



# **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, 2021**

KMS Actuarial, LLC  
52 Hunt Road  
Kingston, NH 03848

January, 2022





January 12, 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, 2021 under the following Governmental Accounting Standards Board (GASB) Statements:

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

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

Our calculations are based on member census data and other information provided by the Town of 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 5.65%, the rate that reflects a blended-rate of the long-term expected rate of return on OPEB plan assets and the municipal bond rate. The municipal bond rate of 2.16% is based on the Bond Buyer 20-Bond GO Index published on June 30, 2021. 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.

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.

Respectfully submitted,



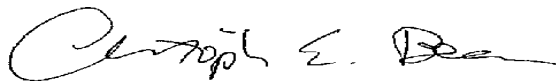
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Linda L. Bournival, FSA, EA  
Member, American Academy of Actuaries  
(603) 792-9494



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Amanda J. Makarevich, FSA  
Member, American Academy of Actuaries  
(603) 792-9494



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Christopher E. Bean, ASA  
Member, American Academy of Actuaries  
(508) 628-9022

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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, 2021 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, 2021	June 30, 2020	% Change
Valuation Date	July 1, 2020	July 1, 2018	
<b>Membership Data</b>			
Active Plan Members	349	359	(2.8%)
Inactive Plan Members (excludes covered spouses)	184	182	1.1%
Total Plan Members	533	541	(1.5%)
Covered Spouses	105	Not Provided	
Covered Payroll	\$24,234,544	\$23,409,824	3.5%
<b>Net OPEB Liability</b>			
Discount Rate	5.65%	6.50%	
Total OPEB Liability (TOL)	\$49,831,238	\$33,379,220	49.3%
Fiduciary Net Position (FNP)	\$2,714,632	\$1,855,362	46.3%
Net OPEB Liability	\$47,116,606	\$31,523,858	49.5%
FNP as % of TOL	5.4%	5.6%	
<b>OPEB Expense</b>			
OPEB Expense	\$3,799,912	\$1,889,199	101.1%
Deferred Outflows	\$13,722,868	\$1,361,089	
Deferred Inflows	\$6,090,130	\$7,229,656	
Recognition Period	7.38	6.70	

## EXECUTIVE SUMMARY

### 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, the difference between expected and actual experience resulted in an actuarial loss of approximately \$6,650,000. The loss is primarily attributable to a large increase in the number of retirees and spouses covered under Medicare supplemental plans since the prior valuation.

### Changes of Assumptions

The discount rate changed from 6.5% as of June 30, 2020 to 5.65% as of June 30, 2021. In addition, many other assumptions were updated in this valuation, including decrements, the inflation rate, healthcare and dental trend rates, mortality tables and mortality improvement rates, and percent retiring with covered spouses. A summary of the impact on the Total OPEB Liability (TOL) of each assumption change is provided below:

◆ Decrease due to change in Decrements	(2,515,000)
◆ Increase due to change in Inflation Assumption	226,000
◆ Increase due to change in Trend Assumption	6,279,000
◆ Decrease due to change in Mortality Tables and Mortality Improvement Rates	(1,133,000)
◆ Decrease due to change in % Retiring with a Covered Spouse	(593,000)
◆ Increase due to change in Discount Rate	5,882,000
Total	\$ 8,146,000

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, 2021, is \$49,831,238. The Total OPEB Liability as of the prior measurement date, June 30, 2020, was \$33,379,220. During the current measurement period ending June 30, 2021, the Total OPEB Liability increased by \$16,452,018, or 49.3%. 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, 2021, is \$2,714,632. The Fiduciary Net Position as of the prior measurement date, June 30, 2020, was \$1,855,362. During the plan years ended June 30, 2021 and June 30, 2020, the actual rates of return were 29.26% and 2.00%, respectively. The expected long-term rate of return is 6.65%. The Fiduciary Net Position is shown in Section 1, Exhibit 1.1.



## EXECUTIVE SUMMARY

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### Employer Future Period Contributions

The Town is expected to contribute \$250,000 annually until their pension system is fully funded in 2035. 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.

### Discount Rate

As of the June 30, 2021 measurement date, the OPEB plan's fiduciary net position was projected to be insufficient to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to the first 90 periods of projected future benefit payments and the 2.16% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 5.65%.

### OPEB Expense

The OPEB Expense for the current measurement period ending June 30, 2021, is \$3,799,912. 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 \$1,889,199. The development of the OPEB expense for the current measurement period is shown in Section 4, Exhibit 4.2.

### COVID-19 Pandemic

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

2021

2020

Trust Fund Composition at Fiscal Year-End		
Investments	\$0	\$1,855,362
Domestic Equity	1,162,571	-
International Equity	589,046	-
Domestic Bonds	492,398	-
International Bonds	106,073	-
Alternatives	360,883	-
Cash	3,661	-
Total Market Value of Assets	2,714,632	1,855,362
Asset Activity		
Market value, beginning of year	\$1,855,362	\$1,569,371
Employer Premiums	1,458,469	1,231,651
OPEB Trust Contributions	250,000	250,000
Benefit Payments	(1,458,469)	(1,231,651)
Administrative Expenses	-	-
Investment Return	609,270	35,991
Market value, end of year	\$2,714,632	\$1,855,362
Money-Weighted Rate of Return	29.26%	2.00%
(Gain) / Loss on OPEB Plan Investments		
Projected earnings	\$145,871	\$125,852
Actual earnings	609,270	35,991
(Gain) / Loss on OPEB plan investments	(\$463,399)	\$89,861

## 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, 2021 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, 2020 to the end of the measurement period, June 30, 2021 is shown below:

Measurement Date	June 30, 2021
1. Total OPEB Liability, beginning of year:	
a. Actives	\$21,513,202
b. Retirees, Covered Spouses and Survivors	11,866,018
c. Total OPEB Liability at 6.5% (a. + b.)	\$33,379,220
2. Service Cost	\$931,942
3. Expected Benefit Payments	
a. Current retirees	(\$1,361,015)
b. Future retirees	(97,454)
c. Total (a. + b.)	(\$1,458,469)
4. Interest [6.5% x (1.c. + 2. + .5 x 3.c)]	\$2,182,825
5. Changes of benefit terms	\$0
6. Differences between expected and actual experience	\$6,649,997
7. Changes of assumptions or other inputs	\$8,145,723
8. Total OPEB Liability, end of year (1.c. + 2. + 3.c. + 4. + 5. + 6. + 7.)	
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

## 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 2035. 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, 2021	June 30, 2022
<b>Discount Rate</b>	<b>6.50%</b>	<b>5.65%</b>
1. Normal Cost	\$931,942	\$1,683,692
2. Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$33,379,220	\$49,831,238
b. Actuarial Value of Plan Assets	\$1,855,362	\$2,714,632
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$31,523,858	\$47,116,606
3. Amortization of Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability	\$31,523,858	\$47,116,606
b. Amortization Period in years	30	30
c. Payroll Growth Rate	0.0%	0.0%
d. Amortization Factor	13.91	15.10
e. Amortization Amount (3.a. / 3.d.)	\$2,266,273	\$3,120,305
4. Interest on 1. and 3.e.	\$207,884	\$271,426
5. Actuarially Determined Employer Contribution (1. + 3.e. + 4.)	\$3,406,099	\$5,075,423
6. Actual Employer Contribution to OPEB Trust	\$250,000	TBD
7. Expected Benefit Payments	\$1,458,469	
8. Total Contribution (6. + 7.)	\$1,708,469	

## SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

### 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, 2021, 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	349
	<u>533</u>

<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 2035. 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, 2021, were as follows:

Total OPEB liability	\$ 49,831,238
Fiduciary net position	(2,714,632)
Net OPEB liability	<u>\$ 47,116,606</u>

Fiduciary net position as a percentage of the total OPEB liability 5.45%

#### 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	2.2% per year, based on current economic data, analyses from economists and other experts, and professional judgement.
Discount rate	5.65 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 Mortality Table, projected with generational mortality improvement using scale MP-2018.
Post-Retirement Mortality - General and Public Safety employees	RP-2014 Blue Collar Mortality Table, projected with 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.
Post-Retirement Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Retiree 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, 2021 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rates of Return <sup>1</sup>
Domestic Equity	34%	5.34%
International Equity	22%	6.10%
Domestic Bonds	20%	1.62%
International Bonds	4%	1.26%
Alternatives	20%	4.21%
Total	100%	

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

#### Discount Rate

The discount rate used to measure the total OPEB liability was 5.65%. The projection of cash flows used to determine the discount rate assumed that contributions from the Town will be made in accordance with the plan's funding policy. Based on those assumptions, the OPEB plan's fiduciary net position was projected to be insufficient to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to the first 90 periods of projected future benefit payments and the 2.16% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability.

## SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

### Exhibit 2.2 - Net OPEB Liability

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

The following presents the net OPEB liability calculated using the current discount rate of 5.65 percent, as well as what the net OPEB liability would be if it were calculated using a discount rate 1-percentage point lower (4.65 percent) or 1-percentage point higher (6.65 percent) than the current rate:

	<b>1% Decrease (4.65%)</b>	<b>Assumed Discount Rate (5.65%)</b>	<b>1% Increase (6.65%)</b>
Total OPEB Liability	\$ 58,382,578	\$ 49,831,238	\$ 43,020,888
Fiduciary Net Position	(2,714,632)	(2,714,632)	(2,714,632)
Net OPEB Liability	\$ 55,667,946	\$ 47,116,606	\$ 40,306,256

#### 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:

	<b>1% Decrease 6% Year 1 Decreasing to 3%</b>	<b>Assumed Healthcare Cost Trend Rates 7% Year 1 Decreasing to 4%</b>	<b>1% Increase 8% Year 1 Decreasing to 5%</b>
Total OPEB Liability	\$ 41,928,438	\$ 49,831,238	\$ 60,011,167
Fiduciary Net Position	(2,714,632)	(2,714,632)	(2,714,632)
Net OPEB Liability	\$ 39,213,806	\$ 47,116,606	\$ 57,296,535



## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

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

Fiscal Year Ended June 30	2021	2020	2019	2018	2017
<b>Total OPEB Liability</b>					
Service cost	\$ 931,942	\$ 889,551	\$ 1,102,359	\$ 1,408,106	\$ 1,414,513
Interest	2,182,825	2,206,645	1,984,110	1,894,830	1,255,435
Changes of benefit terms	-	-	-	-	-
Differences between expected and actual experience	6,649,997	(3,592,503)	-	2,242,713	6,017,400
Changes of assumptions	8,145,723	83,922	(6,007,783)	-	-
Benefit payments	(1,458,469)	(1,231,651)	(1,255,235)	(1,169,027)	(688,801)
<b>Net change in total OPEB liability</b>	<b>\$ 16,452,018</b>	<b>\$ (1,644,036)</b>	<b>\$ (4,176,549)</b>	<b>\$ 4,376,622</b>	<b>\$ 7,998,547</b>
<b>Total OPEB liability—beginning</b>	<b>\$ 33,379,220</b>	<b>\$ 35,023,256</b>	<b>\$ 39,199,805</b>	<b>\$ 34,823,183</b>	<b>\$ 26,824,636</b>
<b>Total OPEB liability—ending (a)</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>Plan Fiduciary Net Position</b>					
Contributions—employer	\$ 1,708,469	\$ 1,481,651	\$ 1,505,235	\$ 1,419,027	\$ 938,801
Net investment income	609,270	35,991	78,416	66,625	67,927
Benefit payments	(1,458,469)	(1,231,651)	(1,255,235)	(1,169,027)	(688,801)
Administrative expenses	-	-	-	-	-
Other	-	-	-	-	-
<b>Net change in plan fiduciary net position</b>	<b>\$ 859,270</b>	<b>\$ 285,991</b>	<b>\$ 328,416</b>	<b>\$ 316,625</b>	<b>\$ 317,927</b>
<b>Plan fiduciary net position—beginning</b>	<b>\$ 1,855,362</b>	<b>\$ 1,569,371</b>	<b>\$ 1,240,955</b>	<b>\$ 924,330</b>	<b>\$ 606,403</b>
<b>Plan fiduciary net position—ending (b)</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>Net OPEB liability—ending (a) – (b)</b>	<b>\$ 47,116,606</b>	<b>\$ 31,523,858</b>	<b>\$ 33,453,885</b>	<b>\$ 37,958,850</b>	<b>\$ 33,898,853</b>
Plan fiduciary net position as a percentage of the total OPEB liability	5.45%	5.56%	4.48%	3.17%	2.65%
Covered payroll	\$ 24,234,544	\$ 23,409,824	\$ 22,223,655	\$ 21,576,364	\$ 19,326,334
Net OPEB liability as a percentage of covered payroll	194.42%	134.66%	150.53%	175.93%	175.40%
<b>Discount Rate</b>	<b>5.65%</b>	<b>6.50%</b>	<b>6.25%</b>	<b>5.00%</b>	<b>4.50%</b>

#### 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 6.5% as of June 30, 2020 to 5.65% as of June 30, 2021. In addition, many other assumptions were updated in this valuation, including decrements, the inflation rate, healthcare and dental trend rates, mortality tables and mortality improvement rates, and percent retiring with covered spouses.

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

### Exhibit 3.2 - Investment Returns

Fiscal Year Ended June 30	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Annual money-weighted rate of return, net of investment expenses	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 5 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, 2020	\$ 1,855,362	12	1.00	\$ 2,398,311
Monthly net external cash flows:				
July	250,000	11	0.92	316,320
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, 2021				\$ 2,714,632
Money-weighted rate of return:				29.26%

## SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

### Exhibit 3.3 - Schedule of Employer Contributions

Fiscal Year Ended June 30	2021	2020	2019	2018	2017
Actuarially determined contribution	\$ 3,406,099	\$ 3,156,233	\$ 3,451,305	\$ 3,135,467	\$ 2,954,779
Contributions in relation to the actuarially determined contribution	<u>1,708,469</u>	<u>1,481,651</u>	<u>1,505,235</u>	<u>1,419,027</u>	<u>938,801</u>
Contribution deficiency (excess)	<u>\$ 1,697,630</u>	<u>\$ 1,674,582</u>	<u>\$ 1,946,070</u>	<u>\$ 1,716,440</u>	<u>\$ 2,015,978</u>
Covered payroll	\$ 24,234,544	\$ 23,409,824	\$ 22,223,655	\$ 21,576,364	\$ 19,326,334
Contributions as a percentage of covered payroll	7.05%	6.33%	6.77%	6.58%	4.86%
Discount rate	6.50%	6.25%	5.00%	4.50%	Not available
Inflation	2.20%	2.50%	Not available	Not available	Not available

#### 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, 2021	
	Experience Losses	Experience Gains	Amounts Recognized in OPEB Expense through June 30, 2021	Deferred Outflows of Resources	Deferred Inflows of Resources
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)
2018	\$ 2,242,713	\$ -	\$ 1,369,596	\$ 873,117	\$ -
2019	-	-	-	-	-
2020	-	3,592,503	(1,072,388)	-	2,520,115
2021	6,649,997	-	901,084	5,748,913	-
Total				<u>\$ 6,622,030</u>	<u>\$ 2,520,115</u>

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

				Balances at June 30, 2021	
	Increases in the Total OPEB Liability	Decreases in the Total OPEB Liability	Amounts Recognized in OPEB Expense through June 30, 2021	Deferred Outflows of Resources	Deferred Inflows of Resources
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)
2018	\$ -	\$ -	\$ -	\$ -	\$ -
2019	-	6,007,783	(2,751,654)	-	3,256,129
2020	83,922	-	25,050	58,872	-
2021	8,145,723	-	1,103,757	7,041,966	-
Total				<u>\$ 7,100,838</u>	<u>\$ 3,256,129</u>

## SECTION 4 - EMPLOYER REPORTING AMOUNTS UNDER GASB 75

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

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

					Balances at June 30, 2021	
	Investment Earnings Less Than Projected	Investment Earnings Greater Than Projected	Amounts Recognized in OPEB Expense through June 30, 2021	Deferred Outflows of Resources	Deferred Inflows of Resources	
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)	
2018	\$ -	\$ 20,881	\$ (16,704)	\$ -	\$ 4,177	
2019	17,734	-	10,641	7,093	-	
2020	89,861	-	35,944	53,917	-	
2021	-	463,399	(92,680)	-	370,719	
Subtotal				\$ 61,010	\$ 374,896	
Net				\$ -	\$ 313,886	

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

Year ended June 30		
2022	\$	831,015
2023	\$	835,191
2024	\$	677,566
2025	\$	884,018
2026	\$	1,638,274
Thereafter		2,766,674
Deferred Outflows	\$	13,722,868
Deferred Inflows	\$	6,090,130

## 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, 2021 is presented below:

#### Fiscal Year Ended June 30, 2021

Measurement Date	6/30/2021
1. Service cost	\$ 931,942
2. Interest on the total OPEB liability	
a. Total OPEB liability, beginning of year	33,379,220
b. Service cost, beginning of year	931,942
c. Benefit payments	(1,458,469)
d. Interest on total OPEB liability = 6.5% times (a. + b. + .5 times c.)	2,182,825
3. Differences between expected and actual experience	707,289
4. Changes of benefit terms	-
5. Changes of assumptions	199,064
6. Projected earnings on OPEB plan investments	
a. Plan fiduciary net position, beginning of year	1,855,362
b. Contributions - Employer	1,708,469
c. Benefit payments	(1,458,469)
d. Administrative expenses and other	-
e. Total projected earnings	(145,871)
7. Differences between projected and actual earnings on OPEB plan investments	(75,337)
8. OPEB plan administrative expenses	-
9. Other changes in fiduciary net position	-
10. Total OPEB Expense	\$ 3,799,912

## 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, 2021
<b>GASB 75 Reporting Date</b>	June 30, 2021
<b>Long-Term Expected Rate of Return</b>	<p>6.65%, compounded annually, net of fees.</p> <p>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.</p>
<b>Municipal Bond Rate</b>	2.16%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2021.
<b>Discount Rate (GASB)</b>	<p>5.65%, compounded annually, for the measurement as of June 30, 2021.</p> <p>6.5%, compounded annually, for the measurement as of June 30, 2020.</p> <p>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.</p>
<b>Discount Rate (ADEC)</b>	6.5%, compounded annually, for development of the Actuarially Determined Contribution (ADEC) as of June 30, 2021.
<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

2.2% 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

### Post-Retirement Mortality

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

### Pre-Retirement Mortality

Pre-retirement mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Mortality Table, projected with 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

### Retirement Rates

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

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

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Post-Retirement Mortality

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

### 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.

### Turnover Rates

Turnover rates for Teachers are as follows:

Age	Service					
	0		5		10+	
	Male	Female	Male	Female	Male	Female
20	13.0%	10.0%	5.5%	7.0%	1.5%	5.0%
30	15.0%	15.0%	5.4%	8.8%	1.5%	4.5%
40	13.3%	10.5%	5.2%	5.0%	1.7%	2.2%
50	16.2%	9.8%	7.0%	5.0%	2.3%	2.0%

### Disability Rates

Disability rates for Teachers are as follows:

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

35% of the disabilities are job-related.

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Retirement Rates

Retirement rates for Teachers are as follows:

Age	Years of Service					
	Less than 20		20-29		30+	
	Male	Female	Male	Female	Male	Female
50	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
51	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
52	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
53	0.0%	0.0%	1.5%	1.0%	2.0%	1.5%
54	0.0%	0.0%	2.5%	1.0%	2.0%	2.0%
55	5.0%	3.0%	3.0%	3.0%	6.0%	5.0%
56	5.0%	3.0%	6.0%	5.0%	20.0%	15.0%
57	5.0%	4.0%	10.0%	8.0%	40.0%	35.0%
58	5.0%	8.0%	15.0%	10.0%	50.0%	35.0%
59	10.0%	8.0%	20.0%	15.0%	50.0%	35.0%
60	10.0%	10.0%	25.0%	20.0%	40.0%	35.0%
61	20.0%	12.0%	30.0%	25.0%	40.0%	35.0%
62	20.0%	12.0%	35.0%	30.0%	35.0%	35.0%
63	25.0%	15.0%	40.0%	30.0%	35.0%	35.0%
64	25.0%	20.0%	40.0%	30.0%	35.0%	35.0%
65	25.0%	25.0%	40.0%	40.0%	35.0%	35.0%
66	30.0%	25.0%	30.0%	30.0%	40.0%	35.0%
67	30.0%	30.0%	30.0%	30.0%	40.0%	30.0%
68	30.0%	30.0%	30.0%	30.0%	40.0%	30.0%
69	30.0%	30.0%	30.0%	30.0%	40.0%	30.0%
70	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



## SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.1 - Active Members by Age and Years of Service as of July 1, 2020

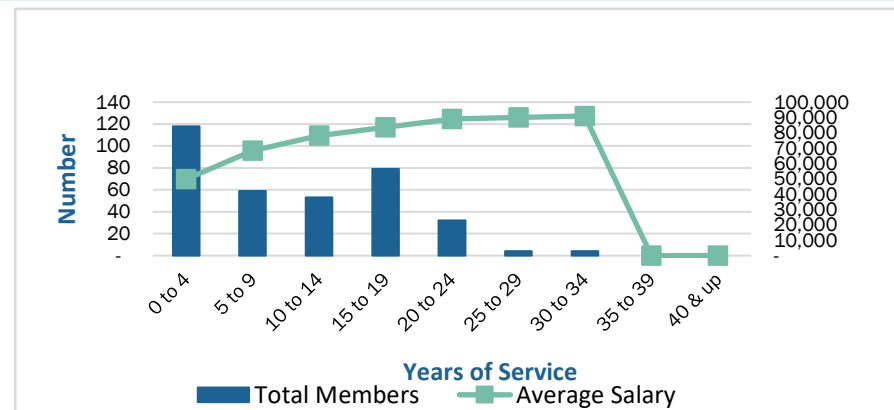
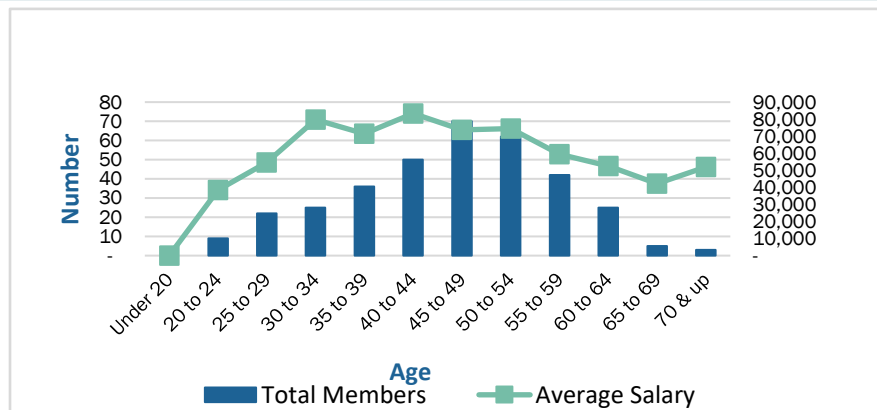
Age	Years of Service									Total	Total Salary	Average Salary
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up			
Under 20	-	-	-	-	-	-	-	-	-	-	-	-
20 to 24	8	1	-	-	-	-	-	-	-	9	346,387	38,487
25 to 29	18	4	-	-	-	-	-	-	-	22	1,199,266	54,512
30 to 34	12	13	-	-	-	-	-	-	-	25	1,993,591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

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

Non-Medicare Plans					Medicare Plans					Total
Age	Fallon Select	Fallon Direct	Fallon PPO	Tufts	BCBS Medex 2	BCBS Managed Blue	Fallon Senior	Tufts Supplement Prime	Tufts HMO Prime	
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	369,400	899,199	75,820	86,427	27,623	1,458,469
OPEB Trust contributions	41,284	170,418	19,188	19,110	0	250,000
Total Employer Contributions	410,684	1,069,617	95,008	105,537	27,623	1,708,469
<b>Beginning Net OPEB Liability - June 30, 2020</b>						
Total OPEB Liability	5,446,615	22,482,757	2,531,371	2,521,077	397,400	33,379,220
Fiduciary Net Position	306,394	1,264,747	142,400	141,821	0	1,855,362
Net OPEB Liability	5,140,221	21,218,010	2,388,971	2,379,256	397,400	31,523,858
Total OPEB Liability, beginning of year	5,446,615	22,482,757	2,531,371	2,521,077	397,400	33,379,220
Service cost	108,804	622,502	82,503	107,297	10,836	931,942
Interest	349,097	1,472,617	167,438	168,035	25,638	2,182,825
Changes of benefit terms	0	0	0	0	0	0
Differences between expected and actual experience	1,849,179	4,120,038	52,908	375,263	252,609	6,649,997
Changes of assumptions	2,174,068	4,789,047	553,115	397,860	231,633	8,145,723
Benefit payments	(369,400)	(899,199)	(75,820)	(86,427)	(27,623)	(1,458,469)
Net change in total OPEB liability	4,111,748	10,105,005	780,144	962,028	493,093	16,452,018
Total OPEB Liability, end of year	9,558,363	32,587,762	3,311,515	3,483,105	890,493	49,831,238
<b>Ending 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

## 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	1,080,542	4,460,305	502,193	500,151	78,839	6,622,030
Changes in Assumptions	1,158,671	4,782,808	538,504	536,314	84,540	7,100,838
Differences between Expected and Actual Earnings on OPEB Plan Investments	0	0	0	0	0	0
<b>Total Deferred Outflows of Resources</b>	<b>2,239,213</b>	<b>9,243,113</b>	<b>1,040,697</b>	<b>1,036,465</b>	<b>163,379</b>	<b>13,722,868</b>
<b>Total Deferred Inflows of Resources</b>						
Differences between Expected and Actual Experience	411,217	1,697,437	191,117	190,340	30,004	2,520,115
Changes in Assumptions	531,315	2,193,184	246,934	245,930	38,766	3,256,129
Differences between Expected and Actual Earnings on OPEB Plan Investments	51,835	213,967	24,091	23,993	0	313,886
<b>Total Deferred Inflows of Resources</b>	<b>994,367</b>	<b>4,104,588</b>	<b>462,142</b>	<b>460,263</b>	<b>68,770</b>	<b>6,090,130</b>
<b>Total OPEB Expense (Income)</b>	<b>2,178,095</b>	<b>1,497,552</b>	<b>(214,409)</b>	<b>(17,562)</b>	<b>356,236</b>	<b>3,799,912</b>
<b>Sensitivity of the Net OPEB Liability to Changes in the Discount Rate</b>						
Current Discount Rate: 5.65%	9,110,071	30,737,275	3,103,165	3,275,602	890,493	47,116,606
1% Decrease in the Discount Rate: 4.65%	10,750,344	36,329,531	3,671,441	3,873,324	1,043,307	55,667,946
1% Increase in the Discount Rate: 6.65%	7,803,746	26,283,561	2,650,586	2,799,572	768,791	40,306,256
<b>Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates</b>						
Current Trend Rates	9,110,071	30,737,275	3,103,165	3,275,602	890,493	47,116,606
1% Decrease in Trend Rates	7,594,198	25,569,140	2,577,988	2,723,212	749,269	39,213,806
1% Increase in Trend Rates	11,062,731	37,394,567	3,779,668	3,987,159	1,072,410	57,296,535
<b>Deferred Outflows of Resources and Deferred Inflows of Resources recognized in OPEB Expense</b>						
2022	135,534	559,456	62,990	62,734	10,301	831,015
2023	136,214	562,269	63,307	63,049	10,352	835,191
2024	110,505	456,153	51,359	51,150	8,399	677,566
2025	144,176	595,141	67,008	66,735	10,958	884,018
2026	267,192	1,102,920	124,180	123,675	20,307	1,638,274
Thereafter	451,225	1,862,584	209,712	208,859	34,294	2,766,674

## 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.

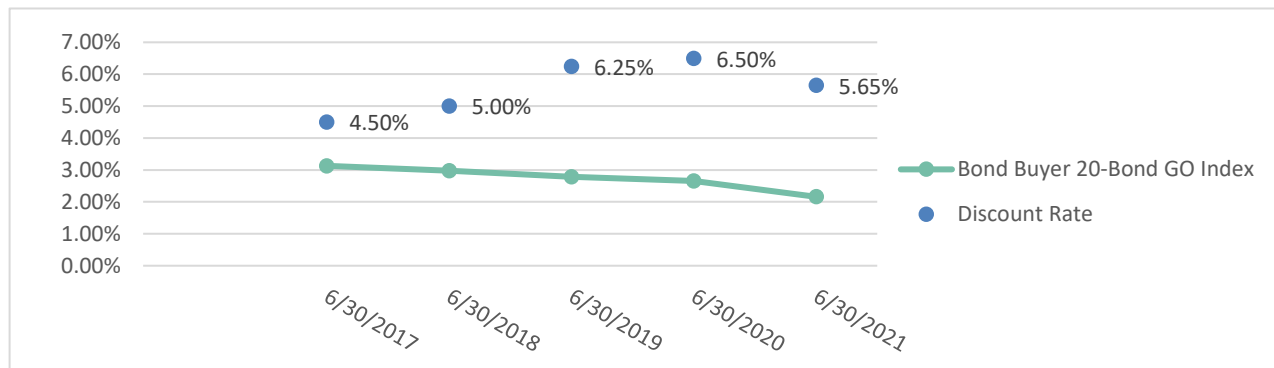
Projected cash flows into and out of the OPEB plan are assumed to be contributions to the OPEB plan, benefit payments, OPEB plan administrative expenses and OPEB plan investment earnings. These projected cash flows are used to project the OPEB plan's fiduciary net position at the beginning of each period. 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 5.65%, a long-term investment return rate of 6.65% and a municipal bond rate of 2.16%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2021. The OPEB plan's fiduciary net position was projected to be insufficient to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to the first 90 periods of projected future benefit payments and the 2.16% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 5.65%.

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) * 6.81%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2021	24,707,066	-	24,707,066	1,458,469	250,000	-	1,708,469
2022	23,790,629	1,781,184	25,571,813	1,604,815	250,000	121,381	1,733,434
2023	23,059,213	3,407,613	26,466,826	1,706,287	250,000	232,216	1,724,071
2024	22,397,269	4,995,896	27,393,165	1,801,000	250,000	340,451	1,710,549
2025	21,762,997	6,588,929	28,351,926	1,909,581	250,000	449,010	1,710,571
2026	21,139,213	8,205,030	29,344,243	2,025,137	250,000	559,141	1,715,996
2027	20,398,999	9,972,293	30,371,292	2,110,748	250,000	679,574	1,681,174
2028	19,725,315	11,708,972	31,434,287	2,273,947	250,000	797,922	1,726,025
2029	18,895,688	13,638,799	32,534,487	2,515,241	250,000	929,432	1,835,809
2030	18,013,471	15,659,723	33,673,194	2,718,381	250,000	1,067,150	1,901,231
2031	17,055,328	17,796,428	34,851,756	2,990,889	250,000	1,212,758	2,028,131
2032	16,023,790	20,047,777	36,071,567	3,319,073	250,000	1,366,179	2,202,894
2033	14,924,979	22,409,093	37,334,072	3,598,228	250,000	1,527,094	2,321,134
2034	13,872,057	24,768,708	38,640,765	3,944,509	250,000	1,687,893	2,506,616
2035	12,772,457	27,220,735	39,993,192	4,265,742	250,000	1,854,989	2,660,753
2036	11,445,649	29,947,305	41,392,954	4,507,753	250,000	2,040,794	2,716,959
2037	10,205,714	32,635,993	42,841,707	4,738,345	5,947,206	2,224,018	8,461,533
2038	9,065,085	35,276,082	44,341,167	4,995,094	6,185,095	2,403,930	8,776,259
2039	8,126,675	37,766,433	45,893,108	5,094,281	6,432,498	2,573,638	8,953,141
2040	7,262,502	40,236,865	47,499,367	5,122,645	6,689,798	2,741,988	9,070,455
2041	6,500,880	42,660,965	49,161,845	5,233,056	6,957,390	2,907,182	9,283,264
2042	5,809,365	45,073,145	50,882,510	5,345,963	7,235,686	3,071,562	9,510,087
2043	5,316,383	47,347,015	52,663,398	5,141,916	7,525,113	3,226,518	9,440,511
2044	4,886,410	49,620,207	54,506,617	5,078,672	7,826,118	3,381,427	9,523,363
2045	4,496,503	51,917,846	56,414,349	5,147,468	8,139,163	3,538,003	9,748,628
2046	4,080,900	54,307,951	58,388,851	5,166,922	8,464,729	3,700,879	9,930,772
2047	3,665,220	56,767,241	60,432,461	5,156,914	8,803,318	3,868,470	10,091,762
2048	3,335,165	59,212,432	62,547,597	5,325,806	9,155,451	4,035,101	10,446,156
2049	2,993,965	61,742,798	64,736,763	5,402,895	9,521,669	4,207,535	10,717,029
2050	2,682,950	64,319,600	67,002,550	5,498,392	9,902,536	4,383,135	11,017,793
2051	2,355,236	66,992,403	69,347,639	5,742,337	10,298,637	4,565,276	11,475,698
2052	2,054,717	69,720,089	71,774,806	5,829,584	10,710,583	4,751,157	11,789,010
2053	1,718,346	72,568,578	74,286,924	5,965,393	11,139,006	4,945,271	12,159,128
2054	1,427,541	75,459,425	76,886,966	6,216,059	11,584,566	5,142,271	12,658,354

## 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) * 6.81%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2055	1,167,514	78,410,496	79,578,010	6,152,481	12,047,949	5,343,375	12,857,055
2056	867,915	81,495,325	82,363,240	6,231,812	12,529,867	5,553,595	13,208,084
2057	712,858	84,533,095	85,245,953	6,265,353	13,031,061	5,760,607	13,535,807
2058	561,618	87,667,943	88,229,561	6,151,134	13,552,304	5,974,235	13,729,203
2059	429,459	90,888,137	91,317,596	6,067,994	14,094,396	6,193,679	13,968,711
2060	306,918	94,206,794	94,513,712	5,955,273	14,658,172	6,419,833	14,193,612
2061	207,469	97,614,223	97,821,692	5,965,302	15,244,499	6,652,036	14,557,765
2062	157,533	101,087,918	101,245,451	5,857,742	15,854,279	6,888,755	14,823,266
2063	120,253	104,668,789	104,789,042	5,647,535	16,488,450	7,132,777	15,003,208
2064	79,180	108,377,478	108,456,658	5,602,550	17,147,988	7,385,510	15,365,028
2065	48,340	112,204,301	112,252,641	5,553,379	17,833,907	7,646,294	15,740,992
2066	37,837	116,143,646	116,181,483	5,372,367	18,547,264	7,914,745	16,004,886
2067	28,907	120,218,928	120,247,835	5,275,428	19,289,154	8,192,460	16,372,122
2068	18,170	124,438,339	124,456,509	5,182,039	20,060,720	8,479,997	16,762,762
2069	3,198	128,809,289	128,812,487	5,027,595	20,863,149	8,777,860	17,112,884
2070	-	133,320,924	133,320,924	4,887,898	21,697,675	9,085,311	17,500,262
2071	-	137,987,156	137,987,156	4,688,775	22,565,582	9,403,297	17,851,060
2072	-	142,816,706	142,816,706	4,496,804	23,468,206	9,732,412	18,232,598
2073	-	147,815,291	147,815,291	4,311,746	24,406,934	10,073,046	18,645,634
2074	-	152,988,826	152,988,826	4,087,113	25,383,211	10,425,603	19,044,721
2075	-	158,343,435	158,343,435	3,901,399	26,398,540	10,790,499	19,509,440
2076	-	163,885,455	163,885,455	3,662,754	27,454,481	11,168,167	19,949,068
2077	-	169,621,446	169,621,446	3,443,719	28,552,660	11,559,052	20,437,327
2078	-	175,558,197	175,558,197	3,255,986	29,694,767	11,963,619	20,987,134
2079	-	181,702,734	181,702,734	3,042,664	30,882,557	12,382,346	21,542,875
2080	-	188,062,330	188,062,330	2,863,707	32,117,860	12,815,728	22,165,839
2081	-	194,644,512	194,644,512	2,663,902	33,402,574	13,264,279	22,802,197
2082	-	201,457,070	201,457,070	2,478,378	34,738,677	13,728,528	23,488,527
2083	-	208,508,067	208,508,067	2,316,050	36,128,224	14,209,027	24,235,247
2084	-	215,805,849	215,805,849	2,140,118	37,573,353	14,706,343	25,007,128
2085	-	223,359,054	223,359,054	1,978,800	39,076,287	15,221,065	25,834,022
2086	-	231,176,621	231,176,621	1,812,532	40,639,339	15,753,802	26,698,069
2087	-	239,267,803	239,267,803	1,655,827	42,264,912	16,305,185	27,615,554
2088	-	247,642,176	247,642,176	1,504,936	43,955,509	16,875,867	28,584,578

## 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) * 6.81%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2089	-	256,309,652	256,309,652	1,354,199	45,713,729	17,466,522	29,601,406
2090	-	265,280,490	265,280,490	1,212,721	47,542,278	18,077,850	30,677,149
2091	-	274,565,307	274,565,307	1,078,687	49,443,970	18,710,575	31,812,082
2092	-	284,175,093	284,175,093	946,924	51,421,728	19,365,445	33,003,207
2093	-	294,121,221	294,121,221	825,729	53,478,597	20,043,236	34,261,090
2094	-	304,415,464	304,415,464	713,268	55,617,741	20,744,749	35,586,260
2095	-	315,070,005	315,070,005	609,873	57,842,451	21,470,815	36,981,509
2096	-	326,097,455	326,097,455	514,284	60,156,149	22,222,294	38,448,139
2097	-	337,510,866	337,510,866	429,866	62,562,395	23,000,074	39,992,187
2098	-	349,323,746	349,323,746	354,660	65,064,891	23,805,077	41,614,474
2099	-	361,550,077	361,550,077	288,587	67,667,486	24,638,254	43,317,819
2100	-	374,204,330	374,204,330	231,233	70,374,186	25,500,593	45,104,826
2101	-	387,301,482	387,301,482	182,201	73,189,153	26,393,114	46,978,240
2102	-	400,857,034	400,857,034	141,067	76,116,719	27,316,873	48,940,913
2103	-	414,887,030	414,887,030	107,201	79,161,388	28,272,963	50,995,626
2104	-	429,408,076	429,408,076	79,793	82,327,844	29,262,517	53,145,120
2105	-	444,437,359	444,437,359	58,077	85,620,957	30,286,705	55,392,329
2106	-	459,992,667	459,992,667	41,296	89,045,796	31,346,740	57,740,352
2107	-	476,092,410	476,092,410	28,660	92,607,628	32,443,876	60,192,412
2108	-	492,755,644	492,755,644	19,349	96,311,933	33,579,411	62,751,871
2109	-	510,002,092	510,002,092	12,682	100,164,410	34,754,691	65,422,401
2110	-	527,852,165	527,852,165	8,070	104,170,986	35,971,105	68,207,951
2111	-	546,326,991	546,326,991	4,973	108,337,826	37,230,094	71,112,705
2112	-	565,448,436	565,448,436	2,965	112,671,339	38,533,147	74,141,157
2113	-	585,239,131	585,239,131	1,708	117,178,192	39,881,807	77,298,093
2114	-	605,722,501	605,722,501	944	121,865,320	41,277,670	80,588,594
2115	-	626,922,789	626,922,789	508	126,739,933	42,722,389	84,018,052
2116	-	648,865,087	648,865,087	264	131,809,530	44,217,673	87,592,121
2117	-	671,575,365	671,575,365	136	137,081,911	45,765,291	91,316,756
2118	-	695,080,503	695,080,503	65	142,565,188	47,367,076	95,198,177
2119	-	719,408,321	719,408,321	26	148,267,795	49,024,924	99,242,897
2120	-	744,587,612	744,587,612	13	154,198,507	50,740,796	103,457,724
2121	-	770,648,178	770,648,178	6	160,366,448	52,516,724	107,849,730
2122	-	797,620,864	797,620,864	-	166,781,105	54,354,810	112,426,295

## 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)
2021	1,855,362	1,708,469	1,458,469	-	609,270	2,714,632
2022	2,714,632	1,733,434	1,604,815	-	184,800	3,028,051
2023	3,028,051	1,724,071	1,706,287	-	201,957	3,247,792
2024	3,247,792	1,710,549	1,801,000	-	212,971	3,370,312
2025	3,370,312	1,710,571	1,909,581	-	217,509	3,388,811
2026	3,388,811	1,715,996	2,025,137	-	215,077	3,294,747
2027	3,294,747	1,681,174	2,110,748	-	204,817	3,069,990
2028	3,069,990	1,726,025	2,273,947	-	185,936	2,708,004
2029	2,708,004	1,835,809	2,515,241	-	157,491	2,186,063
2030	2,186,063	1,901,231	2,718,381	-	118,203	1,487,116
2031	1,487,116	2,028,131	2,990,889	-	66,882	591,240
2032	591,240	2,202,894	3,319,073	-	2,205	-
2033	-	2,321,134	3,598,228	-	-	-
2034	-	2,506,616	3,944,509	-	-	-
2035	-	2,660,753	4,265,742	-	-	-
2036	-	2,716,959	4,507,753	-	-	-
2037	-	8,461,533	4,738,345	-	123,796	3,846,984
2038	3,846,984	8,776,259	4,995,094	-	381,548	8,009,697
2039	8,009,697	8,953,141	5,094,281	-	660,952	12,529,509
2040	12,529,509	9,070,455	5,122,645	-	964,477	17,441,797
2041	17,441,797	9,283,264	5,233,056	-	1,294,549	22,786,554
2042	22,786,554	9,510,087	5,345,963	-	1,653,763	28,604,441
2043	28,604,441	9,440,511	5,141,916	-	2,045,124	34,948,160
2044	34,948,160	9,523,363	5,078,672	-	2,471,839	41,864,690
2045	41,864,690	9,748,628	5,147,468	-	2,936,990	49,402,840
2046	49,402,840	9,930,772	5,166,922	-	3,443,687	57,610,377
2047	57,610,377	10,091,762	5,156,914	-	3,995,174	66,540,399
2048	66,540,399	10,446,156	5,325,806	-	4,595,188	76,255,937
2049	76,255,937	10,717,029	5,402,895	-	5,247,715	86,817,786
2050	86,817,786	11,017,793	5,498,392	-	5,956,903	98,294,089
2051	98,294,089	11,475,698	5,742,337	-	6,727,191	110,754,642
2052	110,754,642	11,789,010	5,829,584	-	7,563,335	124,277,402
2053	124,277,402	12,159,128	5,965,393	-	8,470,389	138,941,526
2054	138,941,526	12,658,354	6,216,059	-	9,453,818	154,837,639
2055	154,837,639	12,857,055	6,152,481	-	10,519,630	172,061,843
2056	172,061,843	13,208,084	6,231,812	-	11,674,074	190,712,189

## 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)
2057	190,712,189	13,535,807	6,265,353	-	12,924,103	210,906,747
2058	210,906,747	13,729,203	6,151,134	-	14,277,269	232,762,085
2059	232,762,085	13,968,711	6,067,994	-	15,741,377	256,404,179
2060	256,404,179	14,193,612	5,955,273	-	17,324,803	281,967,321
2061	281,967,321	14,557,765	5,965,302	-	19,036,526	309,596,309
2062	309,596,309	14,823,266	5,857,742	-	20,886,258	339,448,091
2063	339,448,091	15,003,208	5,647,535	-	22,884,374	371,688,138
2064	371,688,138	15,365,028	5,602,550	-	25,041,864	406,492,480
2065	406,492,480	15,740,992	5,553,379	-	27,370,488	444,050,581
2066	444,050,581	16,004,886	5,372,367	-	29,882,895	484,565,995
2067	484,565,995	16,372,122	5,275,428	-	32,592,604	528,255,293
2068	528,255,293	16,762,762	5,182,039	-	35,514,036	575,350,053
2069	575,350,053	17,112,884	5,027,595	-	38,662,614	626,097,956
2070	626,097,956	17,500,262	4,887,898	-	42,054,875	680,765,195
2071	680,765,195	17,851,060	4,688,775	-	45,708,531	739,636,012
2072	739,636,012	18,232,598	4,496,804	-	49,642,510	803,014,315
2073	803,014,315	18,645,634	4,311,746	-	53,877,054	871,225,257
2074	871,225,257	19,044,721	4,087,113	-	58,433,820	944,616,685
2075	944,616,685	19,509,440	3,901,399	-	63,335,977	1,023,560,703
2076	1,023,560,703	19,949,068	3,662,754	-	68,608,307	1,108,455,324
2077	1,108,455,324	20,437,327	3,443,719	-	74,277,317	1,199,726,249
2078	1,199,726,249	20,987,134	3,255,986	-	80,371,356	1,297,828,753
2079	1,297,828,753	21,542,875	3,042,664	-	86,920,744	1,403,249,708
2080	1,403,249,708	22,165,839	2,863,707	-	93,957,901	1,516,509,741
2081	1,516,509,741	22,802,197	2,663,902	-	101,517,496	1,638,165,532
2082	1,638,165,532	23,488,527	2,478,378	-	109,636,595	1,768,812,276
2083	1,768,812,276	24,235,247	2,316,050	-	118,354,830	1,909,086,304
2084	1,909,086,304	25,007,128	2,140,118	-	127,714,567	2,059,667,881
2085	2,059,667,881	25,834,022	1,978,800	-	137,761,100	2,221,284,203
2086	2,221,284,203	26,698,069	1,812,532	-	148,542,844	2,394,712,584
2087	2,394,712,584	27,615,554	1,655,827	-	160,111,548	2,580,783,859
2088	2,580,783,859	28,584,578	1,504,936	-	172,522,525	2,780,386,026
2089	2,780,386,026	29,601,406	1,354,199	-	185,834,890	2,994,468,123
2090	2,994,468,123	30,677,149	1,212,721	-	200,111,822	3,224,044,374
2091	3,224,044,374	31,812,082	1,078,687	-	215,420,836	3,470,198,604
2092	3,470,198,604	33,003,207	946,924	-	231,834,079	3,734,088,967

## 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)
2093	3,734,088,967	34,261,090	825,729	-	249,428,642	4,016,952,970
2094	4,016,952,970	35,586,260	713,268	-	268,286,899	4,320,112,861
2095	4,320,112,861	36,981,509	609,873	-	288,496,862	4,644,981,359
2096	4,644,981,359	38,448,139	514,284	-	310,152,561	4,993,067,775
2097	4,993,067,775	39,992,187	429,866	-	333,354,454	5,365,984,550
2098	5,365,984,550	41,614,474	354,660	-	358,209,861	5,765,454,225
2099	5,765,454,225	43,317,819	288,587	-	384,833,428	6,193,316,885
2100	6,193,316,885	45,104,826	231,233	-	413,347,620	6,651,538,098
2101	6,651,538,098	46,978,240	182,201	-	443,883,252	7,142,217,389
2102	7,142,217,389	48,940,913	141,067	-	476,580,051	7,667,597,287
2103	7,667,597,287	50,995,626	107,201	-	511,587,260	8,230,072,972
2104	8,230,072,972	53,145,120	79,793	-	549,064,275	8,832,202,574
2105	8,832,202,574	55,392,329	58,077	-	589,181,335	9,476,718,161
2106	9,476,718,161	57,740,352	41,296	-	632,120,251	10,166,537,468
2107	10,166,537,468	60,192,412	28,660	-	678,075,186	10,904,776,406
2108	10,904,776,406	62,751,871	19,349	-	727,253,487	11,694,762,414
2109	11,694,762,414	65,422,401	12,682	-	779,876,574	12,540,048,707
2110	12,540,048,707	68,207,951	8,070	-	836,180,885	13,444,429,474
2111	13,444,429,474	71,112,705	4,973	-	896,418,892	14,411,956,098
2112	14,411,956,098	74,141,157	2,965	-	960,860,175	15,446,954,465
2113	15,446,954,465	77,298,093	1,708	-	1,029,792,577	16,554,043,427
2114	16,554,043,427	80,588,594	944	-	1,103,523,427	17,738,154,504
2115	17,738,154,504	84,018,052	508	-	1,182,380,858	19,004,552,906
2116	19,004,552,906	87,592,121	264	-	1,266,715,198	20,358,859,961
2117	20,358,859,961	91,316,756	136	-	1,356,900,465	21,807,077,047
2118	21,807,077,047	95,198,177	65	-	1,453,335,961	23,355,611,120
2119	23,355,611,120	99,242,897	26	-	1,556,447,965	25,011,301,956
2120	25,011,301,956	103,457,724	13	-	1,666,691,549	26,781,451,217
2121	26,781,451,217	107,849,730	6	-	1,784,552,509	28,673,853,449
2122	28,673,853,449	112,426,295	-	-	1,910,549,429	30,696,829,174

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

Year	Projected Beginning Fiduciary Net Position (a)	Projected Benefit Payments (b)	Projected Benefit Payments		Actuarial Present Value of Projected Benefit Payments		
			"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)	Present Value of Benefit Payments Using the Single Discount Rate (g) = 5.65%
2022	2,714,632	1,604,815	1,604,815	-	1,553,977	-	1,561,343
2023	3,028,051	1,706,287	1,706,287	-	1,549,212	-	1,571,347
2024	3,247,792	1,801,000	1,801,000	-	1,533,245	-	1,569,930
2025	3,370,312	1,909,581	1,909,581	-	1,524,316	-	1,575,619
2026	3,388,811	2,025,137	2,025,137	-	1,515,760	-	1,581,664
2027	3,294,747	2,110,748	2,110,748	-	1,481,329	-	1,560,424
2028	3,069,990	2,273,947	2,273,947	-	1,496,355	-	1,591,231
2029	2,708,004	2,515,241	2,515,241	-	1,551,934	-	1,666,016
2030	2,186,063	2,718,381	-	2,718,381	-	2,266,850	1,704,341
2031	1,487,116	2,990,889	-	2,990,889	-	2,441,360	1,774,978
2032	591,240	3,319,073	-	3,319,073	-	2,651,963	1,864,473
2033	-	3,598,228	-	3,598,228	-	2,814,223	1,913,263
2034	-	3,944,509	-	3,944,509	-	3,019,826	1,985,297
2035	-	4,265,742	-	4,265,742	-	3,196,706	2,032,234
2036	-	4,507,753	-	4,507,753	-	3,306,643	2,032,759
2037	-	4,738,345	-	4,738,345	-	3,402,303	2,022,549
2038	3,846,984	4,995,094	-	4,995,094	-	3,510,824	2,018,193
2039	8,009,697	5,094,281	5,094,281	-	1,651,079	-	1,948,267
2040	12,529,509	5,122,645	5,122,645	-	1,556,748	-	1,854,413
2041	17,441,797	5,233,056	5,233,056	-	1,491,141	-	1,793,140
2042	22,786,554	5,345,963	5,345,963	-	1,428,329	-	1,733,929
2043	28,604,441	5,141,916	5,141,916	-	1,288,150	-	1,578,618
2044	34,948,160	5,078,672	5,078,672	-	1,192,974	-	1,475,872
2045	41,864,690	5,147,468	5,147,468	-	1,133,740	-	1,415,920
2046	49,402,840	5,166,922	5,166,922	-	1,067,065	-	1,345,314
2047	57,610,377	5,156,914	5,156,914	-	998,592	-	1,270,949
2048	66,540,399	5,325,806	5,325,806	-	966,991	-	1,242,425
2049	76,255,937	5,402,895	5,402,895	-	919,820	-	1,193,049
2050	86,817,786	5,498,392	5,498,392	-	877,710	-	1,149,248
2051	98,294,089	5,742,337	5,742,337	-	859,495	-	1,136,092
2052	110,754,642	5,829,584	5,829,584	-	818,147	-	1,091,714
2053	124,277,402	5,965,393	5,965,393	-	785,004	-	1,057,443



## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

Year	Projected Beginning Fiduciary Net Position (a)	Projected Benefit Payments (b)	Projected Benefit Payments		Actuarial Present Value of Projected Benefit Payments		
			"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)	Present Value of Benefit Payments Using the Single Discount Rate (g) = 5.65%
2054	138,941,526	6,216,059	6,216,059	-	766,986	-	1,042,989
2055	154,837,639	6,152,481	6,152,481	-	711,806	-	977,151
2056	172,061,843	6,231,812	6,231,812	-	676,028	-	936,855
2057	190,712,189	6,265,353	6,265,353	-	637,287	-	891,559
2058	210,906,747	6,151,134	6,151,134	-	586,656	-	828,526
2059	232,762,085	6,067,994	6,067,994	-	542,641	-	773,647
2060	256,404,179	5,955,273	5,955,273	-	499,354	-	718,697
2061	281,967,321	5,965,302	5,965,302	-	469,006	-	681,433
2062	309,596,309	5,857,742	5,857,742	-	431,833	-	633,385
2063	339,448,091	5,647,535	5,647,535	-	390,376	-	578,020
2064	371,688,138	5,602,550	5,602,550	-	363,119	-	542,771
2065	406,492,480	5,553,379	5,553,379	-	337,489	-	509,254
2066	444,050,581	5,372,367	5,372,367	-	306,131	-	466,326
2067	484,565,995	5,275,428	5,275,428	-	281,863	-	433,439
2068	528,255,293	5,182,039	5,182,039	-	259,610	-	403,012
2069	575,350,053	5,027,595	5,027,595	-	236,167	-	370,104
2070	626,097,956	4,887,898	4,887,898	-	215,288	-	340,590
2071	680,765,195	4,688,775	4,688,775	-	193,641	-	309,255
2072	739,636,012	4,496,804	4,496,804	-	174,133	-	280,742
2073	803,014,315	4,311,746	4,311,746	-	156,556	-	254,802
2074	871,225,257	4,087,113	4,087,113	-	139,146	-	228,620
2075	944,616,685	3,901,399	3,901,399	-	124,542	-	206,568
2076	1,023,560,703	3,662,754	3,662,754	-	109,633	-	183,568
2077	1,108,455,324	3,443,719	3,443,719	-	96,650	-	163,367
2078	1,199,726,249	3,255,986	3,255,986	-	85,683	-	146,206
2079	1,297,828,753	3,042,664	3,042,664	-	75,077	-	129,325
2080	1,403,249,708	2,863,707	2,863,707	-	66,255	-	115,214
2081	1,516,509,741	2,663,902	2,663,902	-	57,789	-	101,447
2082	1,638,165,532	2,478,378	2,478,378	-	50,412	-	89,338
2083	1,768,812,276	2,316,050	2,316,050	-	44,173	-	79,025
2084	1,909,086,304	2,140,118	2,140,118	-	38,272	-	69,119
2085	2,059,667,881	1,978,800	1,978,800	-	33,181	-	60,494



## 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		
	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)	Present Value of Benefit Payments Using the Single Discount Rate (g) = 5.65%
2086	2,221,284,203	1,812,532	1,812,532	-	28,498	-	52,450
2087	2,394,712,584	1,655,827	1,655,827	-	24,411	-	45,354
2088	2,580,783,859	1,504,936	1,504,936	-	20,803	-	39,018
2089	2,780,386,026	1,354,199	1,354,199	-	17,552	-	33,234
2090	2,994,468,123	1,212,721	1,212,721	-	14,738	-	28,171
2091	3,224,044,374	1,078,687	1,078,687	-	12,292	-	23,718
2092	3,470,198,604	946,924	946,924	-	10,118	-	19,708
2093	3,734,088,967	825,729	825,729	-	8,272	-	16,267
2094	4,016,952,970	713,268	713,268	-	6,700	-	13,301
2095	4,320,112,861	609,873	609,873	-	5,372	-	10,765
2096	4,644,981,359	514,284	514,284	-	4,247	-	8,593
2097	4,993,067,775	429,866	429,866	-	3,329	-	6,798
2098	5,365,984,550	354,660	354,660	-	2,575	-	5,309
2099	5,765,454,225	288,587	288,587	-	1,965	-	4,089
2100	6,193,316,885	231,233	231,233	-	1,476	-	3,101
2101	6,651,538,098	182,201	182,201	-	1,091	-	2,313
2102	7,142,217,389	141,067	141,067	-	792	-	1,695
2103	7,667,597,287	107,201	107,201	-	564	-	1,219
2104	8,230,072,972	79,793	79,793	-	394	-	859
2105	8,832,202,574	58,077	58,077	-	269	-	592
2106	9,476,718,161	41,296	41,296	-	179	-	398
2107	10,166,537,468	28,660	28,660	-	117	-	262
2108	10,904,776,406	19,349	19,349	-	74	-	167
2109	11,694,762,414	12,682	12,682	-	45	-	104
2110	12,540,048,707	8,070	8,070	-	27	-	62
2111	13,444,429,474	4,973	4,973	-	16	-	36
2112	14,411,956,098	2,965	2,965	-	9	-	21
2113	15,446,954,465	1,708	1,708	-	5	-	11
2114	16,554,043,427	944	944	-	2	-	6
2115	17,738,154,504	508	508	-	1	-	3
2116	19,004,552,906	264	264	-	1	-	1
2117	20,358,859,961	136	136	-	-	-	1

## APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

Year	Projected Beginning Fiduciary Net Position (a)	Projected Benefit Payments (b)	Projected Benefit Payments		Actuarial Present Value of Projected Benefit Payments		
			"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)	Present Value of Benefit Payments Using the Single Discount Rate (g) = 5.65%
2118	21,807,077,047	65	65	-	-	-	-
2119	23,355,611,120	26	26	-	-	-	-
2120	25,011,301,956	13	13	-	-	-	-
2121	26,781,451,217	6	6	-	-	-	-
2122	28,673,853,449	-	-	-	-	-	-

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

Year	Differences between Expected and Actual Experience	Recognition Period (Years)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2018	2,242,713	6.55	342,399	342,399	342,399	188,319	-	-	-	-	-	-
2019	-	6.55	-	-	-	-	-	-	-	-	-	-
2020	(3,592,503)	6.70	(536,194)	(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	901,084	901,084	342,409	-	-
Net Increase (Decrease) in OPEB Expense			707,289	707,289	707,289	553,209	364,890	525,745	901,084	342,409	-	-

Year	Changes of Assumptions	Recognition Period (Years)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2018	-	6.55	-	-	-	-	-	-	-	-	-	-
2019	(6,007,783)	6.55	(917,218)	(917,218)	(917,218)	(917,218)	(504,475)	-	-	-	-	-
2020	83,922	6.70	12,525	12,525	12,525	12,525	12,525	8,772	-	-	-	-
2021	8,145,723	7.38	1,103,757	1,103,757	1,103,757	1,103,757	1,103,757	1,103,757	1,103,757	419,424	-	-
Net Increase (Decrease) in OPEB Expense			199,064	199,064	199,064	199,064	611,807	1,112,529	1,103,757	419,424	-	-

Year	Differences between Projected and Actual Earnings on OPEB Plan Investments	Recognition Period (Years)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2018	(20,881)	5	(4,176)	(4,177)	-	-	-	-	-	-	-	-
2019	17,734	5	3,547	3,547	3,546	-	-	-	-	-	-	-
2020	89,861	5	17,972	17,972	17,972	17,973	-	-	-	-	-	-
2021	(463,399)	5	(92,680)	(92,680)	(92,680)	(92,680)	(92,679)	-	-	-	-	-
Net Increase (Decrease) in OPEB Expense			(75,337)	(75,338)	(71,162)	(74,707)	(92,679)	-	-	-	-	-