



## **TOWN OF SOUTHBOROUGH, MASSACHUSETTS**

**OTHER POSTEMPLOYMENT BENEFITS PROGRAM**

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

**Disclosures as of  
June 30, 2022**

KMS Actuaries, LLC  
52 Hunt Road  
Kingston, NH 03848

November, 2022





November 18, 2022

Mr. Brian Ballantine  
Treasurer-Collector  
Town of Southborough  
17 Common Street  
Southborough, MA 01772

Dear Brian:

We are pleased to present the enclosed report of the July 1, 2020 actuarial valuation of the retiree health care benefits for the Town of Southborough. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2022 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)

Results are based on liabilities developed in an actuarial valuation performed as of July 1, 2020 and rolled forward to the plan's measurement date of June 30, 2022.

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 Southborough 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 6.05%, 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 3.54% is based on the Bond Buyer 20-Bond GO Index published on June 30, 2022. The long-term expected rate of return is 6.65%. 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 Bartholomew & Company.

Mr. Brian Ballantine

November 18, 2022

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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 Southborough 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.

KMS Actuaries is completely independent of the Town of Southborough and any of its officers or key personnel. None of the actuaries signing this report or anyone closely associated with them has a relationship with the Town of Southborough, other than as consulting actuary for this assignment, that would impair our independence.

Respectfully submitted,



Linda L. Bournival, FSA, EA

Member, American Academy of Actuaries

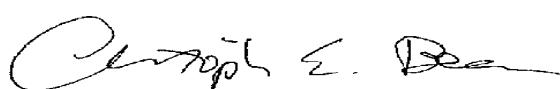
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## EXECUTIVE SUMMARY

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### Purpose of Report

This report presents the results of the actuarial valuation of the Town of Southborough's retiree health care benefits as of July 1, 2020. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2022 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 Southborough. 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 Southborough.

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 Southborough Other Postemployment Benefits Program**

The Town of Southborough 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, 2022	June 30, 2021	% Change
Valuation Date	July 1, 2020	July 1, 2020	
<b>Membership Data</b>			
Active Plan Members	350	349	0.3%
Inactive Plan Members (excludes covered spouses)	184	184	0.0%
Total Plan Members	534	533	0.2%
Covered Spouses	109	105	
Covered Payroll	\$25,627,949	\$24,234,544	5.7%
<b>Net OPEB Liability</b>			
Discount Rate	6.05%	5.65%	
Total OPEB Liability (TOL)	\$49,570,491	\$49,831,238	(0.5%)
Fiduciary Net Position (FNP)	\$2,565,167	\$2,714,632	(5.5%)
Net OPEB Liability	\$47,005,324	\$47,116,606	(0.2%)
FNP as % of TOL	5.2%	5.4%	
<b>OPEB Expense</b>			
OPEB Expense	\$4,869,015	\$3,799,912	28.1%
Deferred Outflows	\$11,600,697	\$13,722,868	
Deferred Inflows	\$7,093,441	\$6,090,130	
Recognition Period	7.38	7.38	

## 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 5.65% as of June 30, 2021 to 6.05% as of June 30, 2022. 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:

◆ Decrease due to change in Inflation Assumption	(232,000)
◆ Decrease due to change in Discount Rate	(3,035,000)
Total	\$ (3,267,000)

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

### Changes of Benefit Terms

All 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, 2022, is \$49,570,491. The Total OPEB Liability as of the prior measurement date, June 30, 2021, was \$49,831,238. During the current measurement period ending June 30, 2022, the Total OPEB Liability decreased by \$260,747, or -.5%. 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, 2022, is \$2,565,167. The Fiduciary Net Position as of the prior measurement date, June 30, 2021, was \$2,714,632. During the plan years ended June 30, 2022 and June 30, 2021, the actual rates of return were -13.56% and 29.26%, respectively. The expected long-term rate of return is 6.65%. The Fiduciary Net Position is shown in Section 1, Exhibit 1.1.

### Employer Future Period Contributions

The Town is expected to contribute \$250,000 annually until their pension system is fully funded in 2036. Given the COVID-19 situation and market volatility, it was assumed the Town will reallocate the funds used to pay the pension amortization towards OPEB beginning in 2037.

## EXECUTIVE SUMMARY

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### Discount Rate

As of the June 30, 2022 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 91 years of projected future benefit payments that are expected to be funded and the 3.54% municipal bond rate was applied to all other years to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 6.05%.

### OPEB Expense

The OPEB Expense for the current measurement period ending June 30, 2022, is \$4,869,015. Benefit changes are recognized immediately and experience gains and losses and assumption changes developed in this valuation are recognized over 7.38 years. Investment gains and losses are recognized over 5 years. The OPEB Expense for the prior measurement period was \$3,799,912. 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 impact 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 experience in a way not anticipated by the 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 Massachusetts General Law Chapter 32B 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	2022	2021
<b>Trust Fund Composition at Fiscal Year-End</b>		
Domestic Equity	1,027,337	1,162,571
International Equity	452,671	589,046
Domestic Bonds	565,291	492,398
International Bonds	121,620	106,073
Alternatives	387,143	360,883
Cash	11,105	3,661
Total Market Value of Assets	2,565,167	2,714,632
<b>Asset Activity</b>		
Market value, beginning of year	\$2,714,632	\$1,855,362
Employer Premiums	1,604,815	1,458,469
OPEB Trust Contributions	250,000	250,000
Benefit Payments	(1,604,815)	(1,458,469)
Administrative Expenses	-	-
Investment Return	(399,465)	609,270
Market value, end of year	\$2,565,167	\$2,714,632
<b>Money-Weighted Rate of Return</b>	<b>-13.56%</b>	<b>29.26%</b>
<b>(Gain) / Loss on OPEB Plan Investments</b>		
Projected earnings	\$195,721	\$145,871
Actual earnings	(399,465)	609,270
(Gain) / Loss on OPEB plan investments	\$595,186	(\$463,399)

## 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, 2022 measurement date was developed from an actuarial valuation as of July 1, 2020 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, 2021 to the end of the measurement period, June 30, 2022 is shown below:

Measurement Date	June 30, 2022
1. Total OPEB Liability, beginning of year:	
a. Actives	\$29,700,940
b. Retirees, Covered Spouses and Survivors	20,130,298
c. Total OPEB Liability at 5.65% (a. + b.)	\$49,831,238
2. Service Cost	\$1,683,692
3. Expected Benefit Payments	
a. Current retirees	(\$1,413,119)
b. Future retirees	(191,696)
c. Total (a. + b.)	(\$1,604,815)
4. Interest [5.65% x (1.c. + 2. + .5 x 3.c.)]	\$2,865,258
5. Changes of benefit terms	\$0
6. Differences between expected and actual experience	\$0
7. Changes of assumptions or other inputs	(\$3,204,882)
8. Total OPEB Liability, end of year (1.c. + 2. + 3.c. + 4. + 5. + 6. + 7.)	
a. Actives	\$30,582,044
b. Retirees, Covered Spouses and Survivors	18,988,447
c. Total OPEB Liability at 6.05% (a. + b.)	\$49,570,491

## SECTION 1 - PRINCIPAL VALUATION RESULTS

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

The Town is expected to contribute \$250,000 annually until their pension system is fully funded in 2036. Given the COVID-19 situation and market volatility, it was assumed the Town will reallocate the funds used to pay the pension amortization towards OPEB beginning in 2037.

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, 2022	June 30, 2023
<b>Discount Rate</b>	<b>5.65%</b>	<b>6.05%</b>
1. Normal Cost	\$1,683,692	\$1,628,317
2. Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$49,831,238	\$49,570,491
b. Actuarial Value of Plan Assets	\$2,714,632	\$2,565,167
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$47,116,606	\$47,005,324
3. Amortization of Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability	\$47,116,606	\$47,005,324
b. Amortization Period in years	30	30
c. Payroll Growth Rate	0.0%	0.0%
d. Amortization Factor	15.10	14.52
e. Amortization Amount (3.a. / 3.d.)	\$3,120,305	\$3,237,281
4. Interest on 1. and 3.e.	\$271,426	\$294,369
5. Actuarially Determined Employer Contribution (1. + 3.e. + 4.)	\$5,075,423	\$5,159,967
6. Actual Employer Contribution to OPEB Trust	\$250,000	TBD
7. Expected Benefit Payments	\$1,604,815	
8. Total Contribution (6. + 7.)	\$1,854,815	

## SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

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### Exhibit 2.1 - Plan Description

#### Plan Administration

The Town of Southborough 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, 2022, OPEB plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefit payments <sup>1</sup>	184
Inactive plan members entitled to but not yet receiving benefit payments	0
Active plan members	350
	<hr/>
	534
	<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

The Town is expected to contribute \$250,000 annually until their pension system is fully funded in 2036. Given the COVID-19 situation and market volatility, it was assumed the Town will reallocate the funds used to pay the pension amortization towards OPEB beginning in 2037.

## SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

### Exhibit 2.2 - Net OPEB Liability

The components of the net OPEB liability at June 30, 2022, were as follows:

Total OPEB liability	\$ 49,570,491
Fiduciary net position	(2,565,167)
Net OPEB liability	\$ 47,005,324

Fiduciary net position as a percentage of the total OPEB liability 5.17%

#### Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of July 1, 2020, rolled forward to the measurement date and using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.4% per year, based on current economic data, analyses from economists and other experts, and professional judgement.
Discount rate	6.05 percent, net of investment expenses, including inflation.
Healthcare cost trend rate	7 percent for 2020, decreasing 0.4 percent per year to 5.4 percent, then grading down to an ultimate trend rate of 4 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-2014 Blue Collar Employees Mortality Table, projected with generational mortality improvement using scale MP-2018.
Healthy Retiree Mortality - General and Public Safety employees	RP-2014 Blue Collar Healthy Annuitant Mortality Table, projected with generational mortality improvement using scale MP-2018.
Disabled Retiree Mortality - General and Public Safety employees	RP-2014 Blue Collar Mortality Table set forward one year with full generational mortality improvement using Scale MP-2018.
Pre-Retirement Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Employee Mortality Table, base year 2010, projected with generational mortality using Scale MP-2020.
Healthy Retiree Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Retiree Mortality Table, base year 2010, projected with generational mortality using Scale MP-2020.
Disabled Retiree Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Disabled Mortality Table, base year 2010, projected with generational mortality using Scale MP-2020.

## 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, 2022 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rates of Return <sup>1</sup>
Domestic Equity	34%	4.66%
International Equity	22%	5.88%
Domestic Bonds	20%	1.30%
International Bonds	4%	1.33%
Alternatives	20%	5.28%
Total	100%	

<sup>1</sup> provided by Bartholomew & Company.

#### Discount Rate

The discount rate used to measure the total OPEB liability was 6.05%. 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 91 years of projected future benefit payments that are expected to be funded and the 3.54% municipal bond rate was applied to all other years 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 6.05 percent, as well as what the net OPEB liability would be if it were calculated using a discount rate 1-percentage point lower (5.05 percent) or 1-percentage point higher (7.05 percent) than the current rate:

	1% Decrease (5.05%)	Assumed Discount Rate (6.05%)	1% Increase (7.05%)
Total OPEB Liability	\$ 57,706,001	\$ 49,570,491	\$ 43,048,874
Fiduciary Net Position	(2,565,167)	(2,565,167)	(2,565,167)
Net OPEB Liability	\$ 55,140,834	\$ 47,005,324	\$ 40,483,707
% Change in NOL	17.3%		-13.9%

#### 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 (6% year 1 decreasing to 3%) or 1-percentage point higher (8% year 1 decreasing to 5%) than the current healthcare cost trend rates:

	1% Decrease 6% Year 1 Decreasing to 3%	Assumed Healthcare Cost Trend 7% Year 1 Decreasing to 4%	1% Increase 8% Year 1 Decreasing to 5%
Total OPEB Liability	\$ 41,594,912	\$ 49,570,491	\$ 59,816,895
Fiduciary Net Position	(2,565,167)	(2,565,167)	(2,565,167)
Net OPEB Liability	\$ 39,029,745	\$ 47,005,324	\$ 57,251,728
% Change in NOL	-17.0%		21.8%

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

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

Fiscal Year Ended June 30	2022	2021	2020	2019	2018
<b>Total OPEB Liability</b>					
Service cost	\$ 1,683,692	\$ 931,942	\$ 889,551	\$ 1,102,359	\$ 1,408,106
Interest	2,865,258	2,182,825	2,206,645	1,984,110	1,894,830
Changes of benefit terms	-	-	-	-	-
Differences between expected and actual experience	-	6,649,997	(3,592,503)	-	2,242,713
Changes of assumptions	(3,204,882)	8,145,723	83,922	(6,007,783)	-
Benefit payments	(1,604,815)	(1,458,469)	(1,231,651)	(1,255,235)	(1,169,027)
<b>Net change in total OPEB liability</b>	<b>\$ (260,747)</b>	<b>\$ 16,452,018</b>	<b>\$ (1,644,036)</b>	<b>\$ (4,176,549)</b>	<b>\$ 4,376,622</b>
<b>Total OPEB liability—beginning</b>	<b>\$ 49,831,238</b>	<b>\$ 33,379,220</b>	<b>\$ 35,023,256</b>	<b>\$ 39,199,805</b>	<b>\$ 34,823,183</b>
<b>Total OPEB liability—ending (a)</b>	<b><u>\$ 49,570,491</u></b>	<b><u>\$ 49,831,238</u></b>	<b><u>\$ 33,379,220</u></b>	<b><u>\$ 35,023,256</u></b>	<b><u>\$ 39,199,805</u></b>
<b>Plan Fiduciary Net Position</b>					
Contributions--employer	\$ 1,854,815	\$ 1,708,469	\$ 1,481,651	\$ 1,505,235	\$ 1,419,027
Net investment income	(399,465)	609,270	35,991	78,416	66,625
Benefit payments	(1,604,815)	(1,458,469)	(1,231,651)	(1,255,235)	(1,169,027)
Administrative expenses	-	-	-	-	-
Other	-	-	-	-	-
<b>Net change in plan fiduciary net position</b>	<b>\$ (149,465)</b>	<b>\$ 859,270</b>	<b>\$ 285,991</b>	<b>\$ 328,416</b>	<b>\$ 316,625</b>
<b>Plan fiduciary net position—beginning</b>	<b>\$ 2,714,632</b>	<b>\$ 1,855,362</b>	<b>\$ 1,569,371</b>	<b>\$ 1,240,955</b>	<b>\$ 924,330</b>
<b>Plan fiduciary net position—ending (b)</b>	<b><u>\$ 2,565,167</u></b>	<b><u>\$ 2,714,632</u></b>	<b><u>\$ 1,855,362</u></b>	<b><u>\$ 1,569,371</u></b>	<b><u>\$ 1,240,955</u></b>
<b>Net OPEB liability—ending (a) – (b)</b>	<b><u>\$ 47,005,324</u></b>	<b><u>\$ 47,116,606</u></b>	<b><u>\$ 31,523,858</u></b>	<b><u>\$ 33,453,885</u></b>	<b><u>\$ 37,958,850</u></b>
Plan fiduciary net position as a percentage of the total OPEB liability	5.17%	5.45%	5.56%	4.48%	3.17%
Covered payroll	\$ 25,627,949	\$ 24,234,544	\$ 23,409,824	\$ 22,223,655	\$ 21,576,364
Net OPEB liability as a percentage of covered payroll	183.41%	194.42%	134.66%	150.53%	175.93%
<b>Discount Rate</b>	<b>6.05%</b>	<b>5.65%</b>	<b>6.50%</b>	<b>6.25%</b>	<b>5.00%</b>

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

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

Fiscal Year Ended June 30	2017	2016	2015	2014	2013
<b>Total OPEB Liability</b>					
Service cost	\$ 1,414,513				
Interest	1,255,435				
Changes of benefit terms	-				
Differences between expected and actual experience	6,017,400				
Changes of assumptions	-				
Benefit payments	(688,801)				
<b>Net change in total OPEB liability</b>	<b>\$ 7,998,547</b>				
<b>Total OPEB liability—beginning</b>	<b>\$ 26,824,636</b>				
<b>Total OPEB liability—ending (a)</b>	<b>\$ 34,823,183</b>				
<b>Plan Fiduciary Net Position</b>					
Contributions--employer	\$ 938,801				
Net investment income	67,927				
Benefit payments	(688,801)				
Administrative expenses	-				
Other	-				
<b>Net change in plan fiduciary net position</b>	<b>\$ 317,927</b>				
<b>Plan fiduciary net position—beginning</b>	<b>\$ 606,403</b>				
<b>Plan fiduciary net position—ending (b)</b>	<b>\$ 924,330</b>				
<b>Net OPEB liability—ending (a) – (b)</b>	<b>\$ 33,898,853</b>				
Plan fiduciary net position as a percentage of the total OPEB liability	2.65%				
Covered payroll	\$ 19,326,334				
Net OPEB liability as a percentage of covered payroll	175.40%				
<b>Discount Rate</b>	<b>4.50%</b>				

Note: Only 6 years are presented here and on the previous page, beginning with the year of implementation; 10 years of information will be required.

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

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

#### **Changes of Benefit Terms**

All benefit terms are the same as those used in the prior measurement.

#### **Changes of Assumptions**

The discount rate changed from 5.65% as of June 30, 2021 to 6.05% as of June 30, 2022. In addition, the inflation rate was updated in this valuation.

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

### Exhibit 3.2 - Investment Returns

Fiscal Year Ended June 30	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Annual money-weighted rate of return, net of investment expenses	-13.56%	29.26%	2.00%	5.34%	6.76%	8.37%				

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 6 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, 2021	\$ 2,714,632	12	1.00	\$ 2,346,434
Monthly net external cash flows:				
July	250,000	11	0.92	218,732
August	-	10	0.83	-
September	-	9	0.75	-
October	-	8	0.67	-
November	-	7	0.58	-
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, 2022				\$ 2,565,167
Money-weighted rate of return:				
				-13.56%

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

### Exhibit 3.3 - Schedule of Employer Contributions

Fiscal Year Ended June 30	2022	2021	2020	2019	2018
Actuarially determined contribution	\$ 5,075,423	\$ 3,406,099	\$ 3,156,233	\$ 3,451,305	\$ 3,135,467
Contributions in relation to the actuarially determined contribution	<u>1,854,815</u>	<u>1,708,469</u>	<u>1,481,651</u>	<u>1,505,235</u>	<u>1,419,027</u>
Contribution deficiency (excess)	<u><u>\$ 3,220,608</u></u>	<u><u>\$ 1,697,630</u></u>	<u><u>\$ 1,674,582</u></u>	<u><u>\$ 1,946,070</u></u>	<u><u>\$ 1,716,440</u></u>
Covered payroll	\$ 25,627,949	\$ 24,234,544	\$ 23,409,824	\$ 22,223,655	\$ 21,576,364
Contributions as a percentage of covered payroll	7.24%	7.05%	6.33%	6.77%	6.58%
Discount rate	5.65%	6.50%	6.25%	5.00%	4.50%
Inflation	2.40%	2.20%	2.50%	Not available	Not available

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

### Exhibit 3.3 - Schedule of Employer Contributions

Fiscal Year Ended June 30	2017	2016	2015	2014	2013
Actuarially determined contribution	\$ 2,954,779				
Contributions in relation to the actuarially determined contribution	938,801				
Contribution deficiency (excess)	\$ 2,015,978				
Covered payroll	\$ 19,326,334				
Contributions as a percentage of covered payroll	4.86%				
Discount rate	Not available				
Inflation	Not available				

Note: Only 6 years are presented here and on the previous page, beginning with the year of implementation; 10 years of information will be required.

#### 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	7 percent for 2020, decreasing 0.4 percent per year to 5.4 percent, then grading down to an ultimate trend rate of 4 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, 2022	
		Amounts Recognized in OPEB Expense through June 30, 2022			Deferred Outflows of Resources	Deferred Inflows of Resources
Year	Experience Losses	Experience Gains	(c)	(a) - (c)	(b) + (c)	
	(a)	(b)	(c)	(a) - (c)	(b) + (c)	
2018	\$ 2,242,713	\$ -	\$ 1,711,995	\$ 530,718	\$ -	
2019	-	-	-	-	-	
2020	-	3,592,503	(1,608,582)	-	1,983,921	
2021	6,649,997	-	1,802,168	4,847,829	-	
2022	-	-	-	-	-	
Total				\$ 5,378,547	\$ 1,983,921	

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, 2022	
		Amounts Recognized in OPEB Expense through June 30, 2022			Deferred Outflows of Resources	Deferred Inflows of Resources
Year	Increases in the Total OPEB Liability	Decreases in the Total OPEB Liability	(c)	(a) - (c)	(b) + (c)	
	(a)	(b)	(c)	(a) - (c)	(b) + (c)	
2018	\$ -	\$ -	\$ -	\$ -	\$ -	
2019	-	6,007,783	(3,668,879)	-	2,338,904	
2020	83,922	-	37,582	46,340	-	
2021	8,145,723	-	2,207,514	5,938,209	-	
2022	-	3,204,882	(434,266)	-	2,770,616	
Total				\$ 5,984,549	\$ 5,109,520	

## 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, 2022	
	Investment Earnings Less Than Projected	Investment Earnings Greater Than Projected	Amounts Recognized in OPEB Expense through June 30, 2022	Deferred Outflows of Resources	Deferred Inflows of Resources		
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)		
2018	\$ -	\$ 20,881	\$ (20,881)	\$ -	\$ -		
2019	17,734	-	14,188	3,546	-		
2020	89,861	-	53,916	35,945	-		
2021	-	463,399	(185,360)	-	278,039		
2022	595,186	-	119,037	476,149	-		
Subtotal				\$ 515,640	\$ 278,039		
Net				\$ 237,601	\$ -		

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

Year ended June 30		
2023	\$ 519,962	
2024	\$ 362,337	
2025	\$ 568,796	
2026	\$ 1,323,039	
2027	\$ 1,570,575	
Thereafter	162,547	
<b>Deferred Outflows</b>	<b>\$ 11,600,697</b>	
<b>Deferred Inflows</b>	<b>\$ 7,093,441</b>	

## 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, 2022 is presented below:

#### Fiscal Year Ended June 30, 2022

Measurement Date	6/30/2022
1. Service cost	\$ 1,683,692
2. Interest on the total OPEB liability	
a. Total OPEB liability, beginning of year	49,831,238
b. Service cost, beginning of year	1,683,692
c. Benefit payments	<u>(1,604,815)</u>
d. Interest on total OPEB liability = 5.65% times (a. + b. + .5 times c.)	2,865,258
3. Differences between expected and actual experience	707,289
4. Changes of benefit terms	-
5. Changes of assumptions	(235,202)
6. Projected earnings on OPEB plan investments	
a. Plan fiduciary net position, beginning of year	2,714,632
b. Contributions - Employer	1,854,815
c. Benefit payments	<u>(1,604,815)</u>
d. Administrative expenses and other	-
e. Total projected earnings	(195,721)
7. Differences between projected and actual earnings on OPEB plan investments	43,699
8. OPEB plan administrative expenses	-
9. Other changes in fiduciary net position	-
<b>10. Total OPEB Expense</b>	<b>\$ 4,869,015</b>

## SECTION 5 - SUMMARY OF PLAN PROVISIONS

**Eligibility for Postemployment Benefits** Employees of the Town and their dependents are eligible for postemployment medical, dental 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, 2021	Individual	Family
Fallon Select	\$903.09	\$2,283.67
Fallon Direct	\$812.77	\$2,113.18
Fallon PPO	\$1,174.48	\$3,053.65
Tufts	\$852.94	\$2,217.68

### Medicare Plans - January 1, 2021

BCBS Medex 2	\$448.67
BCBS Managed Blue	\$377.77
Fallon Senior	\$313.00
Tufts Supplement Prime	\$407.00
Tufts HMO Prime	\$333.00

**Participant Contributions** Retired employees contribute 50% of the total medical premium for the Fallon PPO, BCBS Medex 2, and Tufts Supplement Prime plans, and 25% for all other plans.

## SECTION 5 - SUMMARY OF PLAN PROVISIONS

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**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 provided. The total monthly costs are \$44.56 and \$132.70 for individual and family plans, respectively. Retirees contribute 50% of the monthly premiums.

**Life Insurance Coverage** Retirees are eligible for a \$1,000 life insurance benefit. The total monthly cost is \$0.35. Retirees contribute \$0.18 towards the monthly premiums.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

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<b>Valuation Date</b>	July 1, 2020
<b>Disclosure Date</b>	June 30, 2022
<b>GASB 75 Reporting Date</b>	June 30, 2022
<b>Long-Term Expected Rate of Return</b>	6.65%, 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>	3.54%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2022.
<b>Discount Rate (GASB)</b>	6.05%, compounded annually, for the measurement as of June 30, 2022. 5.65%, compounded annually, for the measurement as of June 30, 2021.  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>	5.65%, compounded annually, for development of the Actuarially Determined Contribution (ADEC) as of June 30, 2022.
<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	7.00%
2	6.60%
3	6.20%
4	5.80%
5	5.40%
Ultimate	4.00%

Trend rates after year 5 grade down to the ultimate rate of 4 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

Dental trend rates are 4% per year.

### Inflation

2.4% per year, based on current economic data, analyses from economists and other experts, and professional judgment.

### Payroll Growth

3.5% per year.

### Participation Rates

Medical - 80% of eligible retired employees will elect to participate.

Dental - 80% of eligible retirees will elect to participate.

Life - 80% 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.

70% 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, 2020 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	\$4,197	\$4,927	\$4,197	\$4,927
20-24	3,307	5,246	3,307	5,246
25-29	3,441	7,739	3,441	7,739
30-34	4,323	9,779	4,323	9,779
35-39	5,422	10,072	5,422	10,072
40-44	6,757	10,316	6,757	10,316
45-49	8,528	11,323	8,528	11,323
50-54	11,239	13,321	11,239	13,321
55-59	14,605	15,402	14,605	15,402
60-64	18,743	18,332	18,743	18,332
65-69	3,547	3,454	23,385	21,975
70-74	4,251	4,075	28,018	25,911
75-79	5,019	4,728	33,096	30,092
80-84	5,770	5,422	38,040	34,498
85-89	6,427	6,061	43,538	39,383
90-94	6,997	6,469	43,538	39,383
95+	7,437	6,256	43,538	39,383

### Retiree Contributions

Annual per capita participant contributions for the fiscal year beginning July 1, 2020 are as follows:

Plan	Contribution
Non-Medicare	\$ 3,230
Medicare	1,661

### 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, 2021. We made reasonable adjustments for missing or invalid data.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

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### Use of ProVal®

KMS Actuaries has used ProVal® to develop the liabilities, normal costs and projected benefit payments in this report. We have a lease agreement with WinTech, the developer of ProVal®, and have relied on their system to perform these calculations. The actuaries signing this report and the KMS staff members who were involved in preparing it have a clear understanding of ProVal® and have used it only for its intended purpose. We have reviewed the output produced by ProVal® for reasonableness and we are not aware of any material inconsistencies, limitations or known weaknesses that would affect this report.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### General and Public Safety

#### Pre-Retirement Mortality

Pre-retirement mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Employees Mortality Table, projected with generational mortality improvement using scale MP-2018.

#### Healthy Retiree Mortality

Healthy retiree mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Healthy Annuitant Mortality Table, projected with generational mortality improvement using scale MP-2018.

#### Disabled Retiree Mortality

Disabled retiree mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Mortality Table set forward one year with full generational mortality improvement using Scale MP-2018

#### 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

### General and Public Safety

#### 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

### Teachers

**Pre-Retirement Mortality** Pre-retirement mortality rates for Teachers are based on the PUB-2010 Teachers Headcount-Weighted Employee Mortality Table, base year 2010, projected with generational mortality using Scale MP-2020.

**Healthy Retiree Mortality** Healthy retiree mortality rates for Teachers are based on the PUB-2010 Teachers Headcount-Weighted Retiree Mortality Table, base year 2010, projected with generational mortality using Scale MP-2020.

**Disabled Retiree Mortality** Disabled retiree mortality rates for Teachers are based on the PUB-2010 Teachers Headcount-Weighted Disabled Mortality Table, base year 2010, projected with generational mortality using Scale MP-2020.

**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

### Teachers

#### 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, 2020

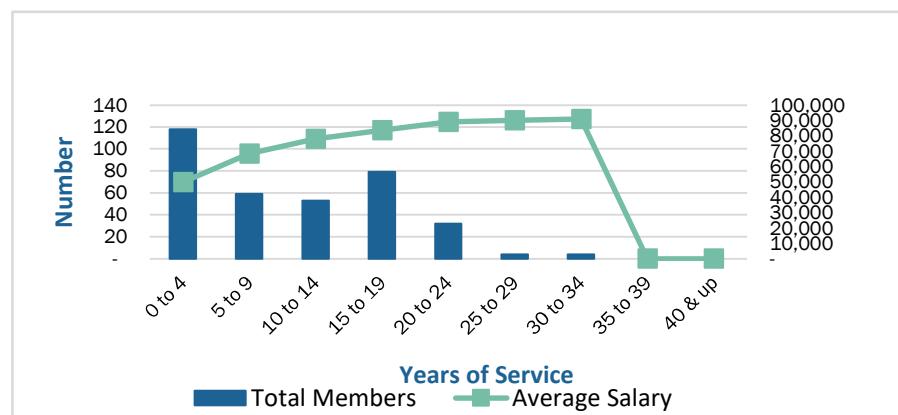
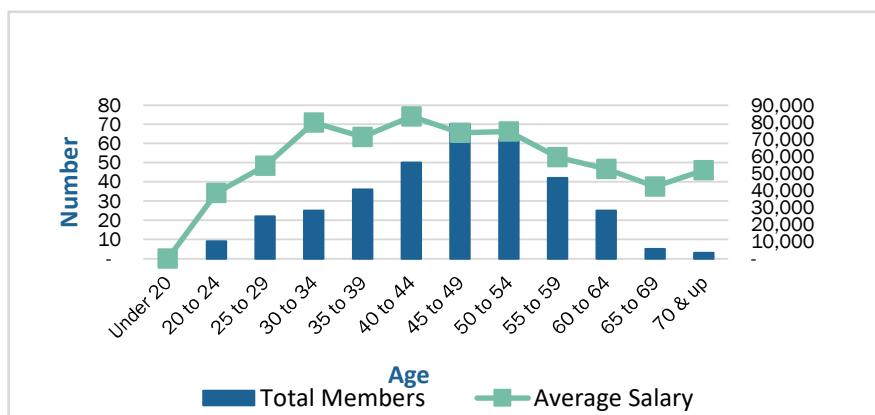
Age	Years of Service										Total	Total Salary	Average Salary
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up				
<b>Under 20</b>	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>20 to 24</b>	8	1	-	-	-	-	-	-	-	9	346,387	38,487	
<b>25 to 29</b>	18	4	-	-	-	-	-	-	-	22	1,199,266	54,512	
<b>30 to 34</b>	12	13	-	-	-	-	-	-	-	25	1,993,591	79,744	
<b>35 to 39</b>	16	6	10	4	-	-	-	-	-	36	2,569,923	71,387	
<b>40 to 44</b>	13	5	6	25	1	-	-	-	-	50	4,166,857	83,337	
<b>45 to 49</b>	20	8	12	17	11	2	-	-	-	70	5,161,056	73,729	
<b>50 to 54</b>	17	11	10	13	9	2	-	-	-	62	4,617,474	74,475	
<b>55 to 59</b>	9	7	9	10	4	-	3	-	-	42	2,500,953	59,547	
<b>60 to 64</b>	4	3	4	9	4	-	1	-	-	25	1,312,169	52,487	
<b>65 to 69</b>	-	1	1	1	2	-	-	-	-	5	211,161	42,232	
<b>70 &amp; up</b>	1	-	1	-	1	-	-	-	-	3	155,707	51,902	
<b>Total</b>	118	59	53	79	32	4	4	-	-	349	24,234,544	69,440	
<b>Total Salary</b>	5,883,041	4,035,329	4,138,540	6,604,295	2,849,170	360,415	363,754	-	-				
<b>Average Salary</b>	49,856	68,395	78,086	83,599	89,037	90,104	90,939	-	-				

Average Age:

46.4

Average Service:

10.6



## SECTION 7 - PLAN MEMBER INFORMATION

### Exhibit 7.2 - Retired Members, Covered Spouses and Survivors as of July 1, 2020

Age	Non-Medicare Plans							Medicare Plans		
	Fallon Select	Fallon Direct	Fallon PPO	Tufts	BCBS Medex 2	BCBS Managed Blue	Fallon Senior	Tufts Supplement Prime	Tufts HMO Prime	Total
Under 40	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	1	0	0	0	0	0	1
50 to 54	0	0	0	0	0	0	0	0	0	0
55 to 59	5	1	1	3	0	0	0	0	0	10
60 to 64	1	0	1	14	0	1	0	2	1	20
65 to 69	0	0	0	1	4	10	2	10	9	36
70 to 74	0	0	0	0	1	1	1	14	9	26
75 to 79	0	0	0	0	3	1	2	10	13	29
80 to 84	1	0	1	0	2	1	0	5	6	16
85 to 89	0	0	0	0	3	0	0	3	5	11
90+	0	0	0	0	0	0	0	0	0	0
Total	7	1	3	19	13	14	5	44	43	149
Covered Spouses	3	1	0	16	5	8	3	22	21	79

Average Age: 72.2

In addition, there are 61 retirees, survivors and covered spouses that are not covered under any medical plan but are covered under a dental and/or life insurance plan which the Town contributes to.

## 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

Department	Town	School	Police	Fire	Water	Total
<b>Summary of Member Data Used in Valuation</b>						
Active Members	54	247	20	22	6	349
Average Age	47.6	47.3	37.5	41.2	48.1	46.4
Average Service	9.1	10.9	10.1	11.4	12.7	10.6
Covered Payroll	3,712,923	15,656,971	2,349,769	2,018,475	496,406	24,234,544
Retired Members and Survivors	52	120	6	3	3	184
Average Age	72.5	72.6	69.5	60.9	69.1	72.2
Covered Spouses	25	70	5	3	2	105
Expected Benefit Payments	419,994	967,477	87,765	98,714	30,865	1,604,815
OPEB Trust contributions	48,826	166,466	16,916	17,792	0	250,000
Total Employer Contributions	468,820	1,133,943	104,681	116,506	30,865	1,854,815
<b>Beginning Net OPEB Liability - June 30, 2021</b>						
Total OPEB Liability	9,558,363	32,587,762	3,311,515	3,483,105	890,493	49,831,238
Fiduciary Net Position	448,292	1,850,487	208,350	207,503	0	2,714,632
Net OPEB Liability	9,110,071	30,737,275	3,103,165	3,275,602	890,493	47,116,606
Total OPEB Liability, beginning of year	9,558,363	32,587,762	3,311,515	3,483,105	890,493	49,831,238
Service cost	213,345	1,069,778	172,108	207,292	21,169	1,683,692
Interest	540,237	1,874,320	194,345	205,719	50,637	2,865,258
Changes of benefit terms	0	0	0	0	0	0
Differences between expected and actual experience	0	0	0	0	0	0
Changes of assumptions	(515,914)	(2,134,506)	(243,748)	(253,024)	(57,690)	(3,204,882)
Benefit payments	(419,994)	(967,477)	(87,765)	(98,714)	(30,865)	(1,604,815)
Net change in total OPEB liability	(182,326)	(157,885)	34,940	61,273	(16,749)	(260,747)
Total OPEB Liability, end of year	9,376,037	32,429,877	3,346,455	3,544,378	873,744	49,570,491
<b>Ending Net OPEB Liability - June 30, 2022</b>						
Total OPEB Liability	9,376,037	32,429,877	3,346,455	3,544,378	873,744	49,570,491
Fiduciary Net Position	430,207	1,745,144	194,891	194,925	0	2,565,167
Net OPEB Liability	8,945,830	30,684,733	3,151,564	3,349,453	873,744	47,005,324

## SECTION 9 - BREAKOUT OF RESULTS BY DEPARTMENT

Department	Town	School	Police	Fire	Water	Total
<b>Total Deferred Outflows of Resources</b>						
Differences between Expected and Actual						
Experience	1,031,684	3,517,368	357,429	375,950	96,116	5,378,547
Changes in Assumptions	1,147,924	3,913,671	397,701	418,308	106,945	5,984,549
Differences between Expected and Actual						
Earnings on OPEB Plan Investments	39,237	161,966	18,236	18,162	0	237,601
<b>Total Deferred Outflows of Resources</b>	<b>2,218,846</b>	<b>7,593,005</b>	<b>773,366</b>	<b>812,420</b>	<b>203,061</b>	<b>11,600,697</b>
<b>Total Deferred Inflows of Resources</b>						
Differences between Expected and Actual						
Experience	380,545	1,297,410	131,841	138,672	35,453	1,983,921
Changes in Assumptions	980,081	3,341,435	339,551	357,145	91,308	5,109,520
Differences between Expected and Actual						
Earnings on OPEB Plan Investments	0	0	0	0	0	0
<b>Total Deferred Inflows of Resources</b>	<b>1,360,626</b>	<b>4,638,845</b>	<b>471,392</b>	<b>495,817</b>	<b>126,761</b>	<b>7,093,441</b>
<b>Total OPEB Expense</b>	<b>691,205</b>	<b>3,265,766</b>	<b>429,661</b>	<b>449,957</b>	<b>32,426</b>	<b>4,869,015</b>
<b>Sensitivity of the Net OPEB Liability to Changes in the Discount Rate</b>						
Current Discount Rate: 6.05%	8,945,830	30,684,733	3,151,564	3,349,453	873,744	47,005,324
1% Decrease in the Discount Rate: 5.05%	10,484,625	36,007,125	3,700,784	3,931,156	1,017,143	55,140,834
1% Increase in the Discount Rate: 7.05%	7,712,295	26,418,178	2,711,296	2,883,146	758,792	40,483,707
<b>Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates</b>						
Current Trend Rates	8,945,830	30,684,733	3,151,564	3,349,453	873,744	47,005,324
1% Decrease in Trend Rates	7,437,285	25,466,971	2,613,141	2,779,185	733,164	39,029,745
1% Increase in Trend Rates	10,883,892	37,388,109	3,843,289	4,082,089	1,054,350	57,251,728
<b>Deferred Outflows of Resources and Deferred Inflows of Resources recognized in OPEB Expense</b>						
2023	99,005	340,795	34,836	36,524	8,802	519,962
2024	68,992	237,483	24,276	25,452	6,134	362,337
2025	108,304	372,801	38,108	39,954	9,629	568,796
2026	251,918	867,150	88,640	92,934	22,397	1,323,039
2027	299,051	1,029,391	105,224	110,322	26,587	1,570,575
Thereafter	30,950	106,537	10,890	11,418	2,752	162,547

## 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.

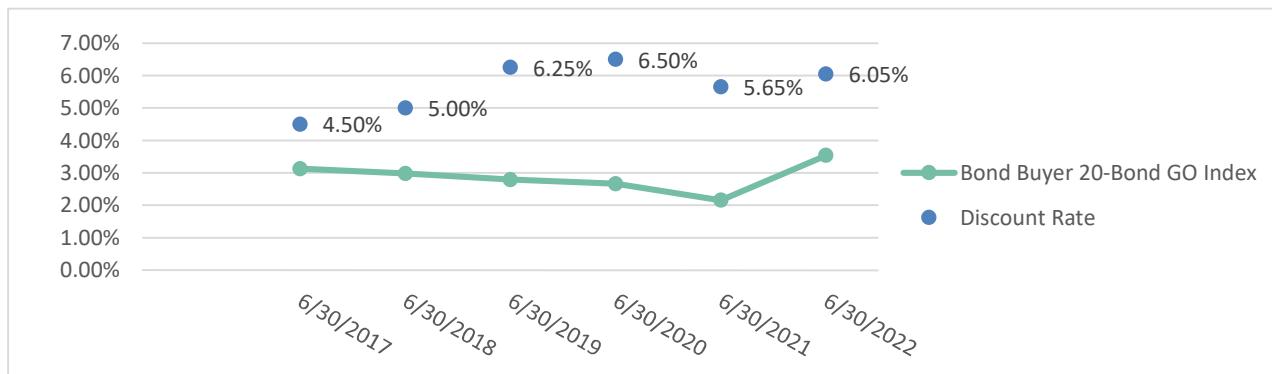
Projected cash flows into and out of the OPEB plan are assumed to be contributions to the OPEB plan, benefit payments, OPEB plan administrative expenses and OPEB plan investment earnings. These projected cash flows are used to project the OPEB plan's fiduciary net position at the beginning of each period. 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 6.05%, a long-term investment return rate of 6.65% and a municipal bond rate of 3.54%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2022. 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 91 years of projected future benefit payments that are expected to be funded and the 3.54% municipal bond rate was applied to all other years to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 6.05%.

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<sup>1</sup>:



<sup>1</sup>Bond rates prior to 2021 are based on the S&P Municipal Bond 20 Year High Grade Index.

## 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) * 6.60%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2022	23,837,186	-	23,837,186	1,604,815	250,000	-	1,854,815
2023	23,149,553	1,521,935	24,671,488	1,706,287	250,000	100,448	1,855,839
2024	22,529,018	3,005,972	25,534,990	1,801,000	250,000	198,394	1,852,606
2025	21,933,854	4,494,861	26,428,715	1,909,581	250,000	296,661	1,862,920
2026	21,346,866	6,006,854	27,353,720	2,025,137	250,000	396,452	1,878,685
2027	20,639,692	7,671,408	28,311,100	2,110,748	250,000	506,313	1,854,435
2028	19,997,116	9,304,873	29,301,989	2,273,947	250,000	614,121	1,909,826
2029	19,193,545	11,134,014	30,327,559	2,515,241	250,000	734,844	2,030,397
2030	18,333,229	13,055,795	31,389,024	2,718,381	250,000	861,682	2,106,699
2031	17,392,047	15,095,593	32,487,640	2,990,889	250,000	996,308	2,244,581
2032	16,372,119	17,252,588	33,624,707	3,319,073	250,000	1,138,670	2,430,403
2033	15,279,265	19,522,307	34,801,572	3,598,228	250,000	1,288,471	2,559,757
2034	14,229,141	21,790,486	36,019,627	3,944,509	250,000	1,438,171	2,756,338
2035	13,126,874	24,153,440	37,280,314	4,265,742	250,000	1,594,126	2,921,616
2036	11,786,269	26,798,856	38,585,125	4,507,753	250,000	1,768,723	2,989,030
2037	10,530,000	29,405,604	39,935,604	4,738,345	5,683,808	1,940,768	8,481,385
2038	9,371,431	31,961,919	41,333,350	4,995,094	5,911,160	2,109,485	8,796,769
2039	8,417,749	34,362,268	42,780,017	5,094,281	6,147,607	2,267,908	8,973,980
2040	7,537,346	36,739,972	44,277,318	5,122,645	6,393,511	2,424,836	9,091,320
2041	6,760,104	39,066,920	45,827,024	5,233,056	6,649,251	2,578,415	9,303,892
2042	6,052,837	41,378,133	47,430,970	5,345,963	6,915,221	2,730,955	9,530,229
2043	5,550,033	43,541,021	49,091,054	5,141,916	7,191,830	2,873,705	9,460,041
2044	5,111,147	45,698,094	50,809,241	5,078,672	7,479,503	3,016,072	9,542,103
2045	4,712,511	47,875,053	52,587,564	5,147,468	7,778,684	3,159,751	9,766,401
2046	4,285,312	50,142,817	54,428,129	5,166,922	8,089,831	3,309,423	9,947,330
2047	3,856,343	52,476,771	56,333,114	5,156,914	8,413,424	3,463,464	10,106,874
2048	3,515,944	54,788,829	58,304,773	5,325,806	8,749,961	3,616,060	10,459,707
2049	3,162,426	57,183,014	60,345,440	5,402,895	9,099,960	3,774,076	10,728,779
2050	2,839,457	59,618,073	62,457,530	5,498,392	9,463,958	3,934,790	11,027,560
2051	2,497,504	62,146,040	64,643,544	5,742,337	9,842,516	4,101,635	11,483,218
2052	2,183,097	64,722,971	66,906,068	5,829,584	10,236,217	4,271,713	11,794,088
2053	1,829,281	67,418,499	69,247,780	5,965,393	10,645,666	4,449,617	12,161,442
2054	1,522,676	70,148,776	71,671,452	6,216,059	11,071,492	4,629,815	12,657,736
2055	1,247,758	72,932,195	74,179,953	6,152,481	11,514,352	4,813,521	12,853,312

## 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 (f) = (b) * 6.60%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
	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)				
2056	929,382	75,846,869	76,776,251	6,231,812	11,974,926	5,005,889	13,200,849		
2057	764,838	78,698,582	79,463,420	6,265,353	12,453,923	5,194,102	13,525,174		
2058	603,749	81,640,891	82,244,640	6,151,134	12,952,080	5,388,294	13,714,920		
2059	462,579	84,660,623	85,123,202	6,067,994	13,470,163	5,587,597	13,950,560		
2060	331,234	87,771,280	88,102,514	5,955,273	14,008,970	5,792,900	14,171,343		
2061	224,344	90,961,758	91,186,102	5,965,302	14,569,329	6,003,471	14,531,160		
2062	170,681	94,206,935	94,377,616	5,857,742	15,152,102	6,217,653	14,792,191		
2063	130,544	97,550,289	97,680,833	5,647,535	15,758,186	6,438,314	14,967,407		
2064	86,124	101,013,538	101,099,662	5,602,550	16,388,513	6,666,888	15,324,175		
2065	52,682	104,585,468	104,638,150	5,553,379	17,044,054	6,902,635	15,694,798		
2066	41,317	108,259,168	108,300,485	5,372,367	17,725,816	7,145,099	15,953,084		
2067	31,627	112,059,375	112,091,002	5,275,428	18,434,849	7,395,913	16,314,364		
2068	19,919	115,994,268	116,014,187	5,182,039	19,172,242	7,655,615	16,698,666		
2069	3,513	120,071,171	120,074,684	5,027,595	19,939,132	7,924,691	17,042,036		
2070	-	124,277,298	124,277,298	4,887,898	20,736,697	8,202,295	17,422,300		
2071	-	128,627,003	128,627,003	4,688,775	21,566,165	8,489,375	17,765,565		
2072	-	133,128,948	133,128,948	4,496,804	22,428,812	8,786,503	18,139,113		
2073	-	137,788,461	137,788,461	4,311,746	23,325,964	9,094,031	18,543,679		
2074	-	142,611,057	142,611,057	4,087,113	24,259,003	9,412,322	18,933,794		
2075	-	147,602,444	147,602,444	3,901,399	25,229,363	9,741,753	19,389,009		
2076	-	152,768,530	152,768,530	3,662,754	26,238,538	10,082,715	19,818,577		
2077	-	158,115,429	158,115,429	3,443,719	27,288,079	10,435,610	20,296,188		
2078	-	163,649,469	163,649,469	3,255,986	28,379,602	10,800,856	20,834,732		
2079	-	169,377,200	169,377,200	3,042,664	29,514,786	11,178,886	21,378,564		
2080	-	175,305,402	175,305,402	2,863,707	30,695,378	11,570,147	21,988,938		
2081	-	181,441,091	181,441,091	2,663,902	31,923,193	11,975,102	22,611,993		
2082	-	187,791,529	187,791,529	2,478,378	33,200,121	12,394,231	23,284,268		
2083	-	194,364,233	194,364,233	2,316,050	34,528,126	12,828,029	24,016,147		
2084	-	201,166,981	201,166,981	2,140,118	35,909,251	13,277,010	24,772,359		
2085	-	208,207,825	208,207,825	1,978,800	37,345,621	13,741,705	25,582,716		
2086	-	215,495,099	215,495,099	1,812,532	38,839,445	14,222,665	26,429,312		
2087	-	223,037,427	223,037,427	1,655,827	40,393,023	14,720,458	27,328,392		
2088	-	230,843,737	230,843,737	1,504,936	42,008,744	15,235,674	28,278,006		
2089	-	238,923,268	238,923,268	1,354,199	43,689,094	15,768,923	29,274,370		

## 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 (f) = (b) * 6.60%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
	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)				
2090	-	247,285,582	247,285,582	1,212,721	45,436,658	16,320,835		30,328,544	
2091	-	255,940,577	255,940,577	1,078,687	47,254,124	16,892,064		31,440,747	
2092	-	264,898,497	264,898,497	946,924	49,144,289	17,483,287		32,607,926	
2093	-	274,169,944	274,169,944	825,729	51,110,061	18,095,202		33,840,588	
2094	-	283,765,892	283,765,892	713,268	53,154,463	18,728,534		35,139,197	
2095	-	293,697,698	293,697,698	609,873	55,280,641	19,384,032		36,506,482	
2096	-	303,977,117	303,977,117	514,284	57,491,867	20,062,473		37,943,678	
2097	-	314,616,316	314,616,316	429,866	59,791,542	20,764,660		39,456,748	
2098	-	325,627,887	325,627,887	354,660	62,183,203	21,491,423		41,046,440	
2099	-	337,024,863	337,024,863	288,587	64,670,532	22,243,623		42,715,496	
2100	-	348,820,733	348,820,733	231,233	67,257,353	23,022,150		44,466,436	
2101	-	361,029,459	361,029,459	182,201	69,947,647	23,827,925		46,301,923	
2102	-	373,665,490	373,665,490	141,067	72,745,553	24,661,902		48,224,718	
2103	-	386,743,782	386,743,782	107,201	75,655,375	25,525,069		50,237,507	
2104	-	400,279,814	400,279,814	79,793	78,681,590	26,418,446		52,342,937	
2105	-	414,289,607	414,289,607	58,077	81,828,854	27,343,092		54,543,839	
2106	-	428,789,743	428,789,743	41,296	85,102,008	28,300,100		56,843,204	
2107	-	443,797,384	443,797,384	28,660	88,506,088	29,290,604		59,244,144	
2108	-	459,330,292	459,330,292	19,349	92,046,332	30,315,775		61,749,906	
2109	-	475,406,852	475,406,852	12,682	95,728,185	31,376,827		64,364,040	
2110	-	492,046,092	492,046,092	8,070	99,557,312	32,475,016		67,090,366	
2111	-	509,267,705	509,267,705	4,973	103,539,605	33,611,641		69,932,937	
2112	-	527,092,075	527,092,075	2,965	107,681,189	34,788,049		72,896,105	
2113	-	545,540,298	545,540,298	1,708	111,988,436	36,005,630		75,984,514	
2114	-	564,634,208	564,634,208	944	116,467,974	37,265,828		79,203,090	
2115	-	584,396,405	584,396,405	508	121,126,693	38,570,131		82,557,070	
2116	-	604,850,279	604,850,279	264	125,971,761	39,920,086		86,051,939	
2117	-	626,020,039	626,020,039	136	131,010,631	41,317,289		89,693,478	
2118	-	647,930,740	647,930,740	65	136,251,056	42,763,394		93,487,727	
2119	-	670,608,316	670,608,316	26	141,701,098	44,260,113		97,441,011	
2120	-	694,079,607	694,079,607	13	147,369,142	45,809,217		101,559,938	
2121	-	718,372,393	718,372,393	6	153,263,908	47,412,539		105,851,375	
2122	-	743,515,427	743,515,427	-	159,394,464	49,071,978		110,322,486	

## 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)
2022	2,714,632	1,854,815	1,604,815	-	(399,465)	2,565,167
2023	2,565,167	1,855,839	1,706,287	-	175,556	2,890,275
2024	2,890,275	1,852,606	1,801,000	-	193,919	3,135,800
2025	3,135,800	1,862,920	1,909,581	-	206,979	3,296,118
2026	3,296,118	1,878,685	2,025,137	-	214,322	3,363,988
2027	3,363,988	1,854,435	2,110,748	-	215,183	3,322,858
2028	3,322,858	1,909,826	2,273,947	-	208,863	3,167,600
2029	3,167,600	2,030,397	2,515,241	-	194,524	2,877,280
2030	2,877,280	2,106,699	2,718,381	-	171,001	2,436,599
2031	2,436,599	2,244,581	2,990,889	-	137,219	1,827,510
2032	1,827,510	2,430,403	3,319,073	-	91,981	1,030,821
2033	1,030,821	2,559,757	3,598,228	-	34,020	26,370
2034	26,370	2,756,338	3,944,509	-	-	-
2035	-	2,921,616	4,265,742	-	-	-
2036	-	2,989,030	4,507,753	-	-	-
2037	-	8,481,385	4,738,345	-	124,456	3,867,496
2038	3,867,496	8,796,769	4,995,094	-	383,594	8,052,765
2039	8,052,765	8,973,980	5,094,281	-	664,509	12,596,973
2040	12,596,973	9,091,320	5,122,645	-	969,657	17,535,305
2041	17,535,305	9,303,892	5,233,056	-	1,301,453	22,907,594
2042	22,907,594	9,530,229	5,345,963	-	1,662,482	28,754,343
2043	28,754,343	9,460,041	5,141,916	-	2,055,741	35,128,209
2044	35,128,209	9,542,103	5,078,672	-	2,484,435	42,076,075
2045	42,076,075	9,766,401	5,147,468	-	2,951,639	49,646,647
2046	49,646,647	9,947,330	5,166,922	-	3,460,451	57,887,506
2047	57,887,506	10,106,874	5,156,914	-	4,014,105	66,851,571
2048	66,851,571	10,459,707	5,325,806	-	4,616,332	76,601,804
2049	76,601,804	10,728,779	5,402,895	-	5,271,106	87,198,794
2050	87,198,794	11,027,560	5,498,392	-	5,982,565	98,710,527
2051	98,710,527	11,483,218	5,742,337	-	6,755,134	111,206,542
2052	111,206,542	11,794,088	5,829,584	-	7,593,555	124,764,601
2053	124,764,601	12,161,442	5,965,393	-	8,502,865	139,463,515
2054	139,463,515	12,657,736	6,216,059	-	9,488,510	155,393,702
2055	155,393,702	12,853,312	6,152,481	-	10,556,484	172,651,017
2056	172,651,017	13,200,849	6,231,812	-	11,713,013	191,333,067
2057	191,333,067	13,525,174	6,265,353	-	12,965,038	211,557,927

## 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)
2058	211,557,927	13,714,920	6,151,134	-	14,320,098	233,441,811
2059	233,441,811	13,950,560	6,067,994	-	15,785,976	257,110,353
2060	257,110,353	14,171,343	5,955,273	-	17,371,023	282,697,446
2061	282,697,446	14,531,160	5,965,302	-	19,084,195	310,347,498
2062	310,347,498	14,792,191	5,857,742	-	20,935,179	340,217,126
2063	340,217,126	14,967,407	5,647,535	-	22,934,325	372,471,323
2064	372,471,323	15,324,175	5,602,550	-	25,092,587	407,285,535
2065	407,285,535	15,694,798	5,553,379	-	27,421,690	444,848,644
2066	444,848,644	15,953,084	5,372,367	-	29,934,244	485,363,604
2067	485,363,604	16,314,364	5,275,428	-	32,643,724	529,046,264
2068	529,046,264	16,698,666	5,182,039	-	35,564,504	576,127,395
2069	576,127,395	17,042,036	5,027,595	-	38,711,952	626,853,789
2070	626,853,789	17,422,300	4,887,898	-	42,102,546	681,490,737
2071	681,490,737	17,765,565	4,688,775	-	45,753,937	740,321,464
2072	740,321,464	18,139,113	4,496,804	-	49,684,984	803,648,757
2073	803,648,757	18,543,679	4,311,746	-	53,915,854	871,796,545
2074	871,796,545	18,933,794	4,087,113	-	58,468,122	945,111,348
2075	945,111,348	19,389,009	3,901,399	-	63,364,868	1,023,963,826
2076	1,023,963,826	19,818,577	3,662,754	-	68,630,776	1,108,750,425
2077	1,108,750,425	20,296,188	3,443,719	-	74,292,248	1,199,895,142
2078	1,199,895,142	20,834,732	3,255,986	-	80,377,520	1,297,851,408
2079	1,297,851,408	21,378,564	3,042,664	-	86,916,787	1,403,104,095
2080	1,403,104,095	21,988,938	2,863,707	-	93,942,336	1,516,171,662
2081	1,516,171,662	22,611,993	2,663,902	-	101,488,690	1,637,608,443
2082	1,637,608,443	23,284,268	2,478,378	-	109,592,757	1,768,007,090
2083	1,768,007,090	24,016,147	2,316,050	-	118,294,000	1,908,001,187
2084	1,908,001,187	24,772,359	2,140,118	-	127,634,601	2,058,268,028
2085	2,058,268,028	25,582,716	1,978,800	-	137,659,654	2,219,531,598
2086	2,219,531,598	26,429,312	1,812,532	-	148,417,359	2,392,565,737
2087	2,392,565,737	27,328,392	1,655,827	-	159,959,234	2,578,197,536
2088	2,578,197,536	28,278,006	1,504,936	-	172,340,341	2,777,310,948
2089	2,777,310,948	29,274,370	1,354,199	-	185,619,524	2,990,850,642
2090	2,990,850,642	30,328,544	1,212,721	-	199,859,669	3,219,826,134
2091	3,219,826,134	31,440,747	1,078,687	-	215,127,976	3,465,316,170
2092	3,465,316,170	32,607,926	946,924	-	231,496,254	3,728,473,426
2093	3,728,473,426	33,840,588	825,729	-	249,041,227	4,010,529,512

## 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)
2094	4,010,529,512	35,139,197	713,268	-	267,844,875	4,312,800,315
2095	4,312,800,315	36,506,482	609,873	-	287,994,783	4,636,691,708
2096	4,636,691,708	37,943,678	514,284	-	309,584,526	4,983,705,628
2097	4,983,705,628	39,456,748	429,866	-	332,714,068	5,355,446,578
2098	5,355,446,578	41,046,440	354,660	-	357,490,199	5,753,628,557
2099	5,753,628,557	42,715,496	288,587	-	384,026,994	6,180,082,460
2100	6,180,082,460	44,466,436	231,233	-	412,446,304	6,636,763,967
2101	6,636,763,967	46,301,923	182,201	-	442,878,285	7,125,761,974
2102	7,125,761,974	48,224,718	141,067	-	475,461,953	7,649,307,577
2103	7,649,307,577	50,237,507	107,201	-	510,345,787	8,209,783,670
2104	8,209,783,670	52,342,937	79,793	-	547,688,364	8,809,735,178
2105	8,809,735,178	54,543,839	58,077	-	587,659,041	9,451,879,981
2106	9,451,879,981	56,843,204	41,296	-	630,438,682	10,139,120,571
2107	10,139,120,571	59,244,144	28,660	-	676,220,433	10,874,556,488
2108	10,874,556,488	61,749,906	19,349	-	725,210,547	11,661,497,591
2109	11,661,497,591	64,364,040	12,682	-	777,629,272	12,503,478,221
2110	12,503,478,221	67,090,366	8,070	-	833,711,788	13,404,272,305
2111	13,404,272,305	69,932,937	4,973	-	893,709,213	14,367,909,482
2112	14,367,909,482	72,896,105	2,965	-	957,889,677	15,398,692,299
2113	15,398,692,299	75,984,514	1,708	-	1,026,539,466	16,501,214,571
2114	16,501,214,571	79,203,090	944	-	1,099,964,240	17,680,380,957
2115	17,680,380,957	82,557,070	508	-	1,178,490,339	18,941,427,858
2116	18,941,427,858	86,051,939	264	-	1,262,466,171	20,289,945,703
2117	20,289,945,703	89,693,478	136	-	1,352,263,693	21,731,902,738
2118	21,731,902,738	93,487,727	65	-	1,448,279,997	23,273,670,397
2119	23,273,670,397	97,441,011	26	-	1,550,938,994	24,922,050,377
2120	24,922,050,377	101,559,938	13	-	1,660,693,218	26,684,303,520
2121	26,684,303,520	105,851,375	6	-	1,778,025,742	28,568,180,631
2122	28,568,180,631	110,322,486	-	-	1,903,452,235	30,581,955,353

## 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) = 6.05%
	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)		
2023	2,565,167	1,706,287	1,706,287	-	1,652,234	-	1,656,894	
2024	2,890,275	1,801,000	1,801,000	-	1,635,206	-	1,649,079	
2025	3,135,800	1,909,581	1,909,581	-	1,625,683	-	1,648,735	
2026	3,296,118	2,025,137	2,025,137	-	1,616,558	-	1,648,741	
2027	3,363,988	2,110,748	2,110,748	-	1,579,838	-	1,620,390	
2028	3,322,858	2,273,947	2,273,947	-	1,595,863	-	1,646,071	
2029	3,167,600	2,515,241	2,515,241	-	1,655,137	-	1,716,852	
2030	2,877,280	2,718,381	2,718,381	-	1,677,273	-	1,749,640	
2031	2,436,599	2,990,889	-	2,990,889	-	2,225,261	1,815,197	
2032	1,827,510	3,319,073	-	3,319,073	-	2,385,005	1,899,439	
2033	1,030,821	3,598,228	-	3,598,228	-	2,497,198	1,941,701	
2034	26,370	3,944,509	-	3,944,509	-	2,643,925	2,007,113	
2035	-	4,265,742	-	4,265,742	-	2,761,484	2,046,721	
2036	-	4,507,753	-	4,507,753	-	2,818,383	2,039,432	
2037	-	4,738,345	-	4,738,345	-	2,861,267	2,021,440	
2038	3,867,496	4,995,094	-	4,995,094	-	2,913,179	2,009,384	
2039	8,052,765	5,094,281	5,094,281	-	1,760,876	-	1,932,357	
2040	12,596,973	5,122,645	5,122,645	-	1,660,272	-	1,832,246	
2041	17,535,305	5,233,056	5,233,056	-	1,590,302	-	1,764,941	
2042	22,907,594	5,345,963	5,345,963	-	1,523,313	-	1,700,144	
2043	28,754,343	5,141,916	5,141,916	-	1,373,812	-	1,541,949	
2044	35,128,209	5,078,672	5,078,672	-	1,272,306	-	1,436,085	
2045	42,076,075	5,147,468	5,147,468	-	1,209,134	-	1,372,489	
2046	49,646,647	5,166,922	5,166,922	-	1,138,025	-	1,299,069	
2047	57,887,506	5,156,914	5,156,914	-	1,064,998	-	1,222,574	
2048	66,851,571	5,325,806	5,325,806	-	1,031,296	-	1,190,573	
2049	76,601,804	5,402,895	5,402,895	-	980,988	-	1,138,891	
2050	87,198,794	5,498,392	5,498,392	-	936,078	-	1,092,890	
2051	98,710,527	5,742,337	5,742,337	-	916,651	-	1,076,253	
2052	111,206,542	5,829,584	5,829,584	-	872,554	-	1,030,264	
2053	124,764,601	5,965,393	5,965,393	-	837,207	-	994,112	
2054	139,463,515	6,216,059	6,216,059	-	817,990	-	976,779	

## 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) = 6.05%
	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)		
2055	155,393,702	6,152,481	6,152,481	-	759,141	-	-	911,626
2056	172,651,017	6,231,812	6,231,812	-	720,984	-	-	870,695
2057	191,333,067	6,265,353	6,265,353	-	679,667	-	-	825,434
2058	211,557,927	6,151,134	6,151,134	-	625,669	-	-	764,147
2059	233,441,811	6,067,994	6,067,994	-	578,727	-	-	710,807
2060	257,110,353	5,955,273	5,955,273	-	532,561	-	-	657,800
2061	282,697,446	5,965,302	5,965,302	-	500,195	-	-	621,312
2062	310,347,498	5,857,742	5,857,742	-	460,549	-	-	575,297
2063	340,217,126	5,647,535	5,647,535	-	416,336	-	-	523,006
2064	372,471,323	5,602,550	5,602,550	-	387,267	-	-	489,236
2065	407,285,535	5,553,379	5,553,379	-	359,932	-	-	457,272
2066	444,848,644	5,372,367	5,372,367	-	326,489	-	-	417,127
2067	485,363,604	5,275,428	5,275,428	-	300,607	-	-	386,230
2068	529,046,264	5,182,039	5,182,039	-	276,874	-	-	357,745
2069	576,127,395	5,027,595	5,027,595	-	251,872	-	-	327,279
2070	626,853,789	4,887,898	4,887,898	-	229,605	-	-	300,030
2071	681,490,737	4,688,775	4,688,775	-	206,518	-	-	271,386
2072	740,321,464	4,496,804	4,496,804	-	185,713	-	-	245,424
2073	803,648,757	4,311,746	4,311,746	-	166,967	-	-	221,897
2074	871,796,545	4,087,113	4,087,113	-	148,399	-	-	198,335
2075	945,111,348	3,901,399	3,901,399	-	132,824	-	-	178,521
2076	1,023,963,826	3,662,754	3,662,754	-	116,923	-	-	158,038
2077	1,108,750,425	3,443,719	3,443,719	-	103,077	-	-	140,109
2078	1,199,895,142	3,255,986	3,255,986	-	91,381	-	-	124,913
2079	1,297,851,408	3,042,664	3,042,664	-	80,069	-	-	110,069
2080	1,403,104,095	2,863,707	2,863,707	-	70,661	-	-	97,684
2081	1,516,171,662	2,663,902	2,663,902	-	61,632	-	-	85,684
2082	1,637,608,443	2,478,378	2,478,378	-	53,765	-	-	75,168
2083	1,768,007,090	2,316,050	2,316,050	-	47,110	-	-	66,237
2084	1,908,001,187	2,140,118	2,140,118	-	40,817	-	-	57,713
2085	2,058,268,028	1,978,800	1,978,800	-	35,387	-	-	50,318
2086	2,219,531,598	1,812,532	1,812,532	-	30,393	-	-	43,460

## 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) = 6.05%
	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)		
2087	2,392,565,737	1,655,827	1,655,827	-	26,034	-	-	37,437
2088	2,578,197,536	1,504,936	1,504,936	-	22,186	-	-	32,084
2089	2,777,310,948	1,354,199	1,354,199	-	18,719	-	-	27,223
2090	2,990,850,642	1,212,721	1,212,721	-	15,718	-	-	22,988
2091	3,219,826,134	1,078,687	1,078,687	-	13,109	-	-	19,281
2092	3,465,316,170	946,924	946,924	-	10,790	-	-	15,960
2093	3,728,473,426	825,729	825,729	-	8,823	-	-	13,123
2094	4,010,529,512	713,268	713,268	-	7,146	-	-	10,689
2095	4,312,800,315	609,873	609,873	-	5,729	-	-	8,618
2096	4,636,691,708	514,284	514,284	-	4,530	-	-	6,853
2097	4,983,705,628	429,866	429,866	-	3,550	-	-	5,401
2098	5,355,446,578	354,660	354,660	-	2,746	-	-	4,202
2099	5,753,628,557	288,587	288,587	-	2,095	-	-	3,224
2100	6,180,082,460	231,233	231,233	-	1,574	-	-	2,436
2101	6,636,763,967	182,201	182,201	-	1,163	-	-	1,810
2102	7,125,761,974	141,067	141,067	-	844	-	-	1,321
2103	7,649,307,577	107,201	107,201	-	602	-	-	947
2104	8,209,783,670	79,793	79,793	-	420	-	-	665
2105	8,809,735,178	58,077	58,077	-	287	-	-	456
2106	9,451,879,981	41,296	41,296	-	191	-	-	306
2107	10,139,120,571	28,660	28,660	-	124	-	-	200
2108	10,874,556,488	19,349	19,349	-	79	-	-	127
2109	11,661,497,591	12,682	12,682	-	48	-	-	79
2110	12,503,478,221	8,070	8,070	-	29	-	-	47
2111	13,404,272,305	4,973	4,973	-	17	-	-	27
2112	14,367,909,482	2,965	2,965	-	9	-	-	15
2113	15,398,692,299	1,708	1,708	-	5	-	-	8
2114	16,501,214,571	944	944	-	3	-	-	4
2115	17,680,380,957	508	508	-	1	-	-	2
2116	18,941,427,858	264	264	-	1	-	-	1
2117	20,289,945,703	136	136	-	-	-	-	1
2118	21,731,902,738	65	65	-	-	-	-	-

## 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) = 6.05%
	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)		
2119	23,273,670,397	26	26	-	-	-	-	-
2120	24,922,050,377	13	13	-	-	-	-	-
2121	26,684,303,520	6	6	-	-	-	-	-
2122	28,568,180,631	-	-	-	-	-	-	-

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

Year	Differences between Expected and Actual Experience		Recognition Period (Years)									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031		
2018	2,242,713	6.55	342,399	342,399	188,319	-	-	-	-	-	-	-
2019	-	6.55	-	-	-	-	-	-	-	-	-	-
2020	(3,592,503)	6.70	(536,194)	(536,194)	(536,194)	(536,194)	(375,339)	-	-	-	-	-
2021	6,649,997	7.38	901,084	901,084	901,084	901,084	901,084	342,409	-	-	-	-
2022	-	7.38	-	-	-	-	-	-	-	-	-	-
Net Increase (Decrease) in OPEB Expense		707,289	707,289	553,209	364,890	525,745	901,084	342,409	-	-	-	-
Year	Changes of Assumptions		Recognition Period (Years)									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031		
2018	-	6.55	-	-	-	-	-	-	-	-	-	-
2019	(6,007,783)	6.55	(917,218)	(917,218)	(917,218)	(504,468)	-	-	-	-	-	-
2020	83,922	6.70	12,525	12,525	12,525	12,525	8,765	-	-	-	-	-
2021	8,145,723	7.38	1,103,757	1,103,757	1,103,757	1,103,757	1,103,757	1,103,757	419,424	-	-	-
2022	(3,204,882)	7.38	(434,266)	(434,266)	(434,266)	(434,266)	(434,266)	(434,266)	(434,266)	(165,020)	-	-
Net Increase (Decrease) in OPEB Expense		(235,202)	(235,202)	(235,202)	177,548	678,256	669,491	(14,842)	(165,020)	-	-	-

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

Year	Projected and Actual Earnings on OPEB Plan Investments	Recognition Period (Years)	Differences between									
			2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2018	(20,881)	5	(4,177)	-	-	-	-	-	-	-	-	-
2019	17,734	5	3,547	3,546	-	-	-	-	-	-	-	-
2020	89,861	5	17,972	17,972	17,973	-	-	-	-	-	-	-
2021	(463,399)	5	(92,680)	(92,680)	(92,680)	(92,679)	-	-	-	-	-	-
2022	595,186	5	119,037	119,037	119,037	119,037	119,038	-	-	-	-	-
Net Increase (Decrease) in OPEB Expense			43,699	47,875	44,330	26,358	119,038	-	-	-	-	-