



## **TOWN OF OXFORD, MASSACHUSETTS**

**OTHER POSTEMPLOYMENT BENEFITS PROGRAM**

**FINANCIAL REPORTING AND DISCLOSURES**  
**Governmental Accounting Standards Board**  
**Statements 74 and 75**

**Disclosures as of  
June 30, 2020**

KMS Actuaries, LLC  
52 Hunt Road  
Kingston, NH 03848

October, 2020





October 23, 2020

Ms. Jillian K. Connor  
Treasurer/Collector  
Town of Oxford, Massachusetts  
325 Main Street  
Oxford, MA 01540

Dear Jillian:

We are pleased to present the enclosed report of the July 1, 2018 actuarial valuation of the retiree health care benefits for the Town of Oxford, Massachusetts. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2020 under the following Governmental Accounting Standards Board (GASB) Statements:

- ◆ GASB Statement No. 74, Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans (GASB 74)
- ◆ GASB Statement No. 75, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions (GASB 75)

The Principal Valuation Results, including assets, liabilities and the development of future contributions, are provided in Section 1. The Notes to the Financial Statements and the Required Supplementary Information are provided in Sections 2 and 3, respectively. Employer Reporting Amounts under GASB 75 are provided in Section 4. The Summary of Plan Provisions and Actuarial Assumptions and Methods are shown in Sections 5 and 6, respectively. Section 7 summarizes the demographic profile of active members and retired members, covered spouses and survivors. Finally, a Glossary of Terms is provided in Section 8.

Our calculations are based on member census data and other information provided by the Town of Oxford, Massachusetts as well as health plan rates provided by the Town. Although we did not audit the data used in the valuation and disclosure calculations, we believe that the information is complete and reliable.

Liabilities presented in this report are based on a discount rate of 2.24%, the rate that reflects a blended-rate of the long-term expected rate of return on OPEB plan assets and the municipal bond rate. The municipal bond rate of 2.21% is based on the Bond Buyer 20-Bond GO Index published on June 30, 2020. The long-term expected rate of return is 6.75%. The long-term expected rate of return is based on the target allocations provided in the investment policy statement and long-term expected rates of return by asset class provided by the Town's investment consultant, Bartholomew & Company.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions other than those explicitly applicable to the postemployment benefit plans are consistent with those used by the Worcester Regional and Massachusetts Teachers Retirement Systems' actuaries for the Retirement System pension valuations.

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques.

Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

This report is intended for the sole use of the Town of Oxford, Massachusetts and is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

The expected claims, cost trend rates, and analysis of regulatory changes have been developed based on the expertise of the undersigned health and welfare actuary, Christopher E. Bean, ASA, MAAA. The undersigned credentialed actuaries are Members of the American Academy of Actuaries and together meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

Respectfully submitted,



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Linda L. Bournival, FSA, EA

Member, American Academy of Actuaries

(603) 792-9494

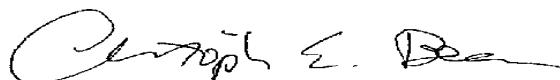


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## EXECUTIVE SUMMARY

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### Purpose of Report

This report presents the results of the actuarial valuation of the Town of Oxford, Massachusetts's retiree health care benefits as of July 1, 2018. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2020 under the following Governmental Accounting Standards Board (GASB) Statements:

- ◆ GASB Statement No. 74, Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans (GASB 74)
- ◆ GASB Statement No. 75, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions (GASB 75)

The results as of the measurement date are based on a roll forward of the liabilities developed in the most recent actuarial valuation.

### GASB Accounting Standards

In June 2015, the GASB approved two related Statements that significantly changed the way other postemployment benefits (OPEB) plans and governments account and report OPEB liabilities. GASB Statement No. 74 (GASB 74), *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*, replaced the requirements of Statement No. 43 and GASB Statement No. 75 (GASB 75), *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, replaced the requirements of Statement No. 45.

The effective date for GASB 74 is for plan years beginning after June 15, 2016, which is the plan year ending June 30, 2017 for the Town of Oxford, Massachusetts. The effective date for GASB 75 is for fiscal years beginning after June 15, 2017, which is the fiscal year ending June 30, 2018 for the Town of Oxford, Massachusetts.

GASB 74 requires OPEB plans to present a statement of fiduciary net position (OPEB plan assets) and a statement of changes in fiduciary net position. Further, the statement requires that notes to financial statements include descriptive information such as the types of benefits provided, the classes of plan members covered and the authority under which benefit terms are established or may be amended. Finally, GASB 74 requires OPEB plans to present in required supplementary information the sources of the changes in the net OPEB liability and information about the actuarially determined contributions compared with the actual contributions made to the plan and related ratios.

GASB 74 and GASB 75 require projected benefit payments be discounted to their actuarial present value using the single rate that reflects (1) a long-term expected rate of return on OPEB plan investments to the extent that the OPEB plan's assets are sufficient to pay benefits and OPEB plan assets are expected to be invested using a strategy to achieve that return and (2) a tax-exempt, high-quality municipal bond rate to the extent that the conditions for use of the long-term expected rate of return are not met.

GASB 75 establishes standards for measuring and recognizing liabilities, deferred outflows of resources, deferred inflows of resources and OPEB expense by state and local governments.

## EXECUTIVE SUMMARY

### **Town of Oxford, Massachusetts Other Postemployment Benefits Program**

The Town of Oxford, Massachusetts administers the retiree health care benefits program - a single-employer defined benefit plan that is used to provide postemployment benefits other than pensions (OPEB) for all permanent full-time employees. The Town provides health care benefits for retirees and their dependents. Benefits are provided through the Town, and the full cost of benefits is shared between the Town and retirees.

### **Summary of Principal Results**

A summary of principal results from the current and prior measurement dates follows:

Disclosure Date	June 30, 2020	June 30, 2019	% Change
Valuation Date	July 1, 2018	July 1, 2018	
<b>Membership Data</b>			
Active Plan Members	355	339	4.7%
Inactive Plan Members (excludes covered spouses)	193	184	4.9%
Total Plan Members	548	523	4.8%
Covered Spouses	77	73	5.5%
Covered Payroll	\$21,580,097	\$20,730,793	4.1%
<b>Net OPEB Liability</b>			
Discount Rate	2.24%	3.57%	
Total OPEB Liability (TOL)	\$72,685,183	\$55,248,790	31.6%
Fiduciary Net Position (FNP)	\$4,408,406	\$4,240,910	3.9%
Net OPEB Liability	\$68,276,777	\$51,007,880	33.9%
FNP as % of TOL	6.1%	7.7%	(20.8%)
<b>OPEB Expense</b>			
OPEB Expense	\$4,857,499	\$3,722,131	30.5%
Deferred Outflows	\$20,922,855	\$8,549,323	
Deferred Inflows	\$6,728,731	\$8,140,037	
Recognition Period	7.13	7.13	

## EXECUTIVE SUMMARY

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### Experience Gain and Loss

In developing the Total OPEB Liability, various assumptions are made regarding future premium rates, mortality, retirement, disability and turnover rates. A comparison of the results of the current and prior measurements is made to determine how closely actual experience relates to expected. For the current measurement period, there is no experience gain or loss as the Total OPEB liability was developed from a roll forward of results of the most recent valuation.

### Changes of Assumptions

The discount rate changed from 3.57% as of June 30, 2019 to 2.24% as of June 30, 2020. In addition, the inflation rate was updated in this valuation. A summary of the impact on the Total OPEB Liability (TOL) of each assumption change is provided below:

◆ Increase due to change in Inflation Assumption	275,000
◆ Increase due to change in Discount Rate	15,566,000
Total	\$ 15,841,000

All of the assumptions used in this valuation are shown in Section 6, Actuarial Assumptions and Methods.

### Changes of Benefit Terms

The Patient Protection and Affordable Care Act (PPACA) previously applied a 40% excise tax, commonly referred to as the "Cadillac Tax," to the cost of plan benefits in excess of statutory thresholds beginning in 2022. This tax was repealed in December 2019. All other benefit terms are the same as those used in the prior measurement. A Summary of the Principal Plan Provisions is provided in Section 5.

### Total OPEB Liability

The Total OPEB Liability as of the current measurement date, June 30, 2020, is \$72,685,183. The Total OPEB Liability as of the prior measurement date, June 30, 2019, was \$55,248,790. During the current measurement period ending June 30, 2020, the Total OPEB Liability increased by \$17,436,393, or 31.6%. The development of the Total OPEB Liability for the current measurement period is shown in Section 1, Exhibit 1.2.

### Fiduciary Net Position

The Fiduciary Net Position is equal to the market value of assets and as of the current measurement date, June 30, 2020, is \$4,408,406. The Fiduciary Net Position as of the prior measurement date, June 30, 2019, was \$4,240,910. During the plan years ended 2020 and 2019, the actual rates of return were 2.75% and 6.19%, respectively. The expected long-term rate of return is 6.75%. The Fiduciary Net Position is shown in Section 1, Exhibit

### Employer Future Period Contributions

Future contributions for fiscal years 2020 through 2050 are assumed to be made according to the funding schedule provided by the Town.

## EXECUTIVE SUMMARY

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### **Discount Rate**

As of the June 30, 2020 measurement date, the OPEB plan's fiduciary net position was projected to be insufficient to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to the first 5 periods of projected future benefit payments and the 2.21% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 2.24%.

### **OPEB Expense**

The OPEB Expense for the current measurement period ending June 30, 2020, is \$4,857,499. Benefit changes are recognized immediately and experience gains and losses and assumption changes developed in this valuation are recognized over 7.13 years. Investment gains and losses are recognized over 5 years. The OPEB Expense for the prior measurement period was \$3,722,131. The development of the OPEB expense for the current measurement period is shown in Section 4, Exhibit 4.2.

### **COVID-19 Pandemic**

The assumptions in this report do not reflect the potential impacts of the COVID-19 pandemic on the OPEB program. Especially in the short range, the pandemic is likely to materially affect the economic, demographic and healthcare-specific assumptions on which the projections are based.

## SECTION 1 - PRINCIPAL VALUATION RESULTS

### Exhibit 1.1 - OPEB Trust Assets

The Town has established an irrevocable trust pursuant to Section 20 of Chapter 32B of the Massachusetts General Laws for the purpose of accumulating assets to prefund the OPEB liabilities. Plan assets segregated and restricted in an OPEB trust must be dedicated to providing plan benefits to retirees and beneficiaries in accordance with the terms of the plan and must be legally protected from creditors of the employer. Further, employer contributions to the trust must be irrevocable. Asset information for the current and prior fiscal years was provided by the Town and is presented below:

Fiscal Year Ended June 30	2020	2019
<b>Trust Fund Composition at Fiscal Year-End</b>		
Domestic Equities	\$1,604,005	\$1,541,046
Domestic Bonds	1,118,034	691,000
Alternatives	495,774	838,023
International Equities	970,171	962,423
International Bonds	201,032	194,543
Cash and Equivalents	19,390	13,875
<b>Total Market Value of Assets</b>	<b>\$4,408,406</b>	<b>\$4,240,910</b>
<b>Asset Activity</b>		
Market value, beginning of year	\$4,240,910	\$3,944,995
Employer Premiums	1,323,440	1,241,476
OPEB Trust Contributions	50,000	50,000
Benefit Payments	(1,323,440)	(1,241,476)
Administrative Expenses	-	-
Investment Return	117,496	245,915
<b>Market value, end of year</b>	<b>\$4,408,406</b>	<b>\$4,240,910</b>
<b>Money-Weighted Rate of Return</b>	<b>2.75%</b>	<b>6.19%</b>
<b>(Gain) / Loss on OPEB Plan Investments</b>		
Projected earnings	\$320,222	\$298,029
Actual earnings	117,496	245,915
<b>(Gain) / Loss on OPEB plan investments</b>	<b>\$202,726</b>	<b>\$52,114</b>

## SECTION 1 - PRINCIPAL VALUATION RESULTS

### Exhibit 1.2 - Total OPEB Liability

The Total OPEB Liability, developed using the Entry Age Normal funding method, is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service. The total OPEB liability as of the June 30, 2020 measurement date was developed from an actuarial valuation as of July 1, 2018 and rolled forward to the OPEB plan's fiscal year-end.

The Service Cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year. Only active employees who have not reached the age at which the probability of retirement is 100% incur a service cost.

Actuarial experience gains and losses arise from the difference between expected and actual experience, excluding amounts related to benefit changes and changes in assumptions or other inputs.

The development of the Total OPEB Liability from the beginning of the measurement period, June 30, 2019 to the end of the measurement period, June 30, 2020 is shown below:

Measurement Date	June 30, 2020
1. Total OPEB Liability, beginning of year:	
a. Actives	\$28,925,833
b. Retirees, Covered Spouses and Survivors	26,322,957
c. Total OPEB Liability at 3.57% (a. + b.)	\$55,248,790
2. Service Cost	\$2,302,197
3. Expected Benefit Payments	
a. Current retirees	(\$1,099,037)
b. Future retirees	(224,403)
c. Total (a. + b.)	(\$1,323,440)
4. Interest [3.57% x (1.c. + 2. + .5 x 3.c)]	\$2,030,947
5. Changes of benefit terms	(\$1,414,740)
6. Differences between expected and actual experience	\$0
7. Changes of assumptions or other inputs	\$15,841,429
8. Total OPEB Liability, end of year (1.c. + 2. + 3.c. + 4. + 5. + 6. + 7.)	
a. Actives	\$41,952,790
b. Retirees, Covered Spouses and Survivors	30,732,393
c. Total OPEB Liability at 2.24% (a. + b.)	\$72,685,183

## SECTION 1 - PRINCIPAL VALUATION RESULTS

### Exhibit 1.3 - Development of Actuarially Determined Employer Contributions

Future contributions for fiscal years 2020 through 2050 are assumed to be made according to the funding schedule provided by the Town.

The Actuarially Determined Employer Contribution (ADEC) equals the Normal Cost plus a provision for amortizing the Unfunded Actuarial Accrued Liability. We have assumed level dollar amortization over an amortization period of 30 years.

Fiscal Year Ending	June 30, 2020	June 30, 2021
<b>Discount Rate</b>	<b>3.57%</b>	<b>2.24%</b>
1. Normal Cost	\$2,302,197	\$3,373,867
2. Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$55,248,790	\$72,685,183
b. Actuarial Value of Plan Assets	\$4,240,910	\$4,408,406
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$51,007,880	\$68,276,777
3. Amortization of Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability	\$51,007,880	\$68,276,777
b. Amortization Period in years	30	30
c. Payroll Growth Rate	0.0%	0.0%
d. Amortization Factor	18.88	22.16
e. Amortization Amount (3.a. / 3.d.)	\$2,701,689	\$3,081,082
4. Interest on 1. and 3.e.	\$178,639	\$144,591
5. Actuarially Determined Employer Contribution (1. + 3.e. + 4.)	\$5,182,525	\$6,599,540
6. Actual Employer Contribution to OPEB Trust	\$50,000	TBD
7. Expected Benefit Payments	\$1,323,440	
8. Total Contribution (6. + 7.)	\$1,373,440	

## SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

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### Exhibit 2.1 - Plan Description

#### Plan Administration

The Town of Oxford, Massachusetts administers the retiree health care benefits program - a single-employer defined benefit plan that is used to provide postemployment benefits other than pensions (OPEB) for all permanent full-time employees.

#### Plan Membership

At June 30, 2020, OPEB plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefit payments <sup>1</sup>	193
Inactive plan members entitled to but not yet receiving benefit payments	0
Active plan members	355
	<hr/>
	548
	<hr/>

<sup>1</sup>Per paragraph 34a of GASB 74 and further clarified by Question 4.67 of the 2017-2 GASB 74 Implementation Guide, the total shown for inactive plan members or beneficiaries currently receiving benefit payments does not include covered spouses or other dependents.

#### Benefits Provided

The Town provides health care benefits for retirees and their dependents. Benefits are provided through the Town, and the full cost of benefits is shared between the Town and retirees.

#### Employer Future Period Contributions

Future contributions for fiscal years 2020 through 2050 are assumed to be made according to the funding schedule provided by the Town.

## SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

### Exhibit 2.2 - Net OPEB Liability

The components of the net OPEB liability at June 30, 2020, were as follows:

Total OPEB liability	\$ 72,685,183
Fiduciary net position	(4,408,406)
Net OPEB liability	\$ 68,276,777

Fiduciary net position as a percentage of the total OPEB liability 6.07%

#### Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of July 1, 2018, rolled forward to the measurement date and using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.4 percent
Discount rate	2.24 percent, net of investment expenses, including inflation
Healthcare cost trend rate	8 percent for 2018, decreasing 0.5 percent per year to 5.5 percent, then grading down to an ultimate trend rate of 3.9 percent, utilizing the Society of Actuaries Getzen Medical Trend Model. The ultimate medical inflation rate is reached in 2075.
Pre-Retirement Mortality - General and Public Safety employees	RP-2000 Employees Mortality Table, base year 2009, projected with generational mortality improvement using scale BB.
Post-Retirement Mortality - General and Public Safety employees	RP-2000 Healthy Annuitant Mortality Table, base year 2009, projected with generational mortality improvement using scale BB.
Pre-Retirement Mortality - Teachers	RP-2014 White Collar Mortality Table, base year 2014, projected with generational mortality improvement using scale MP-2016.
Post-Retirement Mortality - Teachers	RP-2014 White Collar Mortality Table, base year 2014, projected with generational mortality improvement using scale MP-2016.

## SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

### Exhibit 2.2 - Net OPEB Liability

#### Long-Term Expected Rate of Return

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of OPEB plan investment expense and inflation) are developed for each major asset class. These ranges 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 provided in the investment policy statement and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the target asset allocation as of June 30, 2020 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rates of Return <sup>1</sup>
Domestic Equities	34%	4.96%
Domestic Bonds	20%	2.22%
Alternatives	20%	2.76%
International Equities	22%	7.01%
International Bonds	4%	1.53%
Cash and Equivalents	0%	0.00%
Total	100%	

<sup>1</sup> provided by the Town's investment consultant, Bartholomew & Company.

#### Discount Rate

The discount rate used to measure the total OPEB liability was 2.24%. The projection of cash flows used to determine the discount rate assumed that contributions from the Town will be made in accordance with the plan's funding policy. Based on those assumptions, the OPEB plan's fiduciary net position was projected to be insufficient to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to the first 5 periods of projected future benefit payments and the 2.21% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability.

## SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

### Exhibit 2.2 - Net OPEB Liability

#### Sensitivity of the Net OPEB Liability to Changes in the Discount Rate

The following presents the net OPEB liability calculated using the current discount rate of 2.24 percent, as well as what the net OPEB liability would be if it were calculated using a discount rate 1-percentage point lower (1.24 percent) or 1-percentage point higher (3.24 percent) than the current rate:

	1% Decrease (1.24%)	Assumed Discount Rate (2.24%)	1% Increase (3.24%)
Total OPEB Liability	\$ 88,579,318	\$ 72,685,183	\$ 60,501,390
Fiduciary Net Position	\$ (4,408,406)	\$ (4,408,406)	\$ (4,408,406)
Net OPEB Liability	\$ 84,170,912	\$ 68,276,777	\$ 56,092,984

#### Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates

The following presents the net OPEB liability calculated using the current healthcare cost trend rates as well as what the net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage point lower (7% year 1 decreasing to 2.9%) or 1-percentage point higher (9% year 1 decreasing to 4.9%) than the current healthcare cost trend rates:

	1% Decrease 7% Year 1 Decreasing to 2.9%	Assumed Healthcare Cost Trend Rates 8% Year 1 Decreasing to 3.9%	1% Increase 9% Year 1 Decreasing to 4.9%
Total OPEB Liability	\$ 58,386,198	\$ 72,685,183	\$ 92,113,411
Fiduciary Net Position	\$ (4,408,406)	\$ (4,408,406)	\$ (4,408,406)
Net OPEB Liability	\$ 53,977,792	\$ 68,276,777	\$ 87,705,005

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

### Exhibit 3.1 - Changes in Net OPEB Liability and Related Ratios

Fiscal Year Ended June 30	2020	2019	2018	2017	2016
<b>Total OPEB Liability</b>					
Service cost	\$ 2,302,197	\$ 2,002,998	\$ 2,102,507	\$ 2,506,859	
Interest	2,030,947	2,020,189	1,865,002	1,615,467	
Changes of benefit terms	(1,414,740)	-	(20,706)	-	
Differences between expected and actual experience	-	(7,382,205)	-	-	
Changes of assumptions	15,841,429	9,827,250	(2,545,072)	(6,602,086)	
Benefit payments	(1,323,440)	(1,241,476)	(1,309,320)	(1,196,195)	
<b>Net change in total OPEB liability</b>	<b>\$ 17,436,393</b>	<b>\$ 5,226,756</b>	<b>\$ 92,411</b>	<b>\$ (3,675,955)</b>	
<b>Total OPEB liability—beginning</b>	<b>\$ 55,248,790</b>	<b>\$ 50,022,034</b>	<b>\$ 49,929,623</b>	<b>\$ 53,605,578</b>	
<b>Total OPEB liability—ending (a)</b>	<b>\$ 72,685,183</b>	<b>\$ 55,248,790</b>	<b>\$ 50,022,034</b>	<b>\$ 49,929,623</b>	
<b>Plan Fiduciary Net Position</b>					
Contributions--employer	\$ 1,373,440	\$ 1,291,476	\$ 1,374,320	\$ 1,248,695	
Net investment income	117,496	245,915	181,990	194,711	
Benefit payments	(1,323,440)	(1,241,476)	(1,309,320)	(1,196,195)	
Administrative expenses	-	-	-	-	
Other	-	-	-	-	
<b>Net change in plan fiduciary net position</b>	<b>\$ 167,496</b>	<b>\$ 295,915</b>	<b>\$ 246,990</b>	<b>\$ 247,211</b>	
<b>Plan fiduciary net position—beginning</b>	<b>\$ 4,240,910</b>	<b>\$ 3,944,995</b>	<b>\$ 3,698,005</b>	<b>\$ 3,450,794</b>	
<b>Plan fiduciary net position—ending (b)</b>	<b>\$ 4,408,406</b>	<b>\$ 4,240,910</b>	<b>\$ 3,944,995</b>	<b>\$ 3,698,005</b>	
<b>Net OPEB liability—ending (a) – (b)</b>	<b>\$ 68,276,777</b>	<b>\$ 51,007,880</b>	<b>\$ 46,077,039</b>	<b>\$ 46,231,618</b>	
Plan fiduciary net position as a percentage of the total OPEB liability	6.07%	7.68%	7.89%	7.41%	
Covered payroll	\$ 21,580,097	\$ 20,730,793	\$ 22,414,238	\$ 22,036,578	
Net OPEB liability as a percentage of covered payroll	316.39%	246.05%	205.57%	209.79%	
<b>Discount Rate</b>	<b>2.24%</b>	<b>3.57%</b>	<b>3.93%</b>	<b>3.63%</b>	

#### Changes of Benefit Terms

The Patient Protection and Affordable Care Act (PPACA) previously applied a 40% excise tax, commonly referred to as the "Cadillac Tax," to the cost of plan benefits in excess of statutory thresholds beginning in 2022. This tax was repealed in December 2019.

#### Changes of Assumptions

The discount rate changed from 3.57% as of June 30, 2019 to 2.24% as of June 30, 2020. In addition, the inflation rate was updated in this valuation.

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

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### Exhibit 3.2 - Investment Returns

Fiscal Year Ended June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Annual money-weighted rate of return, net of investment expenses	2.75%	6.19%	4.91%	5.63%						

The money-weighted rate of return considers the changing amounts actually invested during a period and weights the amount of OPEB plan investments by the proportion of time they are available to earn a return during that period. The rate of return is then calculated by solving, through an iterative process, for the rate that equates the sum of the weighted external cash flows into and out of the OPEB plan investments to the ending fair value of OPEB plan investments.

Note: Only 4 years are presented here, beginning with the year of implementation; 10 years of information will be required.

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

### Exhibit 3.2 - Investment Returns

#### Calculation of Money-Weighted Rate of Return

	Plan Investments/ Net External Cash Flows (a)	Periods Invested (b)	Period Weight (c)=(b)÷12	(d)=(a) x (1+r <sub>mw</sub> ) <sup>(c)</sup>
Beginning value - July 1, 2019	\$ 4,240,910	12	1.00	\$ 4,357,608
Monthly net external cash flows:				
July	-	11	0.92	-
August	-	10	0.83	-
September	-	9	0.75	-
October	-	8	0.67	-
November	50,000	7	0.58	50,798
December	-	6	0.50	-
January	-	5	0.42	-
February	-	4	0.33	-
March	-	3	0.25	-
April	-	2	0.17	-
May	-	1	0.08	-
June	-	0	0.00	-
Ending value - June 30, 2020				\$ 4,408,406
Money-weighted rate of return:				2.75%

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

### Exhibit 3.3 - Schedule of Employer Contributions

Fiscal Year Ended June 30	2020	2019	2018	2017	2016
Actuarially determined contribution	\$ 5,182,525	\$ 4,723,076	\$ 4,734,018	\$ 4,269,222	
Contributions in relation to the actuarially determined contribution	1,373,440	1,291,476	1,374,320	1,248,695	
Contribution deficiency (excess)	\$ 3,809,085	\$ 3,431,600	\$ 3,359,698	\$ 3,020,527	
Covered payroll	\$ 21,580,097	\$ 20,730,793	\$ 22,414,238	\$ 22,036,578	
Contributions as a percentage of covered payroll	6.36%	6.23%	6.13%	5.67%	
Discount rate	3.57%	3.93%	3.63%	4.00%	
Inflation	2.40%	2.60%	2.60%	2.60%	

#### Notes to Schedule

##### Valuation Date

Actuarially determined contributions are determined as of July 1, one year prior to the end of the fiscal year in which contributions are reported.

##### Methods and Assumptions as of Current Measurement Date

Actuarial cost method	Entry Age Normal
Amortization method	Level dollar amount over 30 years on an open amortization period for partial pre-funding.
Amortization period	30 years
Asset valuation method	Market value
Healthcare cost trend rates	8 percent for 2018, decreasing 0.5 percent per year to 5.5 percent, then grading down to an ultimate trend rate of 3.9 percent, utilizing the Society of Actuaries Getzen Medical Trend Model. The ultimate medical inflation rate is reached in 2075.

## SECTION 4 - EMPLOYER REPORTING AMOUNTS UNDER GASB 75

### Exhibit 4.1 - Deferred Outflows and Deferred Inflows of Resources

Deferred Outflows of Resources and Deferred Inflows of Resources arising from differences between expected and actual experience are recognized in OPEB Expense over the average expected remaining service life of all active and inactive participants.

						Balances at June 30, 2020
		Amounts Recognized in OPEB Expense through June 30, 2020			Deferred Outflows of Resources	Deferred Inflows of Resources
Experience Losses	Experience Gains	(a)	(b)	(c)	(a) - (c)	(b) - (c)
Year						
2018	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2019	-	7,382,205		(2,070,744)	-	5,311,461
2020	-	-		-	-	-
Total					<u>\$ -</u>	<u>\$ 5,311,461</u>

Deferred Outflows of Resources and Deferred Inflows of Resources arising from changes of assumptions are recognized in OPEB Expense over the average expected remaining service life of all active and inactive participants.

						Balances at June 30, 2020
		Amounts Recognized in OPEB Expense through June 30, 2020			Deferred Outflows of Resources	Deferred Inflows of Resources
Increases in the Total OPEB Liability	Decreases in the Total OPEB Liability	(a)	(b)	(c)	(a) - (c)	(b) - (c)
Year						
2018	\$ -	\$ 2,545,072	\$ (1,127,802)	\$ -	\$ -	\$ 1,417,270
2019	9,827,250	-	2,756,592	7,070,658	-	-
2020	15,841,429	-	2,221,799	13,619,630	-	-
Total				<u>\$ 20,690,288</u>	<u>\$ 1,417,270</u>	

## SECTION 4 - EMPLOYER REPORTING AMOUNTS UNDER GASB 75

### Exhibit 4.1 - Deferred Outflows and Deferred Inflows of Resources

Deferred Outflows of Resources and Deferred Inflows of Resources arising from differences between projected and actual earnings on OPEB Plan investments are recognized in OPEB Expense over five years.

					Balances at June 30, 2020
	Investment Earnings Less Than Projected	Investment Earnings Greater Than Projected	Amounts Recognized in OPEB Expense through June 30, 2020	Deferred Outflows of Resources	Deferred Inflows of Resources
Year	(a)	(b)	(c)	(a) - (c)	(b) - (c)
2018	\$ 97,798	\$ -	\$ 58,680	\$ 39,118	\$ -
2019	52,114	-	20,846	31,268	-
2020	202,726	-	40,545	162,181	-
Subtotal				\$ 232,567	\$ -
Net				<u>\$ 232,567</u>	<u>\$ -</u>

Amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources will be recognized in OPEB expense as follows:

Year ended June 30		
2021	\$	2,259,316
2022	\$	2,259,316
2023	\$	2,239,756
2024	\$	2,315,801
2025	\$	2,564,723
Thereafter		2,555,212
Deferred Outflows	\$	20,922,855
Deferred Inflows	\$	6,728,731

## SECTION 4 - EMPLOYER REPORTING AMOUNTS UNDER GASB 75

### Exhibit 4.2 - OPEB Expense

The OPEB Expense and deferred outflows and inflows of resources primarily result from changes in the components of the net OPEB liability (NOL). Most changes in the NOL are included in the OPEB Expense in the period of the change, including service cost, interest on total OPEB liability, changes in benefit terms and projected earnings on the OPEB plan's investments. Other changes in the net OPEB liability are included in OPEB Expense over the current and future periods. These include the effects on the total OPEB liability of changes of economic and demographic assumptions and differences between expected and actual experience. In addition, the effect on the net OPEB liability of differences between the projected earnings on OPEB plan investments and actual experience with regard to those earnings are included in OPEB expense over the current and future periods. The OPEB Expense for the reporting period ending June 30, 2020 is presented below:

#### Fiscal Year Ended June 30, 2020

Measurement Date	6/30/2020
1. Service cost	\$ 2,302,197
2. Interest on the total OPEB liability	
a. Total OPEB liability, beginning of year	55,248,790
b. Service cost, beginning of year	2,302,197
c. Benefit payments	(1,323,440)
d. Interest on total OPEB liability = 3.57% times (a. + b. + .5 times c.)	2,030,947
3. Differences between expected and actual experience	(1,035,372)
4. Changes of benefit terms	(1,414,740)
5. Changes of assumptions	3,224,161
6. Projected earnings on OPEB plan investments	
a. Plan fiduciary net position, beginning of year	4,240,910
b. Contributions - Employer	1,373,440
c. Benefit payments	(1,323,440)
d. Administrative expenses and other	-
e. Total projected earnings	(320,222)
7. Differences between projected and actual earnings on OPEB plan investments	70,528
8. OPEB plan administrative expenses	-
9. Other changes in fiduciary net position	-
10. Total OPEB Expense	\$ 4,857,499

## SECTION 5 - SUMMARY OF PLAN PROVISIONS

**Eligibility for Postemployment Benefits** Employees of the Town and their dependents are eligible for postemployment medical and life insurance based on the eligibility requirements under the Worcester Regional and Massachusetts Teachers Retirement Systems.

**Retirement Eligibility** General employees hired before April 2, 2012: retire after attaining age 55 with 10 or more years of service or any age with 20 or more years of service

General employees hired after April 1, 2012: retire after attaining age 60 with 10 or more years of service

Public Safety employees hired before April 2, 2012: retire after attaining age 55 or any age with 20 or more years of service

Public Safety employees hired after April 1, 2012: retire after attaining age 55

**Ordinary Disability Eligibility** Any member who is unable to perform his or her duties due to a non-occupational disability and has ten or more years of creditable service.

**Accidental Disability Eligibility** Any member who is unable to perform his or her duties due to a job-related disability.

**Medical Premiums** The total monthly premiums by plan are shown below:

Non-Medicare Plans - July 1, 2019	Individual	Family
Fallon Direct	\$611.77	\$1,590.55
Fallon Select	\$679.75	\$1,767.25
Fallon PPO	\$1,143.56	\$2,973.27
Tufts HMO	\$1,701.26	\$4,392.48

### Medicare Plans - January 1, 2019

Medex2	\$330.06
Managed Blue	\$310.27
Fallon Senior Care	\$399.00
Tufts Medicare Preferred	\$310.00
Tufts Medicare Complement	\$599.00

**Participant Contributions** Retired employees contribute 50% of the health plan premium.

## SECTION 5 - SUMMARY OF PLAN PROVISIONS

---

**Continuation of Coverage to Spouse After Death of Retiree** Surviving spouse may continue coverage for lifetime by paying the required medical premium.

**Dental Coverage** Dental coverage is not offered to retirees.

**Life Insurance Coverage** Retirees are eligible for a \$1,000 life insurance benefit. The total monthly cost is \$.60. Retirees contribute \$.30 towards the monthly premiums.

**PPACA Excise Tax** The Patient Protection and Affordable Care Act (PPACA) previously applied a 40% excise tax, commonly referred to as the "Cadillac Tax," to the cost of plan benefits in excess of statutory thresholds beginning in 2022. This tax was repealed in December 2019.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

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<b>Valuation Date</b>	July 1, 2018
<b>Disclosure Date</b>	June 30, 2020
<b>GASB 75 Reporting Date</b>	June 30, 2020
<b>Long-Term Expected Rate of Return</b>	6.75%, compounded annually, net of fees.  A long-term assumption based on capital market expectations by asset class, historical returns and professional judgment. A building block approach was used that considered the target asset allocation, expected returns by asset class and risk analysis to determine a long-term expected average annual rate of return.
<b>Municipal Bond Rate</b>	2.21%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2020.
<b>Discount Rate (GASB)</b>	2.24%, compounded annually, for the measurement as of June 30, 2020. 3.57%, compounded annually, for the measurement as of June 30, 2019.  The single rate that reflects the long-term expected rate of return on OPEB plan investments to the extent that the OPEB plan's assets, which are expected to be invested using a strategy to achieve that return, are sufficient to pay benefits, and a tax-exempt, high-quality municipal bond rate to the extent that the conditions for use of the long-term expected rate of return are not met.
<b>Discount Rate (ADEC)</b>	3.57%, compounded annually, for development of the Actuarially Determined Contribution (ADEC) as of June 30, 2020.
<b>Amortization Method</b>	Level dollar amount over 30 years on an open amortization period for partial pre-funding.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Medical Trend Rates

Year	Trend
1	8.00%
2	7.50%
3	7.00%
4	6.50%
5	6.00%
6	5.50%
Ultimate	3.90%

Trend rates after year 6 grade down to the ultimate rate of 3.9 percent utilizing the Society of Actuaries Getzen Medical Trend Model. The ultimate trend rate is reached in 2075.

Health care trend assumptions begin at current levels and grade down over a period of years to a lower level equal to some real rate plus inflation. The principal components of health trend are medical inflation, deductible erosion, cost shifting, utilization, technology and catastrophic claims. The overall effect of these components are expected to decline year by year.

### Dental Trend Rates

Not applicable (no dental coverage).

### Inflation

2.4% per year, based on the 2020 Social Security Trustees Report published April 22, 2020.

### Payroll Growth

3.5% per year.

### Participation Rates

Medical - 75% of eligible retired employees will elect to participate.

Dental - Not offered to retired employees.

Life - 75% of eligible retirees will elect to participate.

Medicare - all retired employees are assumed to enroll in Medicare at age 65.

### Dependent Status

Male spouses are assumed to be three years older and female spouses are assumed to be three years younger than the retired employee.

65% of employees are assumed to retire with a covered spouse.

For current retirees, the actual census information is used.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Medical Per Capita Costs

The following annual per capita costs are for the fiscal year beginning July 1, 2018 and are applicable to retirees, survivors and spouses. Annual costs for current and future retirees are based on the blended curves shown below, developed using the plan coverages elected by current retirees and survivors and premium rates currently in effect. Future years' costs are based on the first year cost adjusted with trend.

Age	Medicare-Eligible		Medicare-Ineligible	
	Male	Female	Male	Female
Under 20	\$3,489	\$4,097	\$3,489	\$4,097
20-24	2,750	4,362	2,750	4,362
25-29	2,861	6,435	2,861	6,435
30-34	3,594	8,131	3,594	8,131
35-39	4,508	8,375	4,508	8,375
40-44	5,618	8,577	5,618	8,577
45-49	7,091	9,415	7,091	9,415
50-54	9,345	11,076	9,345	11,076
55-59	12,143	12,806	12,143	12,806
60-64	15,584	15,242	15,584	15,242
65-69	3,297	3,211	19,443	18,271
70-74	3,951	3,788	23,296	21,544
75-79	4,666	4,394	27,508	24,996
80-84	5,363	5,040	31,619	28,668
85-89	5,974	5,634	35,223	32,047
90-94	6,503	6,013	38,344	34,201
95+	6,912	5,815	40,755	33,075

### Retiree Contributions

Annual per capita participant contributions for the fiscal year beginning July 1, 2018 are as follows:

Plan	Contribution
Non-Medicare	\$ 5,396
Medicare	1,974

### Actuarial Cost Method

Entry Age Normal. The costs of each employee's postemployment benefits are allocated as a level basis over the earnings of the employee between the employee's date of hire and the assumed exit ages.

### Employee Data

Employee and retiree data were compiled and submitted by the Town as of June 30, 2019. We made reasonable adjustments for missing or invalid data.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Post-Retirement Mortality

Post-retirement mortality rates for General and Public Safety employees are based on the RP-2000 Healthy Annuitant Mortality Table, base year 2009, projected with generational mortality improvement using scale BB.

### Pre-Retirement Mortality

Pre-retirement mortality rates for General and Public Safety employees are based on the RP-2000 Employees Mortality Table, base year 2009, projected with generational mortality improvement using scale BB.

### Turnover Rates

Turnover rates for General and Public Safety employees are as follows:

General Employees		Public Safety	
Service	Rate	Service	Rate
0	15.00%	0	1.50%
1	12.00%	1	1.50%
2	10.00%	2	1.50%
3	9.00%	3	1.50%
4	8.00%	4	1.50%
5	7.60%	5	1.50%
10	5.40%	10	1.50%
15	3.30%	15	0.00%
20	2.00%	20	0.00%
25	1.00%	25	0.00%
30	0.00%	30	0.00%

### Disability Rates

Disability rates for General and Public Safety employees are as follows:

General Employees		Public Safety	
Age	Rate	Age	Rate
25	0.02%	25	0.20%
30	0.03%	30	0.30%
35	0.06%	35	0.30%
40	0.10%	40	0.30%
45	0.15%	45	1.00%
50	0.19%	50	1.25%
55	0.24%	55	1.20%
60	0.28%	60	0.85%

55% of the General employee disabilities are job-related.

90% of the Public Safety employee disabilities are job-related.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Retirement Rates

Retirement rates for General and Public Safety employees are as follows:

General Employees			Public Safety	
Age	Male	Female	Age	All
45	0.00%	0.00%	45	1.00%
50	1.00%	1.50%	50	2.00%
55	2.00%	5.50%	55	15.00%
60	12.00%	5.00%	60	20.00%
62	30.00%	15.00%	62	25.00%
65	40.00%	15.00%	65	100.00%
69	30.00%	20.00%		
70	100.00%	100.00%		

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Post-Retirement Mortality

Post-retirement mortality rates for Teachers are based on the RP-2014 White Collar Mortality Table, base year 2014, projected with generational mortality improvement using scale MP-2016.

### Pre-Retirement Mortality

Pre-retirement mortality rates for Teachers are based on the RP-2014 White Collar Mortality Table, base year 2014, projected with generational mortality improvement using scale MP-2016.

### Turnover Rates

Turnover rates for Teachers are as follows:

Age	Service						
	0		5		10+		
	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%	

### Disability Rates

Disability rates for Teachers are as follows:

Age	Rate
20	0.004%
30	0.006%
40	0.010%
50	0.050%
60	0.070%

35% of the disabilities are job-related.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Retirement Rates

Retirement rates for Teachers are as follows:

Age	Years of Service						
	Less than 20		20-29		30+		
	Male	Female	Male	Female	Male	Female	
50	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%	
51	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%	
52	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%	
53	0.0%	0.0%	1.5%	1.0%	2.0%	1.5%	
54	0.0%	0.0%	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%	

## SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.1 - Active Members by Age and Years of Service as of July 1, 2018

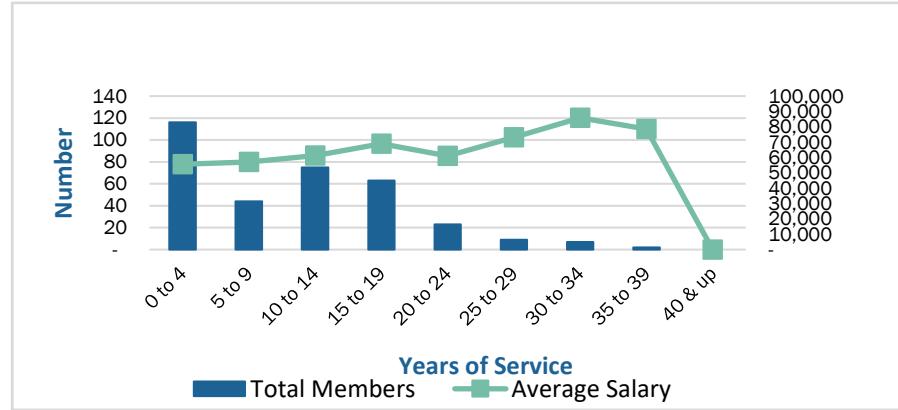
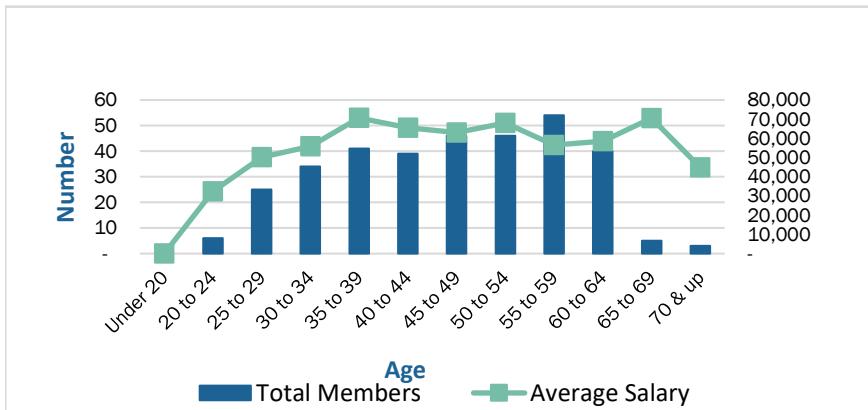
Age	Years of Service										Total	Total Salary	Average Salary
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up				
Under 20	-	-	-	-	-	-	-	-	-	-	-	-	-
20 to 24	5	1	-	-	-	-	-	-	-	6	194,627	32,438	
25 to 29	20	5	-	-	-	-	-	-	-	25	1,254,032	50,161	
30 to 34	19	11	3	1	-	-	-	-	-	34	1,901,516	55,927	
35 to 39	20	4	10	7	-	-	-	-	-	41	2,896,814	70,654	
40 to 44	10	6	9	13	1	-	-	-	-	39	2,559,743	65,634	
45 to 49	15	5	16	8	1	1	-	-	-	46	2,902,578	63,100	
50 to 54	11	4	12	13	2	4	-	-	-	46	3,134,246	68,136	
55 to 59	9	5	12	15	8	1	3	1	-	54	3,057,025	56,612	
60 to 64	6	2	10	6	9	3	3	1	-	40	2,342,856	58,571	
65 to 69	-	1	2	-	1	-	1	-	-	5	352,748	70,550	
70 & up	1	-	1	-	1	-	-	-	-	3	134,608	44,869	
<b>Total</b>	116	44	75	63	23	9	7	2	-	339	20,730,793	61,153	
<b>Total Salary</b>	6,460,449	2,508,452	4,594,974	4,344,976	1,405,426	658,732	600,728	157,056	-				
<b>Average Salary</b>	55,694	57,010	61,266	68,968	61,105	73,192	85,818	78,528	-				

Average Age:

46.9

Average Service:

10.7



## SECTION 7 - PLAN MEMBER INFORMATION

### Exhibit 7.2 - Retired Members, Covered Spouses and Survivors as of July 1, 2018

Age	Non-Medicare Plans					Medicare Plans					Total
	Fallon Direct	Fallon Select	Fallon PPO	Tufts HMO	Medex2	Managed Blue	Fallon Senior Care	Tufts Medicare Preferred	Tufts Medicare Complement		
Under 40	0	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	0	0	0
55 to 59	0	5	0	1	0	0	0	0	0	0	6
60 to 64	1	19	0	2	3	0	0	0	0	0	25
65 to 69	0	2	0	1	34	0	2	2	2	2	43
70 to 74	1	6	0	5	34	4	3	4	4	4	61
75 to 79	0	2	0	0	22	1	1	0	0	0	26
80 to 84	0	1	0	0	8	4	0	1	0	0	14
85 to 89	0	0	0	0	4	0	0	0	0	0	4
90+	0	0	0	1	2	2	0	0	0	0	5
Total	2	35	0	10	107	11	6	7	6	184	
Covered Spouses	0	9	1	1	48	5	1	5	3	73	

Average Age: 71.9

## SECTION 8 - GLOSSARY OF TERMS

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**Actuarial Assumptions** – Assumptions as to the occurrence of future events affecting OPEB costs, such as mortality, withdrawal, disability and retirement; changes in compensation and OPEB benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.

**Actuarial Cost Method (or Funding Method)** – A procedure for allocating the Actuarial Present Value of projected benefit payments to the current year (Service Cost) and the past (Total OPEB Liability).

**Actuarial Gain or Loss (or Experience Gain or Loss)** – A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions during the period between the valuation date and the most recent immediately preceding valuation date.

**Actuarial Present Value of Projected Benefit Payments** – The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

**Actuarially Determined Contribution** – A target or recommended contribution to a defined benefit OPEB plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

**Actuarial Valuation Date** – The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

**Deferred Inflow of Resources** – Acquisition of resources by a governmental entity that is applicable to future reporting periods. Under GASB 75, deferred inflows of resources are made up of experience gains, assumption changes reducing the Total OPEB Liability and investment gains that are recognized in future reporting periods.

**Deferred Outflow of Resources** – Consumption of resources by a governmental entity that is applicable to future reporting periods. Under GASB 75, deferred outflows of resources are made up of experience losses, assumption changes increasing the Total OPEB Liability and investment losses that are recognized in future reporting periods.

**Discount Rate** – Single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the sum of:

- (1) a long-term expected rate of return on OPEB plan investments to the extent that the OPEB plan's assets are sufficient to pay benefits and OPEB plan assets are expected to be invested using a strategy to achieve that return and
- (2) a tax-exempt, high-quality municipal bond rate to the extent that the conditions for use of the long-term expected rate of return are not met.

**Employer Future Period Contributions** – Contributions made by the employer, generally to an outside trust fund, to pay for future OPEB costs. These are costs in addition to the employer contributions made during the year to pay for ongoing premiums.

## SECTION 8 - GLOSSARY OF TERMS

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**Entry Age Normal Actuarial Cost Method** – A method under which the actuarial present value of the projected benefits of each individual in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age.

**Explicit Subsidy** – The difference between (a) the blended rates based on combined active and retired member experience and (b) actual cash contributions made by the employer.

**Fiduciary Net Position** – The fair market value of assets as of the measurement date.

**Funded Ratio** – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

**GASB** – Governmental Accounting Standards Board.

**Health Cost Trend Rate** – The rate of change in per capita health claims cost over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

**Implicit Subsidy** – In an experience-rated healthcare plan that includes both active employees and retirees with blended premium rates for all plan members, the difference between (a) the age-adjusted premiums approximating claim costs for retirees in the group and (b) the blended rates based on combined active and retired member experience.

**Long-Term Expected Rate of Return** – Long-term expected rate of return on OPEB plan investments expected to be used to finance the payment of benefits, net of investment expenses.

**Measurement Date** – The date as of which the Total OPEB Liability and Fiduciary Net Position are measured.

**Municipal Bond Rate** – Yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.

**Net OPEB Liability** – The liability of the employer for benefits provided through an OPEB plan. It is calculated as the Total OPEB Liability less the Fiduciary Net Position.

**OPEB** – Other Postemployment Benefits including medical, dental, vision, hearing and life insurance benefits.

**Pay-As-You-Go** – A method of financing an OPEB plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.

**Present Value of Future Benefits** – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

**Reporting Date** – The last day of the Plan or employer's fiscal year.

## SECTION 8 - GLOSSARY OF TERMS

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**Service Cost** – The portion of the actuarial present value of projected benefit amounts that is attributed to a valuation year.

**Substantive Plan** – The terms of an OPEB plan as understood by the employer and plan members.

**Total OPEB Liability** – The portion of the actuarial present value of projected benefit amounts that is attributed to past periods of employee service.

**Unfunded Actuarial Accrued Liability** – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

## SECTION 9 - BREAKOUT OF RESULTS BY DEPARTMENT

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Department	Town	School	Total
<b>Summary of Member Data Used in Valuation</b>			
Active Members	113	226	339
Average Age	46.2	47.3	46.9
Average Service	10.2	11.0	10.7
Covered Payroll	7,101,826	13,628,967	20,730,793
Retired Members and Survivors	59	125	184
Average Age	70.1	72.7	71.9
Covered Spouses	20	53	73
Expected Benefit Payments	408,682	914,758	1,323,440
OPEB Trust contributions	13,423	36,577	50,000
Total Employer Contributions	422,105	951,335	1,373,440
<b>Beginning Net OPEB Liability - June 30, 2019</b>			
Total OPEB Liability	14,832,196	40,416,594	55,248,790
Fiduciary Net Position	902,042	3,338,868	4,240,910
Net OPEB Liability	13,930,154	37,077,726	51,007,880
Total OPEB Liability, beginning of year	14,832,196	40,416,594	55,248,790
Service cost	911,879	1,390,318	2,302,197
Interest	554,769	1,476,178	2,030,947
Changes of benefit terms	(416,123)	(998,617)	(1,414,740)
Differences between expected and actual experience	0	0	0
Changes of assumptions	4,416,717	11,424,712	15,841,429
Benefit payments	(408,682)	(914,758)	(1,323,440)
Net change in total OPEB liability	5,058,560	12,377,833	17,436,393
Total OPEB Liability, end of year	19,890,756	52,794,427	72,685,183
<b>Ending Net OPEB Liability - June 30, 2020</b>			
Total OPEB Liability	19,890,756	52,794,427	72,685,183
Fiduciary Net Position	1,206,266	3,202,140	4,408,406
Net OPEB Liability	18,684,490	49,592,287	68,276,777

## SECTION 9 - BREAKOUT OF RESULTS BY DEPARTMENT

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Department	Town	School	Total
<b>Total Deferred Outflows of Resources</b>			
Differences between Expected and Actual			
Experience	0	0	0
Changes in Assumptions	5,554,554	15,135,734	20,690,288
Differences between Expected and Actual			
Earnings on OPEB Plan Investments	49,467	183,100	232,567
<b>Total Deferred Outflows of Resources</b>	<b>5,604,021</b>	<b>15,318,834</b>	<b>20,922,855</b>
<b>Total Deferred Inflows of Resources</b>			
Differences between Expected and Actual			
Experience	1,425,925	3,885,536	5,311,461
Changes in Assumptions	380,483	1,036,787	1,417,270
Differences between Expected and Actual			
Earnings on OPEB Plan Investments	0	0	0
<b>Total Deferred Inflows of Resources</b>	<b>1,806,408</b>	<b>4,922,323</b>	<b>6,728,731</b>
<b>Total OPEB Expense</b>	<b>1,468,927</b>	<b>3,388,572</b>	<b>4,857,499</b>
<b>Sensitivity of the Net OPEB Liability to Changes in the Discount Rate</b>			
Current Discount Rate: 2.24%	18,684,490	49,592,287	68,276,777
1% Decrease in the Discount Rate: 1.24%	23,034,048	61,136,864	84,170,912
1% Increase in the Discount Rate: 3.24%	15,350,297	40,742,687	56,092,984
<b>Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates</b>			
Current Trend Rates	18,684,490	49,592,287	68,276,777
1% Decrease in Trend Rates	14,771,458	39,206,334	53,977,792
1% Increase in Trend Rates	24,001,181	63,703,824	87,705,005
<b>Deferred Outflows of Resources and Deferred Inflows of Resources recognized in OPEB Expense</b>			
2021	604,476	1,654,840	2,259,316
2022	604,476	1,654,840	2,259,316
2023	599,243	1,640,513	2,239,756
2024	619,589	1,696,212	2,315,801
2025	686,187	1,878,536	2,564,723
Thereafter	683,643	1,871,569	2,555,212

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

Under GASB 74 and GASB 75, a series of projections and calculations are used to determine the discount rate for the purpose of the measurement of the Total OPEB Liability. The discount rate is the single rate that reflects (1) the long-term expected rate of return on OPEB plan investments that are expected to be used to finance the payment of benefits, to the extent that the OPEB plan's fiduciary net position is projected to be sufficient to make projected benefit payments and OPEB plan assets are expected to be invested using a strategy to achieve that return, and (2) a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher, to the extent that the conditions for use of the long-term expected rate of return are not met.

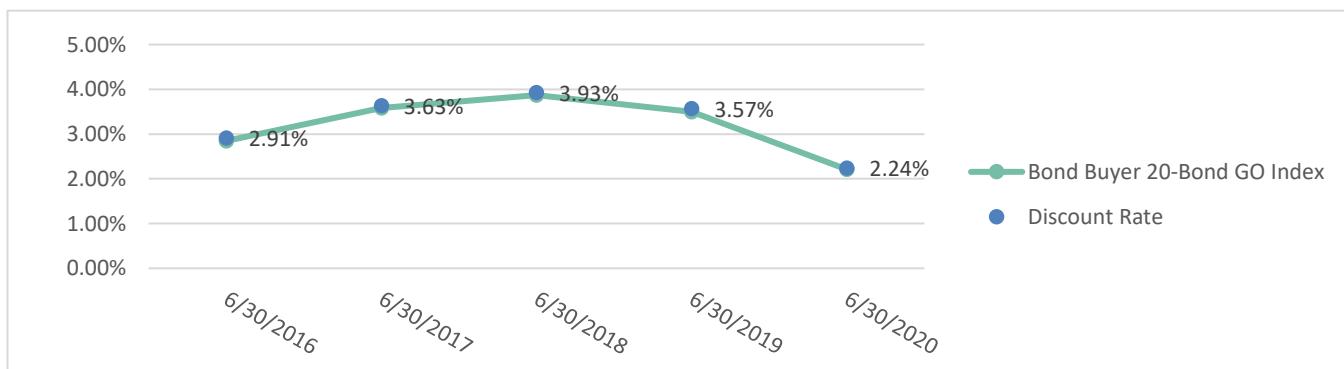
Projected cash flows into and out of the OPEB plan are assumed to be contributions to the OPEB plan, benefit payments, OPEB plan administrative expenses and OPEB plan investment earnings. These projected cash flows are used to project the OPEB plan's fiduciary net position at the beginning of each period. The OPEB plan's projected fiduciary net position at the beginning of each period is compared to the amount of benefit payments projected to occur in that period.

It is assumed that the OPEB plan's fiduciary net position is expected to always be invested using a strategy to achieve the long-term expected rate of return on OPEB plan investments.

The benefit payments that are projected to occur in a period are discounted using the long-term expected rate of return on OPEB plan investments if the amount of the OPEB plan's beginning fiduciary net position is projected to be sufficient to make the benefit payments in that period. In periods in which benefit payments are projected to be greater than the amount of the OPEB plan's fiduciary net position, they are discounted using a municipal bond rate as required by GASB 74.

For purposes of this valuation, liabilities are based on a discount rate of 2.24%, a long-term investment return rate of 6.75% and a municipal bond rate of 2.21%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2020. The OPEB plan's fiduciary net position was projected to be insufficient to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to the first 5 periods of projected future benefit payments and the 2.21% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 2.24%.

Below are the historical Bond Buyer 20-Bond GO Indices and the Town's discount rate used in disclosures since the implementation of GASB 74 and GASB 75:



## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 1: Projection of Contributions**

Year	Projected Payroll			Projected Contributions			Employer Contributions Related to Payroll of Future Employees	Portion of Employer Contributions for Current Plan Members
	Payroll for Current Plan Members (a)	Payroll for Future Plan Members (b)	Total Payroll (c) = (a) + (b)	Employer Contributions (Benefit Payments) (d)	Employer Contributions (OPEB Trust) (e)	(f) = (b) * 15.91% (g) = (d) + (e) - (f)		
2020	19,791,519	-	19,791,519	1,323,440	50,000	-	-	1,373,440
2021	18,713,845	1,770,377	20,484,222	1,428,423	55,000	281,731	-	1,201,692
2022	17,789,919	3,411,251	21,201,170	1,568,621	60,000	542,852	-	1,085,769
2023	17,023,853	4,919,358	21,943,211	1,709,584	65,000	782,846	-	991,738
2024	16,180,685	6,530,538	22,711,223	1,827,031	70,000	1,039,243	-	857,788
2025	15,572,629	7,933,487	23,506,116	1,956,120	75,000	1,262,503	-	768,617
2026	14,950,388	9,378,442	24,328,830	2,070,896	80,000	1,492,447	-	658,449
2027	14,341,943	10,838,396	25,180,339	2,115,327	85,000	1,724,778	-	475,549
2028	13,718,756	12,342,895	26,061,651	2,254,163	90,000	1,964,198	-	379,965
2029	13,092,721	13,881,088	26,973,809	2,365,894	95,000	2,208,979	-	251,915
2030	12,391,181	15,526,711	27,917,892	2,528,974	100,000	2,470,857	-	158,117
2031	11,701,025	17,193,993	28,895,018	2,690,844	105,000	2,736,181	-	59,663
2032	11,092,472	18,813,872	29,906,344	2,892,971	110,000	2,993,962	-	9,009
2033	10,427,914	20,525,152	30,953,066	3,033,188	115,000	3,266,288	-	-
2034	9,814,853	22,221,570	32,036,423	3,202,398	120,000	3,536,249	-	-
2035	9,168,164	23,989,534	33,157,698	3,321,069	125,000	3,817,596	-	-
2036	8,464,175	25,854,042	34,318,217	3,459,782	130,000	4,114,306	-	-
2037	7,771,181	27,748,174	35,519,355	3,610,472	135,000	4,415,730	-	-
2038	7,085,872	29,676,660	36,762,532	3,693,728	140,000	4,722,622	-	-
2039	6,486,922	31,562,299	38,049,221	3,786,569	145,000	5,022,695	-	-
2040	5,961,983	33,418,961	39,380,944	3,903,160	150,000	5,318,156	-	-
2041	5,453,354	35,305,923	40,759,277	3,912,361	155,000	5,618,439	-	-
2042	4,992,972	37,192,880	42,185,852	3,924,098	160,000	5,918,722	-	-
2043	4,577,893	39,084,464	43,662,357	4,015,250	165,000	6,219,741	-	-
2044	4,151,457	41,039,082	45,190,539	4,021,631	170,000	6,530,791	-	-
2045	3,750,092	43,022,116	46,772,208	4,027,959	175,000	6,846,363	-	-
2046	3,388,156	45,021,079	48,409,235	4,002,930	180,000	7,164,469	-	-
2047	2,972,931	47,130,627	50,103,558	4,037,839	185,000	7,500,174	-	-
2048	2,670,239	49,186,944	51,857,183	4,073,064	190,000	7,827,408	-	-
2049	2,375,110	51,297,074	53,672,184	3,957,216	195,000	8,163,206	-	-
2050	2,077,325	53,473,385	55,550,710	3,958,424	200,000	8,509,535	-	-
2051	1,808,430	55,686,555	57,494,985	3,973,681	-	8,861,730	-	-
2052	1,523,449	57,983,860	59,507,309	3,956,097	-	9,227,313	-	-
2053	1,271,318	60,318,747	61,590,065	3,911,685	-	9,598,878	-	-

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 1: Projection of Contributions**

Year	Projected Payroll			Projected Contributions			
	Payroll for Current Plan Members (a)	Payroll for Future Plan Members (b)	Total Payroll (c) = (a) + (b)	Employer Contributions (Benefit Payments) (d)	Employer Contributions (OPEB Trust) (e)	Related to Payroll of Future Employees (f) = (b) * 15.91%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2054	1,059,256	62,686,461	63,745,717	3,970,909	-	9,975,666	-
2055	816,130	65,160,687	65,976,817	3,996,284	-	10,369,404	-
2056	629,288	67,656,718	68,286,006	3,977,627	-	10,766,612	-
2057	464,509	70,211,507	70,676,016	3,888,029	-	11,173,171	-
2058	314,242	72,835,435	73,149,677	3,836,993	-	11,590,732	-
2059	212,608	75,497,308	75,709,916	3,824,693	-	12,014,331	-
2060	141,035	78,218,728	78,359,763	3,730,147	-	12,447,407	-
2061	83,877	81,018,478	81,102,355	3,710,373	-	12,892,948	-
2062	50,537	83,890,400	83,940,937	3,726,967	-	13,349,974	-
2063	30,404	86,848,466	86,878,870	3,659,268	-	13,820,708	-
2064	13,563	89,906,067	89,919,630	3,676,380	-	14,307,282	-
2065	9,940	93,056,877	93,066,817	3,659,314	-	14,808,689	-
2066	2,132	96,322,024	96,324,156	3,630,888	-	15,328,291	-
2067	1,516	99,693,985	99,695,501	3,620,255	-	15,864,891	-
2068	-	103,184,844	103,184,844	3,591,867	-	16,420,412	-
2069	-	106,796,314	106,796,314	3,557,557	-	16,995,127	-
2070	-	110,534,185	110,534,185	3,502,578	-	17,589,956	-
2071	-	114,402,881	114,402,881	3,446,525	-	18,205,604	-
2072	-	118,406,982	118,406,982	3,369,966	-	18,842,801	-
2073	-	122,551,226	122,551,226	3,283,662	-	19,502,298	-
2074	-	126,840,519	126,840,519	3,170,508	-	20,184,879	-
2075	-	131,279,937	131,279,937	3,054,233	-	20,891,350	-
2076	-	135,874,735	135,874,735	2,937,825	-	21,622,547	-
2077	-	140,630,351	140,630,351	2,804,283	-	22,379,336	-
2078	-	145,552,413	145,552,413	2,671,530	-	23,162,613	-
2079	-	150,646,747	150,646,747	2,506,563	-	23,973,304	-
2080	-	155,919,383	155,919,383	2,356,011	-	24,812,370	-
2081	-	161,376,561	161,376,561	2,199,144	-	25,680,803	-
2082	-	167,024,741	167,024,741	2,034,662	-	26,579,631	-
2083	-	172,870,607	172,870,607	1,881,130	-	27,509,918	-
2084	-	178,921,078	178,921,078	1,714,278	-	28,472,765	-
2085	-	185,183,316	185,183,316	1,562,328	-	29,469,312	-
2086	-	191,664,732	191,664,732	1,408,880	-	30,500,738	-
2087	-	198,372,998	198,372,998	1,257,505	-	31,568,264	-

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 1: Projection of Contributions**

Year	Projected Payroll			Projected Contributions			
	Payroll for Current Plan Members (a)	Payroll for Future Plan Members (b)	Total Payroll (c) = (a) + (b)	Employer Contributions (Benefit Payments) (d)	Employer Contributions (OPEB Trust) (e)	Employer Contributions Related to Payroll of Future Employees (f) = (b) * 15.91%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2088	-	205,316,053	205,316,053	1,116,083	-	32,673,153	-
2089	-	212,502,115	212,502,115	970,879	-	33,816,713	-
2090	-	219,939,689	219,939,689	838,484	-	35,000,298	-
2091	-	227,637,578	227,637,578	715,648	-	36,225,309	-
2092	-	235,604,893	235,604,893	605,142	-	37,493,194	-
2093	-	243,851,064	243,851,064	505,500	-	38,805,456	-
2094	-	252,385,851	252,385,851	416,478	-	40,163,647	-
2095	-	261,219,356	261,219,356	338,152	-	41,569,375	-
2096	-	270,362,033	270,362,033	270,373	-	43,024,303	-
2097	-	279,824,704	279,824,704	214,329	-	44,530,153	-
2098	-	289,618,569	289,618,569	167,349	-	46,088,709	-
2099	-	299,755,219	299,755,219	128,956	-	47,701,814	-
2100	-	310,246,652	310,246,652	97,821	-	49,371,377	-
2101	-	321,105,285	321,105,285	73,140	-	51,099,375	-
2102	-	332,343,970	332,343,970	53,749	-	52,887,854	-
2103	-	343,976,009	343,976,009	39,050	-	54,738,928	-
2104	-	356,015,169	356,015,169	27,913	-	56,654,791	-
2105	-	368,475,700	368,475,700	19,643	-	58,637,709	-
2106	-	381,372,350	381,372,350	13,655	-	60,690,029	-
2107	-	394,720,382	394,720,382	9,281	-	62,814,179	-
2108	-	408,535,595	408,535,595	6,222	-	65,012,676	-
2109	-	422,834,341	422,834,341	4,118	-	67,288,119	-
2110	-	437,633,543	437,633,543	2,694	-	69,643,204	-
2111	-	452,950,717	452,950,717	1,740	-	72,080,716	-
2112	-	468,803,992	468,803,992	1,105	-	74,603,541	-
2113	-	485,212,132	485,212,132	692	-	77,214,665	-
2114	-	502,194,557	502,194,557	428	-	79,917,178	-
2115	-	519,771,366	519,771,366	259	-	82,714,279	-
2116	-	537,963,364	537,963,364	148	-	85,609,279	-
2117	-	556,792,082	556,792,082	82	-	88,605,604	-
2118	-	576,279,805	576,279,805	50	-	91,706,800	-
2119	-	596,449,598	596,449,598	25	-	94,916,538	-
2120	-	617,325,334	617,325,334	16	-	98,238,617	-
2121	-	638,931,721	638,931,721	8	-	101,676,968	-
2122	-	661,294,331	661,294,331	-	-	105,235,662	-

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 2: Projection of the OPEB Plan's Fiduciary Net Position**

Year	Projected Beginning Fiduciary Net Position (a)	Employer Contributions for Current Plan Members (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2020	4,240,910	1,373,440	1,323,440	-	117,496	4,408,406
2021	4,408,406	1,201,692	1,428,423	-	289,915	4,471,590
2022	4,471,590	1,085,769	1,568,621	-	285,536	4,274,274
2023	4,274,274	991,738	1,709,584	-	264,286	3,820,714
2024	3,820,714	857,788	1,827,031	-	225,186	3,076,657
2025	3,076,657	768,617	1,956,120	-	167,596	2,056,750
2026	2,056,750	658,449	2,070,896	-	91,161	735,464
2027	735,464	475,549	2,115,327	-	-	-
2028	-	379,965	2,254,163	-	-	-
2029	-	251,915	2,365,894	-	-	-
2030	-	158,117	2,528,974	-	-	-
2031	-	59,663	2,690,844	-	-	-
2032	-	9,009	2,892,971	-	-	-
2033	-	-	3,033,188	-	-	-
2034	-	-	3,202,398	-	-	-
2035	-	-	3,321,069	-	-	-
2036	-	-	3,459,782	-	-	-
2037	-	-	3,610,472	-	-	-
2038	-	-	3,693,728	-	-	-
2039	-	-	3,786,569	-	-	-
2040	-	-	3,903,160	-	-	-
2041	-	-	3,912,361	-	-	-
2042	-	-	3,924,098	-	-	-
2043	-	-	4,015,250	-	-	-
2044	-	-	4,021,631	-	-	-
2045	-	-	4,027,959	-	-	-
2046	-	-	4,002,930	-	-	-
2047	-	-	4,037,839	-	-	-
2048	-	-	4,073,064	-	-	-
2049	-	-	3,957,216	-	-	-
2050	-	-	3,958,424	-	-	-
2051	-	-	3,973,681	-	-	-
2052	-	-	3,956,097	-	-	-
2053	-	-	3,911,685	-	-	-

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 2: Projection of the OPEB Plan's Fiduciary Net Position**

Year	Projected Beginning Fiduciary Net Position (a)	Employer Contributions for Current Plan Members (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2054	-	-	3,970,909	-	-	-
2055	-	-	3,996,284	-	-	-
2056	-	-	3,977,627	-	-	-
2057	-	-	3,888,029	-	-	-
2058	-	-	3,836,993	-	-	-
2059	-	-	3,824,693	-	-	-
2060	-	-	3,730,147	-	-	-
2061	-	-	3,710,373	-	-	-
2062	-	-	3,726,967	-	-	-
2063	-	-	3,659,268	-	-	-
2064	-	-	3,676,380	-	-	-
2065	-	-	3,659,314	-	-	-
2066	-	-	3,630,888	-	-	-
2067	-	-	3,620,255	-	-	-
2068	-	-	3,591,867	-	-	-
2069	-	-	3,557,557	-	-	-
2070	-	-	3,502,578	-	-	-
2071	-	-	3,446,525	-	-	-
2072	-	-	3,369,966	-	-	-
2073	-	-	3,283,662	-	-	-
2074	-	-	3,170,508	-	-	-
2075	-	-	3,054,233	-	-	-
2076	-	-	2,937,825	-	-	-
2077	-	-	2,804,283	-	-	-
2078	-	-	2,671,530	-	-	-
2079	-	-	2,506,563	-	-	-
2080	-	-	2,356,011	-	-	-
2081	-	-	2,199,144	-	-	-
2082	-	-	2,034,662	-	-	-
2083	-	-	1,881,130	-	-	-
2084	-	-	1,714,278	-	-	-
2085	-	-	1,562,328	-	-	-
2086	-	-	1,408,880	-	-	-
2087	-	-	1,257,505	-	-	-

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 2: Projection of the OPEB Plan's Fiduciary Net Position**

Year	Projected Beginning Fiduciary Net Position (a)	Employer Contributions for Current Plan Members (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2088	-	-	1,116,083	-	-	-
2089	-	-	970,879	-	-	-
2090	-	-	838,484	-	-	-
2091	-	-	715,648	-	-	-
2092	-	-	605,142	-	-	-
2093	-	-	505,500	-	-	-
2094	-	-	416,478	-	-	-
2095	-	-	338,152	-	-	-
2096	-	-	270,373	-	-	-
2097	-	-	214,329	-	-	-
2098	-	-	167,349	-	-	-
2099	-	-	128,956	-	-	-
2100	-	-	97,821	-	-	-
2101	-	-	73,140	-	-	-
2102	-	-	53,749	-	-	-
2103	-	-	39,050	-	-	-
2104	-	-	27,913	-	-	-
2105	-	-	19,643	-	-	-
2106	-	-	13,655	-	-	-
2107	-	-	9,281	-	-	-
2108	-	-	6,222	-	-	-
2109	-	-	4,118	-	-	-
2110	-	-	2,694	-	-	-
2111	-	-	1,740	-	-	-
2112	-	-	1,105	-	-	-
2113	-	-	692	-	-	-
2114	-	-	428	-	-	-
2115	-	-	259	-	-	-
2116	-	-	148	-	-	-
2117	-	-	82	-	-	-
2118	-	-	50	-	-	-
2119	-	-	25	-	-	-
2120	-	-	16	-	-	-
2121	-	-	8	-	-	-
2122	-	-	-	-	-	-

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 3: Actuarial Present Value of Projected Benefit Payments - End of Measurement Period**

Year	Projected Benefit Payments				Actuarial Present Value of Projected Benefit Payments			Present Value of Benefit Payments Using the Single Discount Rate (g) = 2.24%
	Projected Beginning Fiduciary Net Position (a)	Projected Benefit Payments (b)	"Funded" Portion of Benefit Payments (c)	"Unfunded" Portion of Benefit Payments (d)	Present Value of "Funded" Benefit Payments (e)	Present Value of "Unfunded" Benefit Payments (f)		
2021	4,408,406	1,428,423	1,428,423	-	1,382,525	-	-	1,412,699
2022	4,471,590	1,568,621	1,568,621	-	1,422,218	-	-	1,517,388
2023	4,274,274	1,709,584	1,709,584	-	1,452,014	-	-	1,617,539
2024	3,820,714	1,827,031	1,827,031	-	1,453,645	-	-	1,690,814
2025	3,076,657	1,956,120	1,956,120	-	1,457,941	-	-	1,770,644
2026	2,056,750	2,070,896	-	2,070,896	-	1,836,304	-	1,833,495
2027	735,464	2,115,327	-	2,115,327	-	1,835,145	-	1,831,827
2028	-	2,254,163	-	2,254,163	-	1,913,308	-	1,909,317
2029	-	2,365,894	-	2,365,894	-	1,964,724	-	1,960,080
2030	-	2,528,974	-	2,528,974	-	2,054,741	-	2,049,314
2031	-	2,690,844	-	2,690,844	-	2,138,986	-	2,132,742
2032	-	2,892,971	-	2,892,971	-	2,249,936	-	2,242,744
2033	-	3,033,188	-	3,033,188	-	2,307,980	-	2,299,962
2034	-	3,202,398	-	3,202,398	-	2,384,046	-	2,375,102
2035	-	3,321,069	-	3,321,069	-	2,418,933	-	2,409,187
2036	-	3,459,782	-	3,459,782	-	2,465,478	-	2,454,862
2037	-	3,610,472	-	3,610,472	-	2,517,231	-	2,505,694
2038	-	3,693,728	-	3,693,728	-	2,519,594	-	2,507,348
2039	-	3,786,569	-	3,786,569	-	2,527,075	-	2,514,093
2040	-	3,903,160	-	3,903,160	-	2,548,562	-	2,534,764
2041	-	3,912,361	-	3,912,361	-	2,499,335	-	2,485,111
2042	-	3,924,098	-	3,924,098	-	2,452,630	-	2,437,993
2043	-	4,015,250	-	4,015,250	-	2,455,338	-	2,440,006
2044	-	4,021,631	-	4,021,631	-	2,406,066	-	2,390,376
2045	-	4,027,959	-	4,027,959	-	2,357,746	-	2,341,719
2046	-	4,002,930	-	4,002,930	-	2,292,433	-	2,276,215
2047	-	4,037,839	-	4,037,839	-	2,262,425	-	2,245,795
2048	-	4,073,064	-	4,073,064	-	2,232,817	-	2,215,787
2049	-	3,957,216	-	3,957,216	-	2,122,405	-	2,105,631
2050	-	3,958,424	-	3,958,424	-	2,077,148	-	2,060,158
2051	-	3,973,681	-	3,973,681	-	2,040,068	-	2,022,818
2052	-	3,956,097	-	3,956,097	-	1,987,125	-	1,969,774
2053	-	3,911,685	-	3,911,685	-	1,922,334	-	1,905,018
2054	-	3,970,909	-	3,970,909	-	1,909,244	-	1,891,520

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 3: Actuarial Present Value of Projected Benefit Payments - End of Measurement Period**

Year	Projected Beginning Fiduciary Net Position (a)	Projected Benefit Payments (b)	Projected Benefit Payments		Actuarial Present Value of Projected Benefit Payments			Present Value of Benefit Payments Using the Single Discount Rate (g) = 2.24%
			"Funded" Portion of Benefit Payments (c)	"Unfunded" Portion of Benefit Payments (d)	Present Value of "Funded" Benefit Payments (e)	Present Value of "Unfunded" Benefit Payments (f)		
2055	-	3,996,284	-	3,996,284	-	1,879,899	1,861,929	
2056	-	3,977,627	-	3,977,627	-	1,830,665	1,812,660	
2057	-	3,888,029	-	3,888,029	-	1,750,737	1,733,036	
2058	-	3,836,993	-	3,836,993	-	1,690,398	1,672,841	
2059	-	3,824,693	-	3,824,693	-	1,648,546	1,630,970	
2060	-	3,730,147	-	3,730,147	-	1,573,030	1,555,826	
2061	-	3,710,373	-	3,710,373	-	1,530,860	1,513,695	
2062	-	3,726,967	-	3,726,967	-	1,504,458	1,487,175	
2063	-	3,659,268	-	3,659,268	-	1,445,191	1,428,192	
2064	-	3,676,380	-	3,676,380	-	1,420,555	1,403,455	
2065	-	3,659,314	-	3,659,314	-	1,383,388	1,366,354	
2066	-	3,630,888	-	3,630,888	-	1,342,962	1,326,057	
2067	-	3,620,255	-	3,620,255	-	1,310,076	1,293,225	
2068	-	3,591,867	-	3,591,867	-	1,271,699	1,254,992	
2069	-	3,557,557	-	3,557,557	-	1,232,317	1,215,789	
2070	-	3,502,578	-	3,502,578	-	1,187,039	1,170,793	
2071	-	3,446,525	-	3,446,525	-	1,142,787	1,126,832	
2072	-	3,369,966	-	3,369,966	-	1,093,241	1,077,678	
2073	-	3,283,662	-	3,283,662	-	1,042,211	1,027,088	
2074	-	3,170,508	-	3,170,508	-	984,538	969,982	
2075	-	3,054,233	-	3,054,233	-	927,924	913,951	
2076	-	2,937,825	-	2,937,825	-	873,259	859,869	
2077	-	2,804,283	-	2,804,283	-	815,540	802,812	
2078	-	2,671,530	-	2,671,530	-	760,134	748,062	
2079	-	2,506,563	-	2,506,563	-	697,775	686,503	
2080	-	2,356,011	-	2,356,011	-	641,683	631,141	
2081	-	2,199,144	-	2,199,144	-	586,008	576,220	
2082	-	2,034,662	-	2,034,662	-	530,455	521,450	
2083	-	1,881,130	-	1,881,130	-	479,824	471,547	
2084	-	1,714,278	-	1,714,278	-	427,810	420,313	
2085	-	1,562,328	-	1,562,328	-	381,460	374,671	
2086	-	1,408,880	-	1,408,880	-	336,556	330,474	
2087	-	1,257,505	-	1,257,505	-	293,900	288,509	
2088	-	1,116,083	-	1,116,083	-	255,207	250,456	

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

**Table 3: Actuarial Present Value of Projected Benefit Payments - End of Measurement Period**

Year	Projected Beginning Fiduciary Net Position (a)	Projected Benefit Payments (b)	Projected Benefit Payments		Actuarial Present Value of Projected Benefit Payments			Present Value of Benefit Payments Using the Single Discount Rate (g) = 2.24%
			"Funded" Portion of Benefit Payments (c)	"Unfunded" Portion of Benefit Payments (d)	Present Value of "Funded" Benefit Payments (e)	Present Value of "Unfunded" Benefit Payments (f)		
2089	-	970,879	-	970,879	-	217,204	213,101	
2090	-	838,484	-	838,484	-	183,529	180,012	
2091	-	715,648	-	715,648	-	153,255	150,277	
2092	-	605,142	-	605,142	-	126,789	124,290	
2093	-	505,500	-	505,500	-	103,622	101,551	
2094	-	416,478	-	416,478	-	83,527	81,835	
2095	-	338,152	-	338,152	-	66,352	64,990	
2096	-	270,373	-	270,373	-	51,905	50,826	
2097	-	214,329	-	214,329	-	40,257	39,408	
2098	-	167,349	-	167,349	-	30,753	30,096	
2099	-	128,956	-	128,956	-	23,185	22,684	
2100	-	97,821	-	97,821	-	17,207	16,830	
2101	-	73,140	-	73,140	-	12,587	12,308	
2102	-	53,749	-	53,749	-	9,050	8,847	
2103	-	39,050	-	39,050	-	6,433	6,287	
2104	-	27,913	-	27,913	-	4,499	4,396	
2105	-	19,643	-	19,643	-	3,098	3,026	
2106	-	13,655	-	13,655	-	2,107	2,057	
2107	-	9,281	-	9,281	-	1,401	1,368	
2108	-	6,222	-	6,222	-	919	897	
2109	-	4,118	-	4,118	-	595	581	
2110	-	2,694	-	2,694	-	381	371	
2111	-	1,740	-	1,740	-	241	235	
2112	-	1,105	-	1,105	-	150	146	
2113	-	692	-	692	-	92	89	
2114	-	428	-	428	-	55	54	
2115	-	259	-	259	-	33	32	
2116	-	148	-	148	-	18	18	
2117	-	82	-	82	-	10	10	
2118	-	50	-	50	-	6	6	
2119	-	25	-	25	-	3	3	
2120	-	16	-	16	-	2	2	
2121	-	8	-	8	-	1	1	
2122	-	-	-	-	-	-	-	

## APPENDIX B - SCHEDULE OF DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES

Year	Differences between Expected and Actual Experience	Recognition Period (Years)											
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
2018	-	6.77	-	-	-	-	-	-	-	-	-	-	
2019	(7,382,205)	7.13	(1,035,372)	(1,035,372)	(1,035,372)	(1,035,372)	(1,035,372)	(1,035,372)	(1,035,372)	(134,601)	-	-	
2020	-	7.13	-	-	-	-	-	-	-	-	-	-	
Net Increase (Decrease) in OPEB Expense			(1,035,372)	(1,035,372)	(1,035,372)	(1,035,372)	(1,035,372)	(1,035,372)	(1,035,372)	(134,601)	-	-	-
Year	Changes of Assumptions	Recognition Period (Years)											
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
2018	(2,545,072)	6.77	(375,934)	(375,934)	(375,934)	(375,934)	(289,468)	-	-	-	-	-	
2019	9,827,250	7.13	1,378,296	1,378,296	1,378,296	1,378,296	1,378,296	1,378,296	179,178	-	-	-	
2020	15,841,429	7.13	2,221,799	2,221,799	2,221,799	2,221,799	2,221,799	2,221,799	2,221,799	288,836	-	-	
Net Increase (Decrease) in OPEB Expense			3,224,161	3,224,161	3,224,161	3,224,161	3,310,627	3,600,095	2,400,977	288,836	-	-	-
Year	Projected and Actual Earnings on OPEB Plan Investments	Recognition Period (Years)											
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
2018	97,798	5	19,560	19,559	19,559	-	-	-	-	-	-	-	
2019	52,114	5	10,423	10,423	10,423	10,422	-	-	-	-	-	-	
2020	202,726	5	40,545	40,545	40,545	40,545	40,546	-	-	-	-	-	
Net Increase (Decrease) in OPEB Expense			70,528	70,527	70,527	50,967	40,546	-	-	-	-	-	