption for Teachers was updated to be consistent with the companion pension fund.
- The Medicare enrollment assumption for Town of Eastham, Town of Mashpee, Cotuit Fire Department and GIC retirees under age 65 and future retirees was updated.
- The life insurance enrollment for future retirees was updated, if applicable.
- The discount rate was updated from 7.25% as of June 30, 2020 to 7.00% as of June 30, 2021.
- The expected return on assets was lowered from 7.25% to 7.00%

#### Changes in Plan Provisions:

Changes as of June 30, 2020:

- None

Changes as of June 30, 2021:

- None

## Section 3: GASB Information

### OPEB expense

	Reporting Date for Employer under GASB 75	June 30, 2021	June 30, 2020
	Measurement Date for Employer under GASB 75	June 30, 2021	June 30, 2020
<b>Components of OPEB Expense</b>			
Service cost		\$604,258	\$613,489
Interest on the Total OPEB Liability		1,547,427	1,512,081
Current-period benefit changes		0	0
Expensed portion of current-period difference between expected and actual experience in the Total OPEB Liability		15,998	0
Expensed portion of current-period changes of assumptions		-362,685	-117,295
Member contributions		0	0
Projected earnings on OPEB plan investments		-170,794	-135,554
Expensed portion of current-period differences between actual and projected earnings on OPEB plan investments		-114,134	19,893
Administrative expenses		0	0
Recognition of beginning of year deferred outflows of resources as OPEB expense		596,632	576,737
Recognition of beginning of year deferred inflows of resources as OPEB expense		-1,562,875	-1,445,577
OPEB Expense		\$553,827	\$1,023,774

## Section 3: GASB Information

### Deferred outflows of resources and deferred inflows of resources

Reporting Date for Employer under GASB 75	June 30, 2021	June 30, 2020
Measurement Date for Employer under GASB 75	June 30, 2021	June 30, 2020
<b>Deferred Outflows of Resources</b>		
Changes of assumptions	\$0	\$0
Net difference between projected and actual earnings on OPEB plan investments	0	72,885
Difference between expected and actual experience in the Total OPEB Liability	<u>1,226,992</u>	<u>1,720,502</u>
Total Deferred Outflows of Resources	\$1,226,992	\$1,793,387
<b>Deferred Inflows of Resources</b>		
Changes of assumptions	\$5,149,227	\$4,886,396
Net difference between projected and actual earnings on OPEB plan investments	394,515	0
Difference between expected and actual experience in the Total OPEB Liability	<u>0</u>	<u>0</u>
Total Deferred Inflows of Resources	\$5,543,742	\$4,886,396
<b>Deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized as follows:</b>		
Reporting Date for Employer under GASB 75 Year Ended June 30:		
2021	N/A	-\$966,243
2022	-\$1,418,919	-958,095
2023	-1,414,794	-953,970
2024	-558,227	-97,403
2025	-578,122	-117,298
2026	-346,688	0
Thereafter	0	0

Note: Average expected remaining service lives as of June 30, 2020 is 6 years.

## Section 3: GASB Information

### Schedule of reconciliation of net OPEB liability

Measurement Date	June 30, 2021	June 30, 2020
Beginning Net OPEB Liability	\$19,044,992	\$19,086,894
OPEB expense	553,827	1,023,774
Employer contributions	-1,337,978	-1,427,606
New net deferred inflows/outflows	-2,189,984	-506,910
Recognition of prior deferred inflows/outflows	<u>966,243</u>	<u>868,840</u>
Ending Net OPEB Liability	\$17,037,100	\$19,044,992

## Section 3: GASB Information

### Schedule of contributions – last ten fiscal years

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution	Contribution Deficiency / (Excess)	Covered- Employee Payroll	Contributions as a Percentage of Covered Employee Payroll
2017	\$1,237,882	\$666,195	\$571,687	N/A	N/A
2018	1,281,208	713,323	567,885	N/A	N/A
2019	1,705,424	1,151,806	553,618	N/A	N/A
2020	1,760,851	1,427,606	333,245	N/A	N/A
2021	1,723,879	1,337,978	385,901	N/A	N/A

Note:

Please enter covered payroll for the missing years shown.

#### Notes to Schedule:

#### Methods and assumptions used to establish “actuarially determined contribution” rates:

<b>Valuation date</b>	Actuarially determined contribution for 2021 was determined with the June 30, 2020 actuarial valuation.
<b>Actuarial cost method</b>	Entry Age Normal - Level Percentage of Payroll
<b>Amortization method</b>	Level percent of payroll - payments increase 3.25% per year
<b>Remaining amortization period</b>	26 years from July 1, 2020
<b>Asset valuation method</b>	Market value
<b>Investment rate of return</b>	7.0%
<b>Wage inflation</b>	3.25%

## Section 3: GASB Information

### Health care trend cost rates

- CCMHG:
  - Non-Medicare\*: 2.50% for 1 year, then 6.75% decreasing by 0.25% each year to an ultimate level of 4.50% per year
  - Medicare\*: 2.50% for 1 year, then 6.75% decreasing by 0.25% each year to an ultimate level of 4.50% per year
- GIC:
  - Non-Medicare: 6.60%, 6.50%, 6.40%, 6.20%, then 6.00% decreasing by 0.25% each year to an ultimate level of 4.50% per year
  - Medicare: 4.80%, 4.70%, 4.60%, 4.70%, then 6.00% decreasing by 0.25% each year to an ultimate level of 4.50% per year
- Dental: 3.00%
- Part B\*: 8.70% for 1 year, then 4.50%
- Contributions: Retiree contributions are expected to increase with respective trend shown above.

\*First year trends reflect known increases

### Mortality rates

- Preretirement mortality rates:
  - Healthy Non-Teachers: RP-2014 Blue Collar Employee Mortality Table projected generationally with Scale MP-2017
  - Healthy Teachers: Pub-2010 Teachers Employee Headcount-Weighted Mortality Table projected generationally with Scale MP-2020
- Postretirement mortality rates:
  - Healthy Non-Teachers: RP-2014 Blue Collar Healthy Annuitant Mortality Table projected generationally with Scale MP-2017
  - Healthy Teachers: Pub-2010 Teacher Healthy Retiree Headcount-Weighted Mortality Table projected generationally with Scale MP-2020
  - Disabled Non-Teachers: RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally with Scale MP-2017
  - Disabled Teachers: Pub-2010 Teacher Healthy Retiree Headcount-Weighted Mortality Table projected generationally with Scale MP-2020

# Section 4: Supplemental Information

## Exhibit I – Statements of Actuarial Assumption, Methods and Models

<b>Data:</b>	Detailed census data, claims experience, premium rates, and summary plan descriptions for postemployment welfare benefits were provided by the employers.
<b>Actuarial Cost Method:</b>	Entry Age Normal – Level percentage of payroll
<b>Per Capita Cost Development: CCMHG Retirees</b>	<p>Medical and Prescription Drug: Per capita claims costs were based on the funding rates charged by the Cape Cod Municipal Health Group to the member units for the period July 1, 2020 through June 30, 2021. (The Medicare plans renew on January 1, so the costs for these plans were based on the average of the calendar year 2020 and 2021 premium rates.) Premiums were combined by taking a weighted average based on the number of participants in each plan. Actuarial factors were applied to the premium to estimate individual retiree and spouse costs by age and by gender.</p> <p>Dental: Per capita claims costs were based on the Delta Dental funding rates charged by the CCMHG to the member units for the period July 1, 2020 through June 30, 2021.</p> <p>Segal did not review the accuracy of the underlying claims experience.</p>
<b>Per Capita Cost Development: Retired GIC Teachers from the Towns of Barnstable, Eastham, Wellfleet and Upper Cape Cod RTS</b>	<p>Per capita costs for retired Teachers participating in the Group Insurance Commission’s (GIC) Retired Municipal Teachers plan were taken from the June 30, 2020 Commonwealth of Massachusetts Postemployment Benefit Plans Other than Pensions GASB Statement No. 74 Valuation Report, dated January 2021, completed by Deloitte Consulting. Costs for each plan offering were combined by taking a weighted average based on the number of participants enrolled in each plan, and were then trended to the midpoint of the valuation year at assumed trend rates.</p> <p>Segal did not review the accuracy of the costs or the underlying claims experience.</p>
<b>Valuation Date:</b>	June 30, 2020
<b>Roll-Forward Technique:</b>	The liabilities as of June 30, 2020 were adjusted forward using standard actuarial techniques to determine the Total OPEB Liability as of the June 30, 2021 measurement date.
<b>Expected Return on Assets:</b>	<p>7.0% (previously 7.25%)</p> <p>The long-term expected rate of return on OPEB investments 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.</p>
<b>Discount Rate:</b>	<p>7.0% as of June 30, 2021 and 7.25% as of June 30, 2020</p> <p>The discount rate is equal to the expected return on assets.</p>



## Section 4: Supplemental Information

Salary Increases:	Rate per year (%)		
	Years of Service	Groups 1 and 2	Group 4
0	6.00	7.00	7.50
1	5.50	6.50	7.10
2	5.50	6.00	7.00
3	5.25	5.75	6.90
4	5.25	5.25	6.80
5	4.75	5.25	6.70
6	4.75	4.75	6.60
7	4.50	4.75	6.50
8	4.50	4.50	6.30
9	4.25	4.50	6.10
10	4.25	4.50	5.90
11	4.00	4.50	5.70
12	4.00	4.50	5.20
13	4.00	4.50	4.70
14	4.00	4.50	4.35
15-16	4.00	4.50	4.20
17-19	4.00	4.50	4.10
20 and later	4.00	4.50	4.00

Includes an allowance for inflation of 3.25%

Pre-Retirement Mortality Rates:	
	Healthy Non-Teachers: RP-2014 Blue Collar Employee Mortality Table projected generationally with Scale MP-2017
	Healthy Teachers: Healthy Teachers: Pub-2010 Teacher Employee Headcount-Weighted Mortality Table projected generationally with Scale MP-2020 (previously, RP-2014 White Collar Employee Mortality Table projected generationally with Scale MP-2016)

## Section 4: Supplemental Information

### Postretirement Mortality Rates:

Healthy Non-Teachers: RP-2014 Blue Collar Healthy Annuitant Mortality Table projected generationally with Scale MP-2017

Healthy Teachers: Pub-2010 Teacher Healthy Retiree Headcount-Weighted Mortality Table projected generationally with Scale MP-2020 (previously, RP-2014 White Collar Healthy Annuitant Mortality Table projected generationally with Scale MP-2016)

Disabled Non-Teachers: RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2017

Disabled Teachers: Pub-2010 Teacher Healthy Retiree Headcount-Weighted Mortality Table projected generationally with Scale MP-2020 (previously, RP-2014 White Collar Healthy Annuitant Mortality Table projected generationally with Scale MP-2016)

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 generational projection to reflect future mortality improvement between the measurement date and those years.

### Non-Teacher Annuitant Mortality Rates:

Age	Rate per year (%)			
	Healthy		Disability	
	Male	Female	Male	Female
60	0.85	0.57	0.91	0.62
70	1.97	1.40	2.16	1.54
80	5.19	3.82	5.74	4.24
90	14.64	11.19	16.18	12.43

Note:  
Mortality rates do not reflect generational projection.

## Section 4: Supplemental Information

### Teacher Annuitant Mortality Rates:

Age	Teachers – Rate per year (%)							
	Healthy				Disabled			
	Current		Previously		Current		Previously	
	Male	Female	Male	Female	Male	Female	Male	Female
60	0.42	0.32	0.52	0.39	0.42	0.32	1.02	0.74
70	1.16	0.80	1.24	1.06	1.16	0.80	2.43	1.90
80	4.09	2.88	3.73	3.04	4.09	2.88	6.93	5.40
90	13.75	10.40	12.62	10.02	13.75	10.40	20.11	16.30

Note:  
Mortality rates do not reflect generational projection.

### Termination Rates Before Retirement:

Age	Groups 1 and 2 (excluding Teachers) - Rate per year (%)		
	Male	Female	Disability
20	0.05	0.02	0.01
25	0.06	0.02	0.02
30	0.06	0.02	0.03
35	0.07	0.03	0.06
40	0.08	0.04	0.10
45	0.13	0.07	0.15
50	0.22	0.12	0.19
55	0.36	0.19	0.24
60	0.61	0.27	0.28

Notes:  
Mortality rates do not reflect generational projection.  
55% of the rates shown represent accidental disability and death.

## Section 4: Supplemental Information

Age	Group 4 – Rate per year (%)		
	Male	Female	Disability
20	0.05	0.02	0.10
25	0.06	0.02	0.20
30	0.06	0.02	0.30
35	0.07	0.03	0.30
40	0.08	0.04	0.30
45	0.13	0.07	1.00
50	0.22	0.12	1.25
55	0.36	0.19	1.20
60	0.61	0.27	0.85

**Notes:**

Mortality rates do not reflect generational projection.

90% of the rates shown represent accidental disability and death.

## Section 4: Supplemental Information

Teachers – Rate per year (%)					
Mortality					
Age	Current		Previous		Disability
	Male	Female	Male	Female	
20	0.04	0.01	0.03	0.01	0.00
25	0.02	0.01	0.03	0.01	0.01
30	0.03	0.02	0.03	0.02	0.01
35	0.04	0.02	0.04	0.02	0.01
40	0.05	0.03	0.04	0.03	0.01
45	0.08	0.05	0.07	0.06	0.03
50	0.13	0.08	0.12	0.09	0.05
55	0.19	0.12	0.20	0.14	0.07
60	0.29	0.18	0.33	0.21	0.07

**Notes:**

Mortality rates do not reflect generational projection.

35% of the death rates shown represent accidental death.

75% of the disability rates shown represent accidental disability.

## Section 4: Supplemental Information

### Withdrawal Rates:

Rate per year (%)			
Years of Service	Groups 1 and 2	Years of Service	Group 4
0	15.0	0 – 10	1.5
1	12.0	11+	0.0
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 4: Supplemental Information

Age	Teachers - 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 4: Supplemental Information

### Retirement Rates:

Age	Rate per year (%)		
	Groups 1 and 2		Group 4
	Male	Female	
45 – 49	--	--	1.0
50 – 51	1.0	1.5	2.0
52	1.0	2.0	2.0
53	1.0	2.5	5.0
54	2.0	2.5	7.5
55	2.0	5.5	15.0
56 – 57	2.5	6.5	10.0
58	5.0	6.5	10.0
59	6.5	6.5	15.0
60	12.0	5.0	20.0
61	20.0	13.0	20.0
62	30.0	15.0	25.0
63	25.0	12.5	25.0
64	22.0	18.0	30.0
65	40.0	15.0	100.0
66 – 67	25.0	20.0	--
68	30.0	25.0	--
69	30.0	20.0	--
70	100.0	100.0	--



## Section 4: Supplemental Information

Age	Teachers - 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, 65% were assumed to have an eligible spouse who also opts for health coverage at that time.

## Section 4: Supplemental Information

### Per Capita Health Costs:

Fiscal year 2020 – 2021 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. Fiscal year 2020 – 2021 dental cost for CCMHG retirees is \$570.

CCMHG								
Age	Non-Medicare Plans				Medicare Plans			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
45	\$9,922	\$12,446	\$6,154	\$9,290	N/A	N/A	N/A	N/A
50	11,776	13,413	8,225	10,770	N/A	N/A	N/A	N/A
55	13,985	14,439	11,007	12,466	N/A	N/A	N/A	N/A
60	16,608	15,563	14,735	14,458	N/A	N/A	N/A	N/A
65	19,725	16,766	19,725	16,766	\$4,198	\$3,568	\$4,198	\$3,568
70	22,861	18,068	22,861	18,068	4,865	3,845	4,865	3,845
75	24,637	19,449	24,637	19,449	5,243	4,139	5,243	4,139
80	26,530	20,968	26,530	20,968	5,646	4,462	5,646	4,462

GIC Plans		
Age	Retiree and Spouse, Male and Female	
	Non-Medicare Plans	Medicare Plans
45	\$6,765	N/A
50	8,250	N/A
55	10,131	N/A
60	12,382	N/A
65	15,472	\$3,716
70	18,589	4,106
75	22,015	4,431
80	25,584	4,669

Costs for GIC Plans were blended based on current plan enrollment: for non-Medicare plans 80% Indemnity/ 12% PPO/ 8% HMO; for Medicare plans 100% Indemnity/ 0% HMO.

## Section 4: Supplemental Information

**Weighted Average Annual Retiree Contribution Amount:**

**CCMHG**

Non-Medicare Plans	\$13,704
Medicare Plans	\$4,087

Cost-sharing for CCMHG retirees is based on retiree contribution percentages provided by each member unit and applied to the weighted average annual retiree contribution amount listed above. The weighted average annual retiree contribution amount for CCMHG plans was based on current enrollment in each plan using the July 1, 2020 premium rates.

**GIC Plans - Teachers**

Non-Medicare Plans	\$13,226
Medicare Plans	\$4,844

Cost-sharing for GIC retired Teachers is based on date of retirement and applied to the weighted average annual retiree contribution amount listed above. The weighted average annual retiree contribution amount for GIC plans was based on current enrollment in each plan using an average of the July 1, 2019 and July 1, 2020 premium rates, trended forward to July 1, 2020 at assumed trend rates, consistent with how per capita costs were developed, per the Commonwealth GASB 74 report.

## Section 4: Supplemental 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 June 30	Rate (%)					
	Medical/Prescription Drug				Dental (CCMHG)	Part B
	CCMHG		GIC			
	Non-Medicare	Medicare	Non-Medicare	Medicare		
2021*	2.50	2.50	6.60	4.80	3.00	8.70
2022	6.75	6.75	6.50	4.70	3.00	4.50
2023	6.50	6.50	6.40	4.60	3.00	4.50
2024	6.25	6.25	6.20	4.70	3.00	4.50
2025	6.00	6.00	6.00	6.00	3.00	4.50
2026	5.75	5.75	5.75	5.75	3.00	4.50
2027	5.50	5.50	5.50	5.50	3.00	4.50
2028	5.25	5.25	5.25	5.25	3.00	4.50
2029	5.00	5.00	5.00	5.00	3.00	4.50
2030	4.75	4.75	4.75	4.75	3.00	4.50
2031	4.50	4.50	4.50	4.50	3.00	4.50
2032 & later	4.50	4.50	4.50	4.50	3.00	4.50

The trend rate assumptions were developed using Segal’s internal guidelines, which are established each year using data sources such as the 2021 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.

Trend assumptions for the first 4 years of the GIC Plans are the same as the rates used in the June 30, 2020 Commonwealth of Massachusetts Postemployment Benefit Other than Pensions GASB Statement No. 74 Valuation Report, dated January 2021, completed by Deloitte Consulting.

\* reflects known increases in CCMHG and Part B premium rates.

### Retiree Contribution Increase Rate:

Retiree contributions for medical and prescription drug coverage are expected to increase with medical trend.

## Section 4: Supplemental Information

### Participation and Coverage Election:

100% of active employees with coverage are assumed to elect retiree coverage.

100% of retirees over age 65 are assumed to remain in their current medical plan for life and continue dental and life insurance coverage, if elected.

70% (previously 50%) of future retirees with medical coverage are assumed to have life insurance coverage, and 90% are assumed to have dental benefits if the retirees are eligible for those benefits according to unit.

The following is the assumed plan enrollment for current retirees under age 65 and future retirees hired prior to 1986 upon reaching age 65:

	Enrolled in Medicare Plan (%)	Enrolled in Non- Medicare Plan (%)
Towns of Chatham, Falmouth, and Wellfleet	90	10
Towns of Dennis, Harwich, Orleans, Provincetown, and Dennis-Yarmouth Regional School District	95	5
All other member units	100	--
GIC Retired Teachers	95	5

Town of Eastham and Town of Mashpee: previously 95% enrolled in Medicare and 5% enrolled in Non-Medicare.

Cotuit Fire Department and GIC retired teachers: previously 90% enrolled in Medicare and 10% enrolled in Non-Medicare.

### Plan Design:

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

### Administrative Expenses:

Administrative expenses for insured plans were 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 those previously adopted as of the valuation date.

## Section 4: Supplemental Information

### **Demographic and Salary Increase Assumptions:**

Many of the demographic assumptions for non-teachers used in this valuation (including mortality, disability, turnover and retirement) and the salary increase assumption are the same as used in the Barnstable County Retirement Association Actuarial Valuation as of January 1, 2020, dated July 20, 2020, completed by Segal, and the Massachusetts 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 and enrollment elections, were based on the experience of the Plan and the experience of similar plans.

### **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:

- Per capita health costs, contributions, and trends for CCMHG retirees were updated.
- Per capita health costs, contributions and trends for GIC retirees were updated based on June 30, 2020 Commonwealth of Massachusetts Postemployment Benefit Other than Pensions GASB Statement No. 74 Valuation Report, dated January 2021, completed by Deloitte Consulting.
- The mortality assumption for Teachers was updated to be consistent with the companion pension fund.
- The Medicare enrollment assumption for Town of Eastham, Town of Mashpee, Cotuit Fire Department and GIC retirees under age 65 and future retirees was updated.
- The life insurance enrollment for future retirees was updated, if applicable.
- The discount rate was updated from 7.25% as of June 30, 2020 to 7.00% as of June 30, 2021.
- The expected return on assets was lowered from 7.25% to 7.00%

## Section 4: Supplemental Information

### Exhibit II – 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.

<b>Eligibility:</b>	<p>Retired and receiving a pension from the Barnstable County Retirement Association, the Falmouth Retirement System or the Massachusetts Teachers' Retirement System.</p> <ul style="list-style-type: none"><li>• Members hired before April 2, 2012<ul style="list-style-type: none"><li>– Group 1 and Group 2 (including Teachers):<ul style="list-style-type: none"><li>• Retirees with at least 10 years of creditable service are eligible at age 55;</li><li>• Retirees with at least 20 years of creditable service are eligible at any age.</li></ul></li><li>– Group 4<ul style="list-style-type: none"><li>• Retirees are eligible at age 55;</li><li>• Retirees with at least 20 years of creditable service are eligible at any age.</li></ul></li></ul></li><li>• Members hired on or after April 2, 2012<ul style="list-style-type: none"><li>– Group 1 (including Teachers):<ul style="list-style-type: none"><li>• Retirees with at least 10 years of creditable service are eligible at age 60.</li></ul></li><li>– Group 2<ul style="list-style-type: none"><li>• Retirees with at least 10 years of creditable service are eligible at age 55.</li></ul></li><li>– Group 4<ul style="list-style-type: none"><li>• Retirees are eligible at age 55;</li><li>• Retirees with at least 10 years of creditable service are eligible at age 50.</li></ul></li></ul></li></ul>
<b>Disability:</b>	<p>Accidental (job-related) Disability has no age or service requirement.</p> <p>Ordinary (non-job related) Disability has no age requirement but requires 10 years of creditable service.</p>
<b>Pre-Retirement Death:</b>	<p>Surviving spouses of members who die in active service on Accidental (job-related) Death are eligible at any age.</p> <p>Surviving spouses of members who die in active service on Ordinary (non-job related) Death are eligible after two years of service.</p>
<b>Post-Retirement Death:</b>	<p>Surviving spouse is eligible.</p>

## Section 4: Supplemental Information

Employer Percentage Contribution:	Employer Contribution Percentage							
	Unit	Medical				Dental	Life Insurance	Retiree Life Insurance Benefit
		Retirees and Spouses		Surviving Spouses				
		Under Age 65	Age 65 and Over	Under Age 65	Age 65 and Over			
Barnstable County	75%	75%	75%	75%	75%	75%	\$10,000	
Barnstable Fire District	80%	80%	80%	80%	80%	80%	\$10,000	
Bourne Water District	75%	75%	50%	50%	75%	75%	\$5,000	
Buzzards Bay Water District	75%	75%	75%	75%	75%	75%	\$5,000	
Cape Cod Regional Technical School	65%	65%	65%	65%	65%	99%	\$10,000	
Cape Cod Regional Transit Authority	50-75%	50-75%	50-75%	50-75%	0%	None	None	
C.O.M.M. Fire District	70-90%	80%	70-90%	80%	80%	80%	\$1,000	
Cape Light Compact	75%	75%	75%	75%	75%	None	None	
Cotuit Fire District	75%	75%	0%	0%	75%	75%	\$2,000	
Dennis Water District	75%	75%	50%	50%	75%	75%	\$5,000	
Dennis-Yarmouth Regional School District	60%	60%	0%	0%	60%	60%	\$1,000	
Hyannis Fire District	90%	90%	90%	90%	90%	90%	\$5,000	
Mashpee Water District	75%	75%	75%	75%	75%	None	None	
Monomoy Regional School District	70%	70%	70%	70%	70%	70%	\$5,000	
Nauset Regional School District	50%	50%	50%	50%	0%	50%	\$2,000	
North Sagamore Water District	75%	75%	50%	50%	75%	75%	\$5,000	
Sandwich Water District	90%	90%	90%	90%	90%	90%	\$2,000	
Town of Barnstable	50%	50%	0%	0%	None	50%	\$2,000	
Town of Brewster	50%	50%	50%	50%	0%	50%	\$1,000	
Town of Chatham	50%	50%	50%	50%	50%	50%	\$5,000	
Town of Dennis	60%	60%	50%	50%	60%	60%	\$2,000	
Town of Eastham	65%	65%	65%	65%	65%	50%	\$5,000	
Town of Falmouth	65-75%	50%	65-75%	50%	0%	50%	\$1,000	
Town of Harwich	75%	75%	50%	50%	0%	75%	\$2,000	
Town of Mashpee	75%	75%	75%	75%	0%	75%	\$4,000	
Town of Orleans	65-75%	65-75%	0%	100%	0%	75%	\$2,000	
Town of Provincetown	70-80%	70-80%	0%	0%	None	50%	\$1,000	
Town of Truro	65%	65%	0%	0%	0%	65%	\$1,000	
Town of Wellfleet	50%	50%	50%	50%	0%	50%	\$5,000	
Town of Yarmouth	50%	50%	50%	50%	0%	50%	\$5,000	
Upper Cape Cod Regional Technical School	70%	70%	70%	70%	None	50%	\$10,000	
West Barnstable Fire District	50-75%	50-75%	50-75%	50-75%	50-75%	50-75%	\$2,000	

**Plan Changes Since the Prior Valuation:**

None.



## Section 4: Supplemental Information

<b>Cape Cod Municipal Health Group</b>																																											
<b>Benefit Types:</b>	Medical and prescription drug benefits are provided to all eligible retirees through a variety of plans offered through the Cape Cod Municipal Health Group (CCMHG) provided by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Plan and Tufts Health Plan. The CCMHG also provides contributory and voluntary dental coverage through Delta Dental.																																										
<b>Duration of Coverage:</b>	Lifetime.																																										
<b>Dependent Benefits:</b>	Medical, prescription drug, and dental.																																										
<b>Dependent Coverage:</b>	Benefits are payable to a spouse for their lifetime, regardless of when the retiree dies.																																										
<b>Contribution Rates:</b>	<p>CCMHG current premium rates are summarized below:</p> <table border="1"> <thead> <tr> <th style="text-align: center;">Non-Medicare Plans</th> <th style="text-align: center;">Monthly Premium (Effective July 1, 2020)</th> </tr> </thead> <tbody> <tr> <td colspan="2"><b>BCBS Master Health Plus</b></td> </tr> <tr> <td>• Individual</td> <td style="text-align: right;">\$1,640.00</td> </tr> <tr> <td>• Double</td> <td style="text-align: right;">\$3,285.00</td> </tr> <tr> <td>• Family</td> <td style="text-align: right;">\$4,099.00</td> </tr> <tr> <td colspan="2"><b>BCBS Blue Care Elect Pref. PPO</b></td> </tr> <tr> <td>• Individual</td> <td style="text-align: right;">\$1,121.00</td> </tr> <tr> <td>• Double</td> <td style="text-align: right;">\$2,249.00</td> </tr> <tr> <td>• Family</td> <td style="text-align: right;">\$2,808.00</td> </tr> <tr> <td colspan="2"><b>BCBS Network Blue HMO</b></td> </tr> <tr> <td>• Individual</td> <td style="text-align: right;">\$858.00</td> </tr> <tr> <td>• Double</td> <td style="text-align: right;">\$1,731.00</td> </tr> <tr> <td>• Family</td> <td style="text-align: right;">\$2,303.00</td> </tr> <tr> <td colspan="2"><b>Harvard Pilgrim HMO (EPO)</b></td> </tr> <tr> <td>• Individual</td> <td style="text-align: right;">\$852.00</td> </tr> <tr> <td>• Double</td> <td style="text-align: right;">\$1,704.00</td> </tr> <tr> <td>• Family</td> <td style="text-align: right;">\$2,279.00</td> </tr> <tr> <td colspan="2"><b>Harvard Pilgrim PPO</b></td> </tr> <tr> <td>• Individual</td> <td style="text-align: right;">\$935.00</td> </tr> <tr> <td>• Double</td> <td style="text-align: right;">\$1,870.00</td> </tr> <tr> <td>• Family</td> <td style="text-align: right;">\$2,474.00</td> </tr> </tbody> </table>	Non-Medicare Plans	Monthly Premium (Effective July 1, 2020)	<b>BCBS Master Health Plus</b>		• Individual	\$1,640.00	• Double	\$3,285.00	• Family	\$4,099.00	<b>BCBS Blue Care Elect Pref. PPO</b>		• Individual	\$1,121.00	• Double	\$2,249.00	• Family	\$2,808.00	<b>BCBS Network Blue HMO</b>		• Individual	\$858.00	• Double	\$1,731.00	• Family	\$2,303.00	<b>Harvard Pilgrim HMO (EPO)</b>		• Individual	\$852.00	• Double	\$1,704.00	• Family	\$2,279.00	<b>Harvard Pilgrim PPO</b>		• Individual	\$935.00	• Double	\$1,870.00	• Family	\$2,474.00
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## Section 4: Supplemental Information

<b>Blue Care Elect Preferred PPO (HD)</b>	
• Individual	\$935.00
• Double	\$1,878.00
• Family	\$2,345.00
<b>Network Blue NE HMO</b>	
• Individual	\$718.00
• Double	\$1,450.00
• Family	\$1,927.00
<b>HP HSAQ PPO</b>	
• Individual	\$740.00
• Double	\$1,499.00
• Family	\$1,991.00
<b>HP HSAQ HMO</b>	
• Individual	\$672.00
• Double	\$1,363.00
• Family	\$1,810.00
<b>Delta Dental Premier</b>	
• Individual	\$40.00
• Double	\$79.00
• Family	\$103.00
	<b>Monthly Premium (Effective January 1, 2021)</b>
<b>Tufts Medicare Supplement with PDP Plus</b>	\$428.00
<b>BCBS Medex (EGWP)</b>	\$376.00
<b>HPHC Medicare Enhanced (EGWP)</b>	\$374.00
<b>Managed Blue for Seniors</b>	\$376.00
<b>Medicare HMO Blue</b>	\$410.03
<b>Tufts Medicare Preferred HMO</b>	\$341.00

## Section 4: Supplemental Information

### Employers Participating in the Group Insurance Commission (GIC) for Retired Teachers:

**Benefit Types:** Medical and prescription drug benefits are provided to all eligible retirees through a variety of plans provided through the Commonwealth of Massachusetts GIC.

**Duration of Coverage:** Lifetime.

**Dependent Benefits:** Medical and prescription drug.

**Dependent Coverage:** Benefits are payable to a spouse for their lifetime, regardless of when the retiree dies.

**Contribution Rates:** Current premium rates are summarized below:

Non-Medicare Plans	Monthly Premium (Effective July 1, 2020)	Teachers retired on or before July 1, 1990 (10% of premium)	Teachers retired after July 1, 1990 (15% of premium)
<b>Fallon Select - HMO</b>			
• Individual	\$833.27	\$83.33	\$124.99
• Family	\$2,025.95	\$202.60	\$303.89
<b>Harvard Pilgrim Primary Choice HMO</b>			
• Individual	\$663.11	\$66.31	\$99.47
• Family	\$1,691.10	\$169.11	\$253.67
<b>Harvard Pilgrim Independence - POS</b>			
• Individual	\$913.98	\$91.40	\$137.10
• Family	\$2,231.38	\$223.14	\$334.71
<b>Allways Health Partners Complete - HMO</b>			
• Individual	\$685.47	\$68.55	\$102.82
• Family	\$1,783.21	\$178.32	\$267.48
<b>Unicare Basic/CIC (GIC) Indemnity</b>			
• Individual	\$1,159.70	\$115.97	\$173.96
• Family	\$2,573.70	\$257.37	\$386.06
<b>Unicare Plus PPO</b>			
• Individual	\$721.22	\$72.12	\$108.18
• Family	\$1,716.49	\$171.65	\$257.47

## Section 4: Supplemental Information

<b>Unicare Community Choice PPO</b>				
• Individual		\$550.64	\$55.06	\$82.60
• Family		\$1,363.28	\$136.33	\$204.49
<b>Tufts Navigator - POS</b>				
• Individual		\$796.25	\$79.63	\$119.44
• Family		\$1,944.65	\$194.47	\$291.70
<b>Tufts Spirit HMO</b>				
• Individual		\$604.56	\$60.46	\$90.68
• Family		\$1,456.45	\$145.65	\$218.47
		<b>Monthly Premium (Effective July 1, 2020)</b>	<b>Teachers retired on or before July 1, 1990 (10% of premium)</b>	<b>Teachers retired after July 1, 1990 (15% of premium)</b>
<b>Medicare Plans</b>				
<b>Unicare OME/CIC Indemnity</b>		\$398.47	\$39.85	\$59.77
<b>Unicare OME W/O CIC Indemnity</b>		\$387.44	\$38.74	\$58.12
<b>HPHC Medicare Enhance Indemnity</b>		\$402.63	\$40.26	\$60.39
<b>Tufts Medicare Complement Indemnity</b>		\$382.54	\$38.25	\$57.38
<b>Tufts Medicare Preferred</b>		\$337.90	\$33.79	\$50.69

## Section 4: Supplemental Information

### Exhibit III – Definition of Terms

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

<b>Assumptions or Actuarial Assumptions:</b>	The estimates on which the cost of the Plan is calculated including: <ol style="list-style-type: none"><li>1. Investment return — the rate of investment yield that the Plan will earn over the long-term future;</li><li>2. Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;</li><li>3. Retirement rates — the rate or probability of retirement at a given age;</li><li>4. Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.</li></ol>
<b>Actuarial Accrued Liability (AAL):</b>	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.
<b>Unfunded Actuarial Accrued Liability (UAAL):</b>	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.
<b>Normal Cost:</b>	The amount of contributions required to fund the benefit allocated to the current year of service.
<b>Actuarially Determined Contribution (ADC):</b>	A target or recommended contribution to an OPEB plan for the reporting period based on the most recent measurement available.
<b>Valuation Date:</b>	The date at which the actuarial valuation is performed.
<b>Covered Employee Payroll:</b>	The payroll of the employees that are provided OPEB benefits.
<b>Entry Age Actuarial Cost Method:</b>	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.
<b>Health Care Cost Trend Rates:</b>	The rate of change in per capita health costs over time.
<b>Discount Rate:</b>	The interest rate used to determine the actuarial present value of projected benefit payments.
<b>Expected Return on Assets:</b>	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.