



TOWN OF HARVARD, MASSACHUSETTS

OTHER POSTEMPLOYMENT BENEFITS PROGRAM

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

Disclosures as of
June 30, 2020

KMS Actuarial, LLC
52 Hunt Road
Kingston, NH 03848

September, 2020



September 23, 2020

Ms. Marie Sobalvarro
HR Director/Assistant Town Administrator
Town of Harvard, Massachusetts
13 Ayer Road
Harvard, MA 01451

Dear Marie:

We are pleased to present the enclosed report of the July 1, 2019 actuarial valuation of the retiree health care benefits for the Town of Harvard, Massachusetts. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2020 under the following Governmental Accounting Standards Board (GASB) Statements:

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

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

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

Liabilities presented in this report are based on a discount rate of 2.37%, the rate that reflects a blended-rate of the long-term expected rate of return on OPEB plan assets and the municipal bond rate. The municipal bond rate of 2.21% is based on the Bond Buyer 20-Bond GO Index published on June 30, 2020. The long-term expected rate of return is 7.3%. The long-term expected rate of return is based on the target allocations provided in the investment policy statement and long-term expected rates of return by asset class provided by the Pension Reserves Investment Management Board.

Ms. Marie Sobalvarro

September 23, 2020

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

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

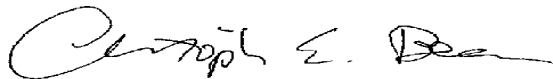
Respectfully submitted,



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EXECUTIVE SUMMARY

Purpose of Report

This report presents the results of the actuarial valuation of the Town of Harvard, Massachusetts's retiree health care benefits as of July 1, 2019. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2020 under the following Governmental Accounting Standards Board (GASB) Statements:

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

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

GASB Accounting Standards

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

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

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

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

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

EXECUTIVE SUMMARY

Town of Harvard, Massachusetts Other Postemployment Benefits Program

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

Summary of Principal Results

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

Disclosure Date	June 30, 2020	June 30, 2019	% Change
Valuation Date	July 1, 2019	July 1, 2017	
Membership Data			
Active Plan Members	212	221	(4.1%)
Inactive Plan Members (excludes covered spouses)	129	118	9.3%
Total Plan Members	341	339	0.6%
Covered Spouses	54	Not available	
Covered Payroll	\$15,532,441	\$14,512,416	7.0%
Net OPEB Liability			
Discount Rate	2.37%	3.87%	
Total OPEB Liability (TOL)	\$47,239,593	\$39,832,170	18.6%
Fiduciary Net Position (FNP)	\$3,925,237	\$3,375,973	16.3%
Net OPEB Liability	\$43,314,356	\$36,456,197	18.8%
FNP as % of TOL	8.3%	8.5%	(2.4%)
OPEB Expense			
OPEB Expense	\$2,793,726	\$4,277,472	(34.7%)
Deferred Outflows	\$17,713,165	\$9,117,819	
Deferred Inflows	\$3,730,138	\$613,768	
Recognition Period	6.62	6.67	

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 gain of approximately \$3,814,000. The gain is primarily attributable to lower than expected medical premiums.

Changes of Assumptions

The discount rate changed from 3.87% as of June 30, 2019 to 2.37% as of June 30, 2020. In addition, many other assumptions were updated in this valuation, including the inflation rate, healthcare trend rates, and mortality tables and mortality improvement rates. A summary of the impact on the Total OPEB Liability (TOL) of each assumption change is provided below:

◆ Increase due to change in Inflation Assumption	148,000
◆ Increase due to change in Trend Assumption	394,000
◆ Increase due to change in Mortality Tables and Mortality Improvement Rates	227,000
◆ Increase due to change in Discount Rate	11,248,000
Total	\$ 12,017,000

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

Changes of Benefit Terms

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

Total OPEB Liability

The Total OPEB Liability as of the current measurement date, June 30, 2020, is \$47,239,593. The Total OPEB Liability as of the prior measurement date, June 30, 2019, was \$39,832,170. During the current measurement period ending June 30, 2020, the Total OPEB Liability increased by \$7,407,423, or 18.6%. The development of the Total OPEB Liability for the current measurement period is shown in Section 1, Exhibit 1.2.

Fiduciary Net Position

The Fiduciary Net Position is equal to the market value of assets and as of the current measurement date, June 30, 2020, is \$3,925,237. The Fiduciary Net Position as of the prior measurement date, June 30, 2019, was \$3,375,973. During the plan years ended 2020 and 2019, the actual rates of return were 1.33% and 5.54%, respectively. The expected long-term rate of return is 7.30%. The Fiduciary Net Position is shown in Section 1, Exhibit 1.1.

EXECUTIVE SUMMARY

Employer Future Period Contributions

The Town does not have a formal funding policy, but has incorporated OPEB funding into the Employee Benefits Budget with a baseline allocation of \$450,000 per year. We have assumed future annual contributions of \$500,000, based on the contributions made to the OPEB trust in the past few years.

Discount Rate

As of the June 30, 2020 measurement date, the OPEB plan's fiduciary net position was projected to be insufficient to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to the first 11 periods of projected future benefit payments and the 2.21% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 2.37%.

OPEB Expense

The OPEB Expense for the current measurement period ending June 30, 2020, is \$2,793,726. Benefit changes are recognized immediately and experience gains and losses and assumption changes developed in this valuation are recognized over 6.62 years. Investment gains and losses are recognized over 5 years. The OPEB Expense for the prior measurement period was \$4,277,472. The development of the OPEB expense for the current measurement period is shown in Section 4, Exhibit 4.2.

COVID-19 Pandemic

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

SECTION 1 - PRINCIPAL VALUATION RESULTS

Exhibit 1.1 - OPEB Trust Assets

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

Fiscal Year Ended June 30	2020	2019
Trust Fund Composition at Fiscal Year-End		
Global Equity	\$1,648,600	\$1,482,053
Core Fixed Income	616,262	459,132
Value-Added Fixed Income	294,393	266,702
Private Equity	447,477	381,485
Real Estate	361,122	317,341
Timberland	145,234	131,663
Hedge Funds & Portfolio Completion Strategies	412,149	337,597
Total Market Value of Assets	\$3,925,237	\$3,375,973
Asset Activity		
Market value, beginning of year	\$3,375,973	\$2,703,231
Employer Premiums	914,543	1,018,525
OPEB Trust Contributions	500,000	500,000
Benefit Payments	(914,543)	(1,018,525)
Administrative Expenses	-	-
Investment Return	49,264	172,742
Market value, end of year	\$3,925,237	\$3,375,973
Money-Weighted Rate of Return	1.33%	5.54%
(Gain) / Loss on OPEB Plan Investments		
Projected earnings	\$277,895	\$233,802
Actual earnings	49,264	172,742
(Gain) / Loss on OPEB plan investments	\$228,631	\$61,060

SECTION 1 - PRINCIPAL VALUATION RESULTS

Exhibit 1.2 - Total OPEB Liability

The Total OPEB Liability, developed using the Entry Age Normal funding method, is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service. The total OPEB liability as of the June 30, 2020 measurement date was developed from an actuarial valuation as of July 1, 2019 and rolled forward to the OPEB plan's fiscal year-end.

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

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

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

Measurement Date	June 30, 2020
1. Total OPEB Liability, beginning of year:	
a. Actives	\$19,780,517
b. Retirees, Covered Spouses and Survivors	20,051,653
c. Total OPEB Liability at 3.87% (a. + b.)	\$39,832,170
2. Service Cost	\$1,559,590
3. Expected Benefit Payments	
a. Current retirees	(\$863,928)
b. Future retirees	(50,615)
c. Total (a. + b.)	(\$914,543)
4. Interest [3.87% x (1.c. + 2. + .5 x 3.c)]	\$1,584,165
5. Changes of benefit terms	(\$3,025,221)
6. Differences between expected and actual experience	(\$3,813,617)
7. Changes of assumptions or other inputs	\$12,017,049
8. Total OPEB Liability, end of year (1.c. + 2. + 3.c. + 4. + 5. + 6. + 7.)	
a. Actives	\$25,425,880
b. Retirees, Covered Spouses and Survivors	21,813,713
c. Total OPEB Liability at 2.37% (a. + b.)	\$47,239,593

SECTION 1 - PRINCIPAL VALUATION RESULTS

Exhibit 1.3 - Development of Actuarially Determined Employer Contributions

The Town does not have a formal funding policy, but has incorporated OPEB funding into the Employee Benefits Budget with a baseline allocation of \$450,000 per year. We have assumed future annual contributions of \$500,000, based on the contributions made to the OPEB trust in the past few years.

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

Fiscal Year Ending	June 30, 2020	June 30, 2021
Discount Rate	3.87%	2.37%
1. Normal Cost	\$1,559,590	\$2,160,728
2. Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$39,832,170	\$47,239,593
b. Actuarial Value of Plan Assets	\$3,375,973	\$3,925,237
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$36,456,197	\$43,314,356
3. Amortization of Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability	\$36,456,197	\$43,314,356
b. Amortization Period in years	30	30
c. Payroll Growth Rate	3.5%	3.5%
d. Amortization Factor	28.50	35.34
e. Amortization Amount (3.a. / 3.d.)	\$1,279,165	\$1,225,647
4. Interest on 1. and 3.e.	\$109,860	\$80,257
5. Actuarially Determined Employer Contribution (1. + 3.e. + 4.)	\$2,948,615	\$3,466,632
6. Actual Employer Contribution to OPEB Trust	\$500,000	TBD
7. Expected Benefit Payments	\$914,543	
8. Total Contribution (6. + 7.)	\$1,414,543	

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.1 - Plan Description

Plan Administration

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

Plan Membership

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

Inactive plan members or beneficiaries currently receiving benefit payments ¹	129
Inactive plan members entitled to but not yet receiving benefit payments	0
Active plan members	<u>212</u>
	<u><u>341</u></u>

¹Per 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 does not have a formal funding policy, but has incorporated OPEB funding into the Employee Benefits Budget with a baseline allocation of \$450,000 per year. We have assumed future annual contributions of \$500,000, based on the contributions made to the OPEB trust in the past few years.

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.2 - Net OPEB Liability

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

Total OPEB liability	\$ 47,239,593
Fiduciary net position	(3,925,237)
Net OPEB liability	\$ 43,314,356

Fiduciary net position as a percentage of the total OPEB liability 8.31%

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of July 1, 2019, rolled forward to the measurement date and using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.4 percent
Discount rate	2.37 percent, net of investment expenses, including inflation
Healthcare cost trend rate	7 percent for 2019, decreasing 0.45 percent per year to 5.2 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, projected with generational mortality improvement using scale MP-2018.
Post-Retirement Mortality - General and Public Safety employees	RP-2014 Blue Collar, projected with generational mortality improvement using scale MP-2018.
Pre-Retirement Mortality - Teachers	RP-2014 White Collar Mortality Table, base year 2014, projected with generational mortality improvement using scale MP-2016.
Post-Retirement Mortality - Teachers	RP-2014 White Collar Mortality Table, base year 2014, projected with generational mortality improvement using scale MP-2016.

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.2 - Net OPEB Liability

Long-Term Expected Rate of Return

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

Asset Class	Target Allocation	Long-Term Expected Real Rates of Return¹
Global Equity	39%	4.68%
Core Fixed Income	15%	0.59%
Value Added Fixed Income	8%	4.40%
Private Equity	13%	8.50%
Real Estate	10%	3.70%
Timberland	4%	4.30%
Portfolio Completion Strategies	11%	3.40%
Total	100%	

¹ provided by the Pension Reserves Investment Management Board.

Discount Rate

The discount rate used to measure the total OPEB liability was 2.37%. 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 11 periods of projected future benefit payments and the 2.21% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability.

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.2 - Net OPEB Liability

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

The following presents the net OPEB liability calculated using the current discount rate of 2.37 percent, as well as what the net OPEB liability would be if it were calculated using a discount rate 1-percentage point lower (1.37 percent) or 1-percentage point higher (3.37 percent) than the current rate:

	1% Decrease (1.37%)	Assumed Discount Rate (2.37%)	1% Increase (3.37%)
Total OPEB Liability	\$ 57,659,952	\$ 47,239,593	\$ 39,269,418
Fiduciary Net Position	(3,925,237)	\$ (3,925,237)	\$ (3,925,237)
Net OPEB Liability	\$ 53,734,715	\$ 43,314,356	\$ 35,344,181

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 Rates 7% Year 1 Decreasing to 4%	1% Increase 8% Year 1 Decreasing to 5%
Total OPEB Liability	\$ 38,340,732	\$ 47,239,593	\$ 59,244,892
Fiduciary Net Position	\$ (3,925,237)	\$ (3,925,237)	\$ (3,925,237)
Net OPEB Liability	\$ 34,415,495	\$ 43,314,356	\$ 55,319,655

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.1 - Changes in Net OPEB Liability and Related Ratios

Fiscal Year Ended June 30	2020	2019	2018	2017	2016
Total OPEB Liability					
Service cost	\$ 1,559,590	\$ 1,252,603	\$ 913,522	\$ 1,044,984	
Interest	1,584,165	1,568,436	1,333,088	1,237,242	
Changes of benefit terms	(3,025,221)	-	1,693,473	-	
Differences between expected and actual experience	(3,813,617)	-	(876,624)	-	
Changes of assumptions	12,017,049	3,996,134	8,151,652	(2,497,000)	
Benefit payments	(914,543)	(1,018,525)	(924,096)	(806,177)	
Net change in total OPEB liability	\$ 7,407,423	\$ 5,798,648	\$ 10,291,015	\$ (1,020,951)	
Total OPEB liability—beginning	\$ 39,832,170	\$ 34,033,522	\$ 23,742,507	\$ 24,763,458	
Total OPEB liability—ending (a)	\$ 47,239,593	\$ 39,832,170	\$ 34,033,522	\$ 23,742,507	
Plan Fiduciary Net Position					
Contributions—employer	\$ 1,414,543	\$ 1,518,525	\$ 1,374,096	\$ 1,406,177	
Net investment income	49,264	172,742	227,815	213,331	
Benefit payments	(914,543)	(1,018,525)	(924,096)	(806,177)	
Administrative expenses	-	-	-	-	
Other	-	-	-	-	
Net change in plan fiduciary net position	\$ 549,264	\$ 672,742	\$ 677,815	\$ 813,331	
Plan fiduciary net position—beginning	\$ 3,375,973	\$ 2,703,231	\$ 2,025,416	\$ 1,212,085	
Plan fiduciary net position—ending (b)	\$ 3,925,237	\$ 3,375,973	\$ 2,703,231	\$ 2,025,416	
Net OPEB liability—ending (a) – (b)	\$ 43,314,356	\$ 36,456,197	\$ 31,330,291	\$ 21,717,091	
Plan fiduciary net position as a percentage of the total OPEB liability	8.31%	8.48%	7.94%	8.53%	
Covered payroll	\$ 15,532,441	\$ 14,512,416	\$ 13,246,017	\$ 14,204,408	
Net OPEB liability as a percentage of covered payroll	278.86%	251.21%	236.53%	152.89%	
Discount Rate	2.37%	3.87%	4.51%	5.51%	

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.1 - Changes in Net OPEB Liability and Related Ratios

Changes of Benefit Terms

The Patient Protection and Affordable Care Act (PPACA) previously applied a 40% excise tax, commonly referred to as the "Cadillac Tax," to the cost of plan benefits in excess of statutory thresholds beginning in 2022. This tax was repealed in December 2019. In addition, retiree and spouse contribution rates were updated to reflect current plan provisions. All other benefit terms are the same as those used in the prior measurement.

Changes of Assumptions

The discount rate changed from 3.87% as of June 30, 2019 to 2.37% as of June 30, 2020. In addition, many other assumptions were updated in this valuation, including the inflation rate, healthcare trend rates, and mortality tables and mortality improvement rates.

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.2 - Investment Returns

Fiscal Year Ended June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Annual money-weighted rate of return, net of investment expenses	1.33%	5.54%	9.50%	12.13%						

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

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

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.2 - Investment Returns

Calculation of Money-Weighted Rate of Return

	Plan Investments/ Net External Cash Flows (a)	Periods Invested (b)	Period Weight (c)=(b)÷12	(d)=(a) x (1+r _{mw}) ^(c)
Beginning value - July 1, 2019	\$ 3,375,973	12	1.00	\$ 3,420,819
Monthly net external cash flows:				
July	-	11	0.92	-
August	-	10	0.83	-
September	-	9	0.75	-
October	500,000	8	0.67	504,418
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, 2020				\$ 3,925,237
Money-weighted rate of return:				1.33%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.3 - Schedule of Employer Contributions

Fiscal Year Ended June 30	2020	2019	2018	2017	2016
Actuarially determined contribution	\$ 2,948,615	\$ 2,561,229	\$ 1,959,672	\$ 1,931,496	
Contributions in relation to the actuarially determined contribution	<u>1,414,543</u>	<u>1,518,525</u>	<u>1,374,096</u>	<u>1,406,177</u>	
Contribution deficiency (excess)	<u>\$ 1,534,072</u>	<u>\$ 1,042,704</u>	<u>\$ 585,576</u>	<u>\$ 525,319</u>	
Covered payroll	\$ 15,532,441	\$ 14,512,416	\$ 13,246,017	\$ 14,204,408	
Contributions as a percentage of covered payroll	9.11%	10.46%	10.37%	9.90%	
Discount rate	3.87%	4.51%	5.51%	5.50%	
Inflation	2.40%	2.60%	2.60%	2.60%	

Notes to Schedule

Valuation Date

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

Methods and Assumptions as of Current Measurement Date

Actuarial cost method	Entry Age Normal
Amortization method	Increasing at 3.5% 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 2019, decreasing 0.45 percent per year to 5.2 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, 2020	
	Experience Losses	Experience Gains	Amounts Recognized in OPEB Expense through June 30, 2020	Deferred Outflows of Resources	Deferred Inflows of Resources	
Year	(a)	(b)	(c)	(a) - (c)	(b) - (c)	
2018	\$ -	\$ 876,624	\$ (394,284)	\$ -	\$ 482,340	
2019	-	-	-	-	-	
2020	-	3,813,617	(565,819)	-	3,247,798	
Total				<u>\$ -</u>	<u>\$ 3,730,138</u>	

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

					Balances at June 30, 2020	
	Increases in the Total OPEB Liability	Decreases in the Total OPEB Liability	Amounts Recognized in OPEB Expense through June 30, 2020	Deferred Outflows of Resources	Deferred Inflows of Resources	
Year	(a)	(b)	(c)	(a) - (c)	(b) - (c)	
2018	\$ 8,151,652	\$ -	\$ 3,666,411	\$ 4,485,241	\$ -	
2019	3,996,134	-	1,198,242	2,797,892	-	
2020	12,017,049	-	1,782,945	10,234,104	-	
Total				<u>\$ 17,517,237</u>	<u>\$ -</u>	

SECTION 4 - EMPLOYER REPORTING AMOUNTS UNDER GASB 75

Exhibit 4.1 - Deferred Outflows and Deferred Inflows of Resources

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

				Balances at June 30, 2020	
	Investment Earnings Less Than Projected	Investment Earnings Greater Than Projected	Amounts Recognized in OPEB Expense through June 30, 2020	Deferred Outflows of Resources	Deferred Inflows of Resources
Year	(a)	(b)	(c)	(a) - (c)	(b) - (c)
2018	\$ -	\$ 59,034	\$ (35,422)	\$ -	\$ 23,612
2019	61,060	-	24,424	36,636	-
2020	228,631	-	45,727	182,904	-
Subtotal				\$ 219,540	\$ 23,612
Net				\$ 195,928	-

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

Year ended June 30		
2021	\$	2,953,088
2022	\$	2,953,088
2023	\$	2,964,894
2024	\$	2,592,747
2025	\$	1,618,534
Thereafter		900,676
Deferred Outflows	\$	17,713,165
Deferred Inflows	\$	3,730,138

SECTION 4 - EMPLOYER REPORTING AMOUNTS UNDER GASB 75

Exhibit 4.2 - OPEB Expense

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

Fiscal Year Ended June 30, 2020

Measurement Date	6/30/2020
1. Service cost	\$ 1,559,590
2. Interest on the total OPEB liability	
a. Total OPEB liability, beginning of year	39,832,170
b. Service cost, beginning of year	1,559,590
c. Benefit payments	(914,543)
d. Interest on total OPEB liability = 3.87% times (a. + b. + .5 times c.)	1,584,165
3. Differences between expected and actual experience	(697,247)
4. Changes of benefit terms	(3,025,221)
5. Changes of assumptions	3,604,203
6. Projected earnings on OPEB plan investments	
a. Plan fiduciary net position, beginning of year	3,375,973
b. Contributions - Employer	1,414,543
c. Benefit payments	(914,543)
d. Administrative expenses and other	-
e. Total projected earnings	(277,895)
7. Differences between projected and actual earnings on OPEB plan investments	46,131
8. OPEB plan administrative expenses	-
9. Other changes in fiduciary net position	-
10. Total OPEB Expense	\$ 2,793,726

SECTION 5 - SUMMARY OF PLAN PROVISIONS

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

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

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

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

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

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

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

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

Non-Medicare Plans - July 1, 2020	Individual	Family
Tufts HMO	\$873.00	\$2,370.00
Tufts POS	\$2,432.00	\$6,416.00
Harvard Pilgrim HMO	\$940.00	\$2,471.00
Harvard Pilgrim PPO	\$2,063.00	\$5,447.00
Fallon SelectCare HMO	\$749.00	\$1,999.00
Fallon DirectCare HMO	\$697.00	\$1,863.00

Medicare Plans - January 1, 2020

Tufts Medicare Preferred Supplement with PDP Plus	\$430.00
Tufts Medicare Preferred HMO	\$327.00
Fallon Medicare Plus Premier	\$298.00
Fallon Medicare Plus Central Premier	\$228.00

Participant Contributions Retired Town employees and Teachers contribute 30% of the total medical premium, except for the PPO plan, for which they contribute 50% of the total premium.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Continuation of Coverage to Spouse After Death of Retiree	Surviving spouse may continue coverage for lifetime by paying 100% of the required medical premium rate. Surviving spouses of teachers who retired prior to July 1, 2018 and surviving spouses of Town employees who retired prior to July 1, 2014 continue to pay the same medical premium rate as the retired teacher paid prior to their death.
Dental Coverage	Dental coverage is not offered to retirees.
Life Insurance Coverage	Retired Town employees are eligible for a \$5,000 life insurance benefit. The total monthly cost is \$2.10. Retired Town employees contribute \$.53 towards the monthly premiums. Retired Teachers are eligible for a \$15,000 life insurance benefit. The total monthly cost is \$10.50. Retired Teachers contribute \$3.20 towards the monthly premiums.
PPACA Excise Tax	The Patient Protection and Affordable Care Act (PPACA) previously applied a 40% excise tax, commonly referred to as the "Cadillac Tax," to the cost of plan benefits in excess of statutory thresholds beginning in 2022. This tax was repealed in December 2019.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date	July 1, 2019
Disclosure Date	June 30, 2020
GASB 75 Reporting Date	June 30, 2020
Long-Term Expected Rate of Return	<p>7.3%, 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>
Municipal Bond Rate	2.21%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2020.
Discount Rate (GASB)	<p>2.37%, compounded annually, for the measurement as of June 30, 2020.</p> <p>3.87%, compounded annually, for the measurement as of June 30, 2019.</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>
Discount Rate (ADEC)	3.87%, compounded annually, for development of the Actuarially Determined Contribution (ADEC) as of June 30, 2020.
Amortization Method	Increasing at 3.5% 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	6.55%
3	6.10%
4	5.65%
5	5.20%
Ultimate	4.00%

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 coverage is not offered to retirees.

Inflation

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

Payroll Growth

3.5% per year.

Participation Rates

Medical - 85% of eligible retired employees will elect to participate.

Dental - Not offered to retired employees.

Life - 50% of eligible retirees will elect to participate.

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

Continuation of Coverage to Spouse After Death of Retiree

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

40% 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, 2019 and are applicable to retirees, survivors and spouses. Annual costs for current and future retirees are based on the blended curves shown below, developed using the plan coverages elected by current retirees and survivors and premium rates currently in effect. Future years' costs are based on the first year cost adjusted with trend.

Age	Medicare-Eligible		Medicare-Ineligible	
	Male	Female	Male	Female
Under 20	\$3,028	\$3,555	\$3,028	\$3,555
20-24	2,386	3,785	2,386	3,785
25-29	2,483	5,583	2,483	5,583
30-34	3,119	7,055	3,119	7,055
35-39	3,912	7,267	3,912	7,267
40-44	4,875	7,442	4,875	7,442
45-49	6,152	8,169	6,152	8,169
50-54	8,108	9,610	8,108	9,610
55-59	10,537	11,112	10,537	11,112
60-64	13,522	13,225	13,522	13,225
65-69	3,737	3,639	16,871	15,854
70-74	4,478	4,293	20,214	18,694
75-79	5,288	4,981	23,877	21,709
80-84	6,079	5,713	27,444	24,889
85-89	6,771	6,386	31,410	28,413
90-94	7,371	6,815	31,410	28,413
95+	7,835	6,591	31,410	28,413

Retiree Contributions

Annual per capita participant contributions for the fiscal year beginning July 1, 2019 are as follows:

Plan	Contribution
Non-Medicare	\$ 3,450
Medicare	1,426

Actuarial Cost Method

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

Employee Data

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

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Post-Retirement Mortality

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

Pre-Retirement Mortality

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

Turnover Rates

Turnover rates for Teachers are as follows:

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

Disability Rates

Disability rates for Teachers are as follows:

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

35% of the disabilities are job-related.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Retirement Rates

Retirement rates for Teachers are as follows:

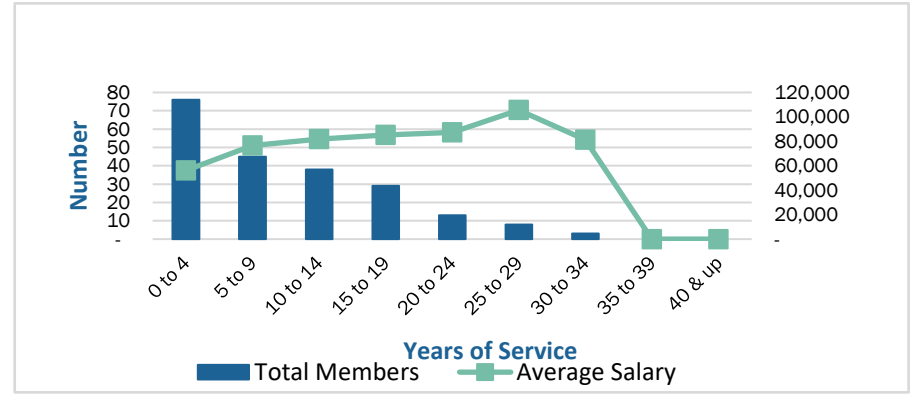
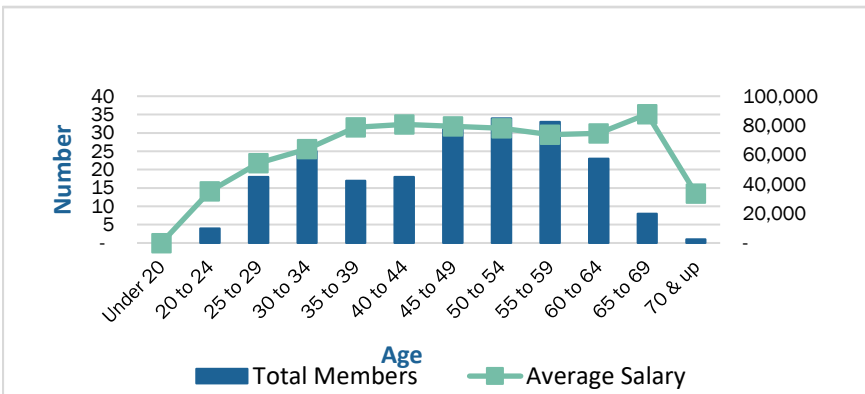
Age	Years of Service					
	Less than 20		20-29		30+	
	Male	Female	Male	Female	Male	Female
50	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
51	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
52	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
53	0.0%	0.0%	1.5%	1.0%	2.0%	1.5%
54	0.0%	0.0%	2.5%	1.0%	2.0%	2.0%
55	5.0%	3.0%	3.0%	3.0%	6.0%	5.0%
56	5.0%	3.0%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

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.1 - Active Members by Age and Years of Service as of July 1, 2019

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	4	-	-	-	-	-	-	-	-	4	140,675	35,169
25 to 29	14	4	-	-	-	-	-	-	-	18	980,410	54,467
30 to 34	15	9	1	-	-	-	-	-	-	25	1,602,685	64,107
35 to 39	9	4	3	1	-	-	-	-	-	17	1,339,592	78,800
40 to 44	6	6	4	1	1	-	-	-	-	18	1,455,596	80,866
45 to 49	8	8	4	8	3	-	-	-	-	31	2,465,682	79,538
50 to 54	5	8	10	4	3	4	-	-	-	34	2,660,076	78,238
55 to 59	9	3	10	6	2	2	1	-	-	33	2,433,114	73,731
60 to 64	6	1	5	6	2	1	2	-	-	23	1,718,168	74,703
65 to 69	-	2	-	3	2	1	-	-	-	8	702,827	87,853
70 & up	-	-	1	-	-	-	-	-	-	1	33,617	33,617
Total	76	45	38	29	13	8	3	-	-	212	15,532,441	73,266
Total Salary	4,272,373	3,448,372	3,112,914	2,474,475	1,136,398	844,189	243,720	-	-			
Average Salary	56,215	76,630	81,919	85,327	87,415	105,524	81,240	-	-			

Average Age: 46.9 Average Service: 9.9



SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.2 - Retired Members, Covered Spouses and Survivors as of July 1, 2019

Age	Non-Medicare Plans				Medicare Plans				Total
	Tufts HMO	Harvard Pilgrim HMO	Fallon SelectCare HMO	Fallon DirectCare HMO	Tufts Medicare Preferred Supplement with PDP Plus	Tufts Medicare Preferred HMO	Fallon Medicare Plus Premier	Fallon Medicare Plus Central Premier	
Under 40	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	1	0	0	0	1
50 to 54	0	0	0	0	0	0	0	0	0
55 to 59	3	0	0	1	0	0	0	0	4
60 to 64	4	2	5	1	5	1	0	0	18
65 to 69	1	0	0	1	15	5	0	0	22
70 to 74	1	1	0	1	23	3	0	0	29
75 to 79	2	1	0	0	13	4	0	0	20
80 to 84	0	0	0	0	18	0	0	0	18
85 to 89	0	0	0	0	5	3	0	0	8
90+	0	0	0	0	2	1	0	0	3
Total	11	4	5	4	82	17	0	0	123
Covered Spouses	6	3	1	1	33	9	0	1	54

Average Age: 73.1

In addition, there are 6 retirees, survivors and covered spouses that are not covered under any medical plan but are covered under a life insurance plan which the Town contributes to.

SECTION 8 - GLOSSARY OF TERMS

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

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

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	Total
Summary of Member Data Used in Valuation			
Active Members	45	167	212
Average Age	46.1	47.1	46.9
Average Service	9.6	10.0	9.9
Covered Payroll	3,324,311	12,208,130	15,532,441
Retired Members and Survivors	23	106	129
Average Age	73.7	73.0	73.1
Covered Spouses	9	45	54
Expected Benefit Payments	139,526	775,017	914,543
OPEB Trust contributions	73,691	426,309	500,000
Total Employer Contributions	213,217	1,201,326	1,414,543
Beginning Net OPEB Liability - June 30, 2019			
Total OPEB Liability	6,025,813	33,806,357	39,832,170
Fiduciary Net Position	497,561	2,878,412	3,375,973
Net OPEB Liability	5,528,252	30,927,945	36,456,197
Total OPEB Liability, beginning of year	6,025,813	33,806,357	39,832,170
Service cost	326,753	1,232,837	1,559,590
Interest	243,144	1,341,021	1,584,165
Changes of benefit terms	(607,581)	(2,417,640)	(3,025,221)
Differences between expected and actual experience	(338,755)	(3,474,862)	(3,813,617)
Changes of assumptions	2,010,107	10,006,942	12,017,049
Benefit payments	(139,526)	(775,017)	(914,543)
Net change in total OPEB liability	1,494,142	5,913,281	7,407,423
Total OPEB Liability, end of year	7,519,955	39,719,638	47,239,593
Ending Net OPEB Liability - June 30, 2020			
Total OPEB Liability	7,519,955	39,719,638	47,239,593
Fiduciary Net Position	578,513	3,346,724	3,925,237
Net OPEB Liability	6,941,442	36,372,914	43,314,356

SECTION 9 - BREAKOUT OF RESULTS BY DEPARTMENT

Department	Town	School	Total
Total Deferred Outflows of Resources			
Differences between Expected and Actual Experience	0	0	0
Changes in Assumptions	2,650,009	14,867,228	17,517,237
Actual Earnings on OPEB Plan Investments	28,876	167,052	195,928
Total Deferred Outflows of Resources	2,678,885	15,034,280	17,713,165
Total Deferred Inflows of Resources			
Differences between Expected and Actual Experience	564,295	3,165,843	3,730,138
Changes in Assumptions	0	0	0
Actual Earnings on OPEB Plan Investments	0	0	0
Total Deferred Inflows of Resources	564,295	3,165,843	3,730,138
Total OPEB Expense	769,862	2,023,864	2,793,726
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate			
Current Discount Rate: 2.37%	6,941,442	36,372,914	43,314,356
1% Decrease in the Discount Rate: 1.37%	8,611,381	45,123,334	53,734,715
1% Increase in the Discount Rate: 3.37%	5,664,163	29,680,018	35,344,181
Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates			
Current Trend Rates	6,941,442	36,372,914	43,314,356
1% Decrease in Trend Rates	5,515,335	28,900,160	34,415,495
1% Increase in Trend Rates	8,865,379	46,454,276	55,319,655
Deferred Outflows of Resources and Deferred Inflows of Resources recognized in OPEB Expense			
2021	446,582	2,506,506	2,953,088
2022	446,582	2,506,506	2,953,088
2023	448,367	2,516,527	2,964,894
2024	392,089	2,200,658	2,592,747
2025	244,764	1,373,770	1,618,534
Thereafter	136,205	764,471	900,676

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

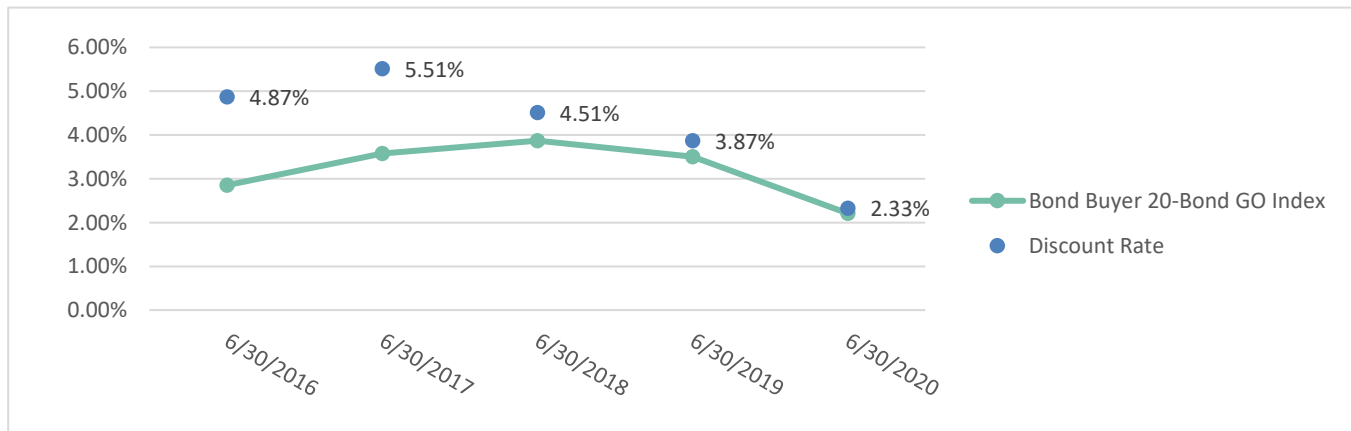
Projected cash flows into and out of the OPEB plan are assumed to be contributions to the OPEB plan, benefit payments, OPEB plan administrative expenses and OPEB plan investment earnings. These projected cash flows are used to project the OPEB plan's fiduciary net position at the beginning of each period.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

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

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

For purposes of this valuation, liabilities are based on a discount rate of 2.37%, a long-term investment return rate of 7.3% and a municipal bond rate of 2.21%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2020. The OPEB plan's fiduciary net position was projected to be insufficient to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to the first 11 periods of projected future benefit payments and the 2.21% municipal bond rate was applied to all periods thereafter to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 2.37%.

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



APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

Table 1: Projection of Contributions

Year	Projected Payroll			Projected Contributions			
	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) * 13.28%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2020	15,715,483	-	15,715,483	914,543	500,000	-	1,414,543
2021	14,815,794	1,449,731	16,265,525	979,077	500,000	192,584	1,286,493
2022	13,993,204	2,841,614	16,834,818	1,046,264	500,000	377,483	1,168,781
2023	13,227,735	4,196,302	17,424,037	1,105,669	500,000	557,441	1,048,228
2024	12,565,735	5,468,143	18,033,878	1,196,518	500,000	726,393	970,125
2025	11,928,699	6,736,365	18,665,064	1,261,646	500,000	894,865	866,781
2026	11,258,265	8,060,076	19,318,341	1,338,941	500,000	1,070,708	768,233
2027	10,735,277	9,259,206	19,994,483	1,437,667	500,000	1,230,002	707,665
2028	10,187,978	10,506,312	20,694,290	1,545,210	500,000	1,395,669	649,541
2029	9,610,696	11,807,894	21,418,590	1,643,685	500,000	1,568,572	575,113
2030	9,052,012	13,116,229	22,168,241	1,714,059	500,000	1,742,373	471,686
2031	8,499,148	14,444,981	22,944,129	1,778,381	500,000	1,918,885	359,496
2032	7,923,053	15,824,121	23,747,174	1,901,157	500,000	2,102,092	299,065
2033	7,353,603	17,224,722	24,578,325	1,962,556	500,000	2,288,149	174,407
2034	6,823,422	18,615,144	25,438,566	2,017,220	500,000	2,472,854	44,366
2035	6,344,830	19,984,086	26,328,916	2,103,112	500,000	2,654,705	-
2036	5,842,088	21,408,340	27,250,428	2,202,353	500,000	2,843,905	-
2037	5,407,741	22,796,452	28,204,193	2,232,988	500,000	3,028,303	-
2038	4,989,414	24,201,926	29,191,340	2,275,415	500,000	3,215,007	-
2039	4,621,811	25,591,226	30,213,037	2,263,956	500,000	3,399,563	-
2040	4,306,817	26,963,676	31,270,493	2,344,900	500,000	3,581,881	-
2041	3,951,851	28,413,109	32,364,960	2,416,442	500,000	3,774,425	-
2042	3,616,971	29,880,763	33,497,734	2,463,224	500,000	3,969,390	-
2043	3,261,017	31,409,138	34,670,155	2,553,718	500,000	4,172,420	-
2044	2,943,196	32,940,414	35,883,610	2,614,869	500,000	4,375,837	-
2045	2,633,061	34,506,475	37,139,536	2,636,448	500,000	4,583,874	-
2046	2,390,520	36,048,900	38,439,420	2,676,070	500,000	4,788,771	-
2047	2,187,010	37,597,790	39,784,800	2,723,273	500,000	4,994,527	-
2048	2,036,437	39,140,831	41,177,268	2,773,006	500,000	5,199,506	-
2049	1,840,008	40,778,464	42,618,472	2,795,700	500,000	5,417,051	-
2050	1,686,851	42,423,268	44,110,119	2,868,789	500,000	5,635,548	-
2051	1,450,100	44,203,873	45,653,973	2,894,046	500,000	5,872,085	-
2052	1,234,981	46,016,881	47,251,862	2,824,296	500,000	6,112,927	-

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) * 13.28%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2053	1,064,835	47,840,842	48,905,677	2,865,535	500,000	6,355,224	-
2054	911,959	49,705,417	50,617,376	2,904,970	500,000	6,602,916	-
2055	721,284	51,667,700	52,388,984	2,882,654	500,000	6,863,587	-
2056	561,891	53,660,707	54,222,598	2,876,557	500,000	7,128,340	-
2057	437,204	55,683,185	56,120,389	2,867,483	500,000	7,397,008	-
2058	329,804	57,754,799	58,084,603	2,845,457	500,000	7,672,204	-
2059	250,749	59,866,815	60,117,564	2,815,337	500,000	7,952,766	-
2060	184,545	62,037,134	62,221,679	2,756,066	500,000	8,241,073	-
2061	127,062	64,272,376	64,399,438	2,715,188	500,000	8,538,005	-
2062	93,719	66,559,699	66,653,418	2,691,698	500,000	8,841,855	-
2063	61,400	68,924,888	68,986,288	2,623,145	500,000	9,156,049	-
2064	44,110	71,356,698	71,400,808	2,598,547	500,000	9,479,093	-
2065	27,565	73,872,271	73,899,836	2,560,912	500,000	9,813,264	-
2066	17,798	76,468,532	76,486,330	2,513,922	500,000	10,158,154	-
2067	11,535	79,151,817	79,163,352	2,494,251	500,000	10,514,604	-
2068	-	81,934,069	81,934,069	2,422,663	500,000	10,884,201	-
2069	-	84,801,761	84,801,761	2,369,051	500,000	11,265,148	-
2070	-	87,769,823	87,769,823	2,313,756	500,000	11,659,428	-
2071	-	90,841,767	90,841,767	2,245,855	500,000	12,067,508	-
2072	-	94,021,229	94,021,229	2,196,153	500,000	12,489,871	-
2073	-	97,311,972	97,311,972	2,111,744	500,000	12,927,017	-
2074	-	100,717,891	100,717,891	2,036,310	500,000	13,379,462	-
2075	-	104,243,017	104,243,017	1,962,936	500,000	13,847,743	-
2076	-	107,891,523	107,891,523	1,881,076	500,000	14,332,415	-
2077	-	111,667,726	111,667,726	1,810,344	500,000	14,834,049	-
2078	-	115,576,096	115,576,096	1,716,728	500,000	15,353,241	-
2079	-	119,621,259	119,621,259	1,626,428	500,000	15,890,604	-
2080	-	123,808,003	123,808,003	1,543,898	500,000	16,446,775	-
2081	-	128,141,283	128,141,283	1,446,217	500,000	17,022,412	-
2082	-	132,626,228	132,626,228	1,354,234	500,000	17,618,197	-
2083	-	137,268,146	137,268,146	1,253,533	500,000	18,234,834	-
2084	-	142,072,531	142,072,531	1,153,317	500,000	18,873,053	-
2085	-	147,045,070	147,045,070	1,052,641	500,000	19,533,610	-

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) * 13.28%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2086	-	152,191,647	152,191,647	954,566	500,000	20,217,286	-
2087	-	157,518,355	157,518,355	860,910	500,000	20,924,891	-
2088	-	163,031,497	163,031,497	768,100	500,000	21,657,262	-
2089	-	168,737,599	168,737,599	673,358	500,000	22,415,266	-
2090	-	174,643,415	174,643,415	589,410	500,000	23,199,801	-
2091	-	180,755,935	180,755,935	506,838	500,000	24,011,794	-
2092	-	187,082,393	187,082,393	431,611	500,000	24,852,206	-
2093	-	193,630,277	193,630,277	362,328	500,000	25,722,034	-
2094	-	200,407,337	200,407,337	300,920	500,000	26,622,305	-
2095	-	207,421,594	207,421,594	246,210	500,000	27,554,086	-
2096	-	214,681,350	214,681,350	198,682	500,000	28,518,479	-
2097	-	222,195,197	222,195,197	157,794	500,000	29,516,625	-
2098	-	229,972,029	229,972,029	123,218	500,000	30,549,707	-
2099	-	238,021,050	238,021,050	94,530	500,000	31,618,947	-
2100	-	246,351,787	246,351,787	71,143	500,000	32,725,610	-
2101	-	254,974,100	254,974,100	52,456	500,000	33,871,007	-
2102	-	263,898,194	263,898,194	37,848	500,000	35,056,492	-
2103	-	273,134,631	273,134,631	26,687	500,000	36,283,469	-
2104	-	282,694,343	282,694,343	18,360	500,000	37,553,391	-
2105	-	292,588,645	292,588,645	12,304	500,000	38,867,759	-
2106	-	302,829,248	302,829,248	8,017	500,000	40,228,131	-
2107	-	313,428,272	313,428,272	5,072	500,000	41,636,116	-
2108	-	324,398,262	324,398,262	3,106	500,000	43,093,380	-
2109	-	335,752,201	335,752,201	1,847	500,000	44,601,648	-
2110	-	347,503,528	347,503,528	1,062	500,000	46,162,706	-
2111	-	359,666,151	359,666,151	589	500,000	47,778,400	-
2112	-	372,254,466	372,254,466	318	500,000	49,450,644	-
2113	-	385,283,372	385,283,372	167	500,000	51,181,417	-
2114	-	398,768,290	398,768,290	86	500,000	52,972,766	-
2115	-	412,725,180	412,725,180	41	500,000	54,826,813	-
2116	-	427,170,561	427,170,561	19	500,000	56,745,752	-
2117	-	442,121,531	442,121,531	9	500,000	58,731,853	-
2118	-	457,595,785	457,595,785	2	500,000	60,787,468	-
2119	-	473,611,637	473,611,637	1	500,000	62,915,029	-

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

Year	Projected Beginning Fiduciary Net Position (a)	Employer Contributions for Current Plan Members (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2020	3,375,973	1,414,543	914,543	-	49,264	3,925,237
2021	3,925,237	1,286,493	979,077	-	297,763	4,530,416
2022	4,530,416	1,168,781	1,046,264	-	335,192	4,988,125
2023	4,988,125	1,048,228	1,105,669	-	362,037	5,292,721
2024	5,292,721	970,125	1,196,518	-	378,105	5,444,433
2025	5,444,433	866,781	1,261,646	-	383,031	5,432,599
2026	5,432,599	768,233	1,338,941	-	375,749	5,237,640
2027	5,237,640	707,665	1,437,667	-	355,703	4,863,341
2028	4,863,341	649,541	1,545,210	-	322,332	4,290,004
2029	4,290,004	575,113	1,643,685	-	274,167	3,495,599
2030	3,495,599	471,686	1,714,059	-	209,832	2,463,058
2031	2,463,058	359,496	1,778,381	-	128,014	1,172,187
2032	1,172,187	299,065	1,901,157	-	27,093	-
2033	-	174,407	1,962,556	-	-	-
2034	-	44,366	2,017,220	-	-	-
2035	-	-	2,103,112	-	-	-
2036	-	-	2,202,353	-	-	-
2037	-	-	2,232,988	-	-	-
2038	-	-	2,275,415	-	-	-
2039	-	-	2,263,956	-	-	-
2040	-	-	2,344,900	-	-	-
2041	-	-	2,416,442	-	-	-
2042	-	-	2,463,224	-	-	-
2043	-	-	2,553,718	-	-	-
2044	-	-	2,614,869	-	-	-
2045	-	-	2,636,448	-	-	-
2046	-	-	2,676,070	-	-	-
2047	-	-	2,723,273	-	-	-
2048	-	-	2,773,006	-	-	-
2049	-	-	2,795,700	-	-	-
2050	-	-	2,868,789	-	-	-
2051	-	-	2,894,046	-	-	-
2052	-	-	2,824,296	-	-	-
2053	-	-	2,865,535	-	-	-

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

Year	Projected Beginning Fiduciary Net Position (a)	Employer Contributions for Current Plan Members (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) +(e)
2054	-	-	2,904,970	-	-	-
2055	-	-	2,882,654	-	-	-
2056	-	-	2,876,557	-	-	-
2057	-	-	2,867,483	-	-	-
2058	-	-	2,845,457	-	-	-
2059	-	-	2,815,337	-	-	-
2060	-	-	2,756,066	-	-	-
2061	-	-	2,715,188	-	-	-
2062	-	-	2,691,698	-	-	-
2063	-	-	2,623,145	-	-	-
2064	-	-	2,598,547	-	-	-
2065	-	-	2,560,912	-	-	-
2066	-	-	2,513,922	-	-	-
2067	-	-	2,494,251	-	-	-
2068	-	-	2,422,663	-	-	-
2069	-	-	2,369,051	-	-	-
2070	-	-	2,313,756	-	-	-
2071	-	-	2,245,855	-	-	-
2072	-	-	2,196,153	-	-	-
2073	-	-	2,111,744	-	-	-
2074	-	-	2,036,310	-	-	-
2075	-	-	1,962,936	-	-	-
2076	-	-	1,881,076	-	-	-
2077	-	-	1,810,344	-	-	-
2078	-	-	1,716,728	-	-	-
2079	-	-	1,626,428	-	-	-
2080	-	-	1,543,898	-	-	-
2081	-	-	1,446,217	-	-	-
2082	-	-	1,354,234	-	-	-
2083	-	-	1,253,533	-	-	-
2084	-	-	1,153,317	-	-	-
2085	-	-	1,052,641	-	-	-
2086	-	-	954,566	-	-	-
2087	-	-	860,910	-	-	-

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

Year	Projected Beginning Fiduciary Net Position (a)	Employer Contributions for Current Plan Members (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2088	-	-	768,100	-	-	-
2089	-	-	673,358	-	-	-
2090	-	-	589,410	-	-	-
2091	-	-	506,838	-	-	-
2092	-	-	431,611	-	-	-
2093	-	-	362,328	-	-	-
2094	-	-	300,920	-	-	-
2095	-	-	246,210	-	-	-
2096	-	-	198,682	-	-	-
2097	-	-	157,794	-	-	-
2098	-	-	123,218	-	-	-
2099	-	-	94,530	-	-	-
2100	-	-	71,143	-	-	-
2101	-	-	52,456	-	-	-
2102	-	-	37,848	-	-	-
2103	-	-	26,687	-	-	-
2104	-	-	18,360	-	-	-
2105	-	-	12,304	-	-	-
2106	-	-	8,017	-	-	-
2107	-	-	5,072	-	-	-
2108	-	-	3,106	-	-	-
2109	-	-	1,847	-	-	-
2110	-	-	1,062	-	-	-
2111	-	-	589	-	-	-
2112	-	-	318	-	-	-
2113	-	-	167	-	-	-
2114	-	-	86	-	-	-
2115	-	-	-	-	-	-
2116	-	-	-	-	-	-
2117	-	-	-	-	-	-
2118	-	-	-	-	-	-
2119	-	-	-	-	-	-
2120	-	-	-	-	-	-
2121	-	-	-	-	-	-
2122	-	-	-	-	-	-

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) = 2.37%
2021	3,925,237	979,077	979,077	-	945,185	-	967,673
2022	4,530,416	1,046,264	1,046,264	-	941,330	-	1,010,128
2023	4,988,125	1,105,669	1,105,669	-	927,098	-	1,042,758
2024	5,292,721	1,196,518	1,196,518	-	935,019	-	1,102,303
2025	5,444,433	1,261,646	1,261,646	-	918,838	-	1,135,383
2026	5,432,599	1,338,941	1,338,941	-	908,789	-	1,177,036
2027	5,237,640	1,437,667	1,437,667	-	909,411	-	1,234,553
2028	4,863,341	1,545,210	1,545,210	-	910,940	-	1,296,171
2029	4,290,004	1,643,685	1,643,685	-	903,069	-	1,346,842
2030	3,495,599	1,714,059	1,714,059	-	877,664	-	1,371,978
2031	2,463,058	1,778,381	1,778,381	-	848,648	-	1,390,495
2032	1,172,187	1,901,157	-	1,901,157	-	1,478,577	1,452,065
2033	-	1,962,556	-	1,962,556	-	1,493,326	1,464,244
2034	-	2,017,220	-	2,017,220	-	1,501,732	1,470,171
2035	-	2,103,112	-	2,103,112	-	1,531,822	1,497,271
2036	-	2,202,353	-	2,202,353	-	1,569,421	1,531,610
2037	-	2,232,988	-	2,232,988	-	1,556,845	1,516,949
2038	-	2,275,415	-	2,275,415	-	1,552,124	1,509,971
2039	-	2,263,956	-	2,263,956	-	1,510,916	1,467,571
2040	-	2,344,900	-	2,344,900	-	1,531,099	1,484,837
2041	-	2,416,442	-	2,416,442	-	1,543,696	1,494,701
2042	-	2,463,224	-	2,463,224	-	1,539,558	1,488,350
2043	-	2,553,718	-	2,553,718	-	1,561,607	1,507,292
2044	-	2,614,869	-	2,614,869	-	1,564,427	1,507,640
2045	-	2,636,448	-	2,636,448	-	1,543,232	1,484,876
2046	-	2,676,070	-	2,676,070	-	1,532,555	1,472,285
2047	-	2,723,273	-	2,723,273	-	1,525,866	1,463,555
2048	-	2,773,006	-	2,773,006	-	1,520,137	1,455,767
2049	-	2,795,700	-	2,795,700	-	1,499,440	1,433,689
2050	-	2,868,789	-	2,868,789	-	1,505,371	1,437,098
2051	-	2,894,046	-	2,894,046	-	1,485,789	1,416,173
2052	-	2,824,296	-	2,824,296	-	1,418,628	1,350,033
2053	-	2,865,535	-	2,865,535	-	1,408,220	1,338,022

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		Actuarial Present Value of Projected Benefit Payments			
		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) = 2.37%
2054	-	2,904,970	-	2,904,970	-	1,396,732	1,325,020
2055	-	2,882,654	-	2,882,654	-	1,356,034	1,284,389
2056	-	2,876,557	-	2,876,557	-	1,323,908	1,251,989
2057	-	2,867,483	-	2,867,483	-	1,291,196	1,219,135
2058	-	2,845,457	-	2,845,457	-	1,253,574	1,181,752
2059	-	2,815,337	-	2,815,337	-	1,213,486	1,142,162
2060	-	2,756,066	-	2,756,066	-	1,162,253	1,092,221
2061	-	2,715,188	-	2,715,188	-	1,120,257	1,051,100
2062	-	2,691,698	-	2,691,698	-	1,086,553	1,017,873
2063	-	2,623,145	-	2,623,145	-	1,035,985	968,976
2064	-	2,598,547	-	2,598,547	-	1,004,080	937,658
2065	-	2,560,912	-	2,560,912	-	968,142	902,676
2066	-	2,513,922	-	2,513,922	-	929,828	865,590
2067	-	2,494,251	-	2,494,251	-	902,605	838,927
2068	-	2,422,663	-	2,422,663	-	857,743	795,976
2069	-	2,369,051	-	2,369,051	-	820,626	760,335
2070	-	2,313,756	-	2,313,756	-	784,142	725,390
2071	-	2,245,855	-	2,245,855	-	744,673	687,795
2072	-	2,196,153	-	2,196,153	-	712,448	656,997
2073	-	2,111,744	-	2,111,744	-	670,252	617,114
2074	-	2,036,310	-	2,036,310	-	632,336	581,288
2075	-	1,962,936	-	1,962,936	-	596,371	547,364
2076	-	1,881,076	-	1,881,076	-	559,144	512,389
2077	-	1,810,344	-	1,810,344	-	526,483	481,702
2078	-	1,716,728	-	1,716,728	-	488,463	446,213
2079	-	1,626,428	-	1,626,428	-	452,764	412,951
2080	-	1,543,898	-	1,543,898	-	420,496	382,918
2081	-	1,446,217	-	1,446,217	-	385,375	350,384
2082	-	1,354,234	-	1,354,234	-	353,061	320,499
2083	-	1,253,533	-	1,253,533	-	319,741	289,796
2084	-	1,153,317	-	1,153,317	-	287,818	260,453
2085	-	1,052,641	-	1,052,641	-	257,014	232,212
2086	-	954,566	-	954,566	-	228,028	205,699

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		Actuarial Present Value of Projected Benefit Payments			
		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) = 2.37%
2087	-	860,910	-	860,910	-	201,209	181,221
2088	-	768,100	-	768,100	-	175,636	157,940
2089	-	673,358	-	673,358	-	150,643	135,252
2090	-	589,410	-	589,410	-	129,011	115,648
2091	-	506,838	-	506,838	-	108,539	97,143
2092	-	431,611	-	431,611	-	90,431	80,809
2093	-	362,328	-	362,328	-	74,273	66,266
2094	-	300,920	-	300,920	-	60,351	53,761
2095	-	246,210	-	246,210	-	48,311	42,968
2096	-	198,682	-	198,682	-	38,142	33,870
2097	-	157,794	-	157,794	-	29,638	26,277
2098	-	123,218	-	123,218	-	22,643	20,044
2099	-	94,530	-	94,530	-	16,996	15,021
2100	-	71,143	-	71,143	-	12,514	11,043
2101	-	52,456	-	52,456	-	9,028	7,954
2102	-	37,848	-	37,848	-	6,373	5,606
2103	-	26,687	-	26,687	-	4,396	3,861
2104	-	18,360	-	18,360	-	2,959	2,595
2105	-	12,304	-	12,304	-	1,940	1,699
2106	-	8,017	-	8,017	-	1,237	1,081
2107	-	5,072	-	5,072	-	766	668
2108	-	3,106	-	3,106	-	459	400
2109	-	1,847	-	1,847	-	267	232
2110	-	1,062	-	1,062	-	150	130
2111	-	589	-	589	-	81	71
2112	-	318	-	318	-	43	37
2113	-	167	-	167	-	22	19
2114	-	86	-	86	-	11	10
2115	-	-	-	-	-	-	-
2116	-	-	-	-	-	-	-
2117	-	-	-	-	-	-	-

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

Year	Differences between Expected and Actual Experience	Recognition Period (Years)										
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2018	(876,624)	6.67	(131,428)	(131,428)	(131,428)	(131,428)	(88,056)	-	-	-	-	-
2019	-	6.67	-	-	-	-	-	-	-	-	-	-
2020	(3,813,617)	6.74	(565,819)	(565,819)	(565,819)	(565,819)	(565,819)	(565,819)	(418,703)	-	-	-
Net Increase (Decrease) in OPEB Expense			(697,247)	(697,247)	(697,247)	(697,247)	(653,875)	(565,819)	(418,703)	-	-	-

Year	Changes of Assumptions	Recognition Period (Years)										
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2018	8,151,652	6.67	1,222,137	1,222,137	1,222,137	1,222,137	818,830	-	-	-	-	-
2019	3,996,134	6.67	599,121	599,121	599,121	599,121	599,121	401,408	-	-	-	-
2020	12,017,049	6.74	1,782,945	1,782,945	1,782,945	1,782,945	1,782,945	1,782,945	1,319,379	-	-	-
Net Increase (Decrease) in OPEB Expense			3,604,203	3,604,203	3,604,203	3,604,203	3,200,896	2,184,353	1,319,379	-	-	-

Year	Differences between Projected and Actual Earnings on OPEB Plan Investments	Recognition Period (Years)										
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2018	(59,034)	5	(11,807)	(11,806)	(11,806)	-	-	-	-	-	-	-
2019	61,060	5	12,212	12,212	12,212	12,212	-	-	-	-	-	-
2020	228,631	5	45,726	45,726	45,726	45,726	45,726	-	-	-	-	-
Net Increase (Decrease) in OPEB Expense			46,131	46,132	46,132	57,938	45,726	-	-	-	-	-