



TOWN OF LITTLETON, 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

April, 2022



April 29, 2022

Mr. Sean O'Brien
Treasurer
Town of Littleton
P.O. Box 1305
Littleton, MA 01460

Dear Sean:

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 Littleton. 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 Littleton as well as health plan rates provided by the Town. Although we did not audit the data used in the valuation and disclosure calculations, we believe that the information is complete and reliable.

Liabilities presented in this report are based on a discount rate of 6.5%, the rate that reflects the long-term expected rate of return on OPEB plan assets. The long-term expected rate of return is based on the target allocations provided in the investment policy statement and long-term expected rates of return by asset class provided by the Town's investment consultant, Bartholomew & Company.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions other than those explicitly applicable to the postemployment benefit plans are consistent with those used by the Middlesex County 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 Littleton 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.

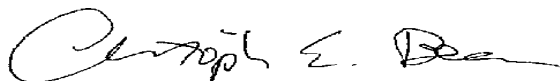
Respectfully submitted,



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EXECUTIVE SUMMARY

Purpose of Report

This report presents the results of the actuarial valuation of the Town of Littleton'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 Littleton. 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 Littleton.

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 Littleton Other Postemployment Benefits Program

The Town of Littleton 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	
Membership Data			
Active Plan Members	360	373	(3.5%)
Inactive Plan Members (excludes covered spouses)	168	161	4.3%
Total Plan Members	528	534	(1.1%)
Covered Spouses	86	87	(1.1%)
Covered Payroll	\$22,079,971	\$23,272,636	(5.1%)
Net OPEB Liability			
Discount Rate	6.50%	6.75%	
Total OPEB Liability (TOL)	\$27,713,069	\$33,199,756	(16.5%)
Fiduciary Net Position (FNP)	\$21,650,957	\$14,626,403	48.0%
Net OPEB Liability	\$6,062,112	\$18,573,353	(67.4%)
FNP as % of TOL	78.1%	44.1%	
OPEB Expense			
OPEB Expense	\$1,438,468	\$2,505,387	(42.6%)
Deferred Outflows	\$5,812,511	\$5,455,235	
Deferred Inflows	\$11,711,060	\$1,243,939	
Recognition Period	7.50	7.96	

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 \$9,876,000. The gain is primarily due to lower than expected medical premiums and active employee turnover since the prior valuation.

Changes of Assumptions

The discount rate changed from 6.75% as of June 30, 2020 to 6.5% as of June 30, 2021. In addition, many other assumptions were updated in this valuation, including the inflation rate, healthcare trend rates, mortality tables and mortality improvement rates, percent retiring with covered spouses, and participation 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	87,000
◆ Increase due to change in Trend Assumption	342,000
◆ Increase due to change in Mortality Tables and Mortality Improvement Rates	655,000
◆ Increase due to change in % Retiring with a Covered Spouse	860,000
◆ Decrease due to change in Participation Rate	(839,000)
◆ Increase due to change in Discount Rate	915,000
Total	\$ 2,020,000

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 \$27,713,069. The Total OPEB Liability as of the prior measurement date, June 30, 2020, was \$33,199,756. During the current measurement period ending June 30, 2021, the Total OPEB Liability decreased by \$5,486,687, or -16.5%. The development of the Total OPEB Liability for the current measurement period is shown in Section 1, Exhibit 1.2.

Fiduciary Net Position

The Fiduciary Net Position is equal to the market value of assets and as of the current measurement date, June 30, 2021, is \$21,650,957. The Fiduciary Net Position as of the prior measurement date, June 30, 2020, was \$14,626,403. During the plan years ended June 30, 2021 and June 30, 2020, the actual rates of return were 26.99% and 2.11%, respectively. The expected long-term rate of return is 6.50%. The Fiduciary Net Position is shown in Section 1, Exhibit 1.1.

EXECUTIVE SUMMARY

Employer Future Period Contributions

Contributions will be made based on the actuarially determined contributions developed in the most recent actuarial valuation.

Discount Rate

As of the June 30, 2021 measurement date, the OPEB plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 6.5%.

OPEB Expense

The OPEB Expense for the current measurement period ending June 30, 2021, is \$1,438,468. Benefit changes are recognized immediately and experience gains and losses and assumption changes developed in this valuation are recognized over 7.5 years. Investment gains and losses are recognized over 5 years. The OPEB Expense for the prior measurement period was \$2,505,387. The development of the OPEB expense for the current measurement period is shown in Section 4, Exhibit 4.2.

COVID-19 Pandemic

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

SECTION 1 - PRINCIPAL VALUATION RESULTS

Exhibit 1.1 - OPEB Trust Assets

The Town has established an irrevocable trust pursuant to Section 20 of 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 **2021** **2020**

Trust Fund Composition at Fiscal Year-End		
Domestic Equity	\$8,692,860	\$5,793,842
International Equity	4,470,923	3,383,600
Domestic Bond	5,074,984	3,739,206
Alternative	2,338,303	927,817
International Bond	980,788	701,342
Cash & Equivalents	93,099	80,596
Total Market Value of Assets	\$21,650,957	\$14,626,403
Asset Activity		
Market value, beginning of year	\$14,626,403	\$12,089,224
Employer Premiums	1,141,254	1,179,063
OPEB Trust Contributions	2,698,610	2,262,374
Benefit Payments	(1,141,254)	(1,179,063)
Administrative Expenses	-	-
Investment Return	4,325,944	274,805
Market value, end of year	\$21,650,957	\$14,626,403
Money-Weighted Rate of Return	26.99%	2.11%
(Gain) / Loss on OPEB Plan Investments		
Projected earnings	\$1,085,049	\$976,971
Actual earnings	4,325,944	274,805
(Gain) / Loss on OPEB plan investments	(\$3,240,895)	\$702,166

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	\$19,344,721
b. Retirees, Covered Spouses and Survivors	13,855,035
c. Total OPEB Liability at 6.75% (a. + b.)	\$33,199,756
2. Service Cost	\$1,225,955
3. Expected Benefit Payments	
a. Current retirees	(\$1,084,348)
b. Future retirees	(56,906)
c. Total (a. + b.)	(\$1,141,254)
4. Interest [6.75% x (1.c. + 2. + .5 x 3.c)]	\$2,285,218
5. Changes of benefit terms	\$0
6. Differences between expected and actual experience	(\$9,876,472)
7. Changes of assumptions or other inputs	\$2,019,866
8. Total OPEB Liability, end of year (1.c. + 2. + 3.c. + 4. + 5. + 6. + 7.)	
a. Actives	\$14,034,048
b. Retirees, Covered Spouses and Survivors	13,679,021
c. Total OPEB Liability at 6.5% (a. + b.)	\$27,713,069

SECTION 1 - PRINCIPAL VALUATION RESULTS

Exhibit 1.3 - Development of Actuarially Determined Employer Contributions

FYE June 30	(1) Normal Cost	(2) Actuarial Accrued Liability	(3) Expected Benefit Payments	(4) Actuarial Value of Assets	(5) Unfunded Actuarial Accrued Liability (2) - (4)	(6) Amortization Amount	(7) Interest	(8) ADEC (1) + (6) + (7)	(9) OPEB Trust Contributions	(10) Total Employer Contributions
2021	1,225,955	33,199,756	1,141,254	14,626,403	18,573,353	1,437,566	179,788	2,843,309	2,698,610	3,839,864
2022	1,062,792	27,713,069	1,278,494	21,650,957	6,062,112	466,675	99,415	1,628,882	350,388	1,628,882
2023	1,099,990	29,326,901	1,328,274	23,367,760	5,959,141	466,652	101,832	1,668,474	340,200	1,668,474
2024	1,138,490	31,033,875	1,380,534	25,184,375	5,849,500	466,467	104,322	1,709,279	328,745	1,709,279
2025	1,178,337	32,838,874	1,459,387	27,105,944	5,732,930	466,851	106,937	1,752,125	292,738	1,752,125
2026	1,219,579	34,722,259	1,527,042	29,113,885	5,608,374	466,587	109,601	1,795,767	268,725	1,795,767
2027	1,262,264	36,702,168	1,573,186	31,226,165	5,476,003	466,837	112,392	1,841,493	268,307	1,841,493
2028	1,306,443	38,808,611	1,698,473	33,473,849	5,334,762	466,733	115,256	1,888,432	189,959	1,888,432
2029	1,352,169	40,969,728	1,831,525	35,785,277	5,184,451	466,647	118,223	1,937,039	105,514	1,937,039
2030	1,399,495	43,182,708	1,904,623	38,158,247	5,024,461	466,524	121,291	1,987,310	82,687	1,987,310
2031	1,448,477	45,514,498	2,002,706	40,660,295	4,854,203	466,750	124,490	2,039,717	37,011	2,039,717
2032	1,499,174	47,948,799	2,122,033	43,276,162	4,672,637	466,797	127,788	2,093,759	-	2,093,759
2033	1,551,645	50,472,178	2,205,304	45,992,958	4,479,220	466,585	131,185	2,149,415	-	2,149,415
2034	1,605,953	53,129,524	2,291,283	48,856,067	4,273,457	466,535	134,712	2,207,200	-	2,207,200
2035	1,662,161	55,928,706	2,408,908	51,874,334	4,054,372	466,556	138,367	2,267,084	-	2,267,084
2036	1,720,337	58,848,308	2,450,247	55,027,284	3,821,024	466,547	142,147	2,329,031	-	2,329,031
2037	1,780,549	61,976,981	2,583,223	58,404,462	3,572,519	466,386	146,051	2,392,986	-	2,392,986
2038	1,842,868	65,235,913	2,757,229	61,927,882	3,308,031	466,577	150,114	2,459,559	-	2,459,559
2039	1,907,368	68,593,474	2,783,522	65,567,325	3,026,149	466,998	154,334	2,528,700	-	2,528,700
2040	1,974,126	72,210,835	2,830,463	69,485,339	2,725,496	466,695	158,653	2,599,474	-	2,599,474
2041	2,043,220	76,085,979	2,910,117	73,680,356	2,405,623	466,206	163,113	2,672,539	-	2,672,539
2042	2,114,733	80,204,390	3,038,277	78,138,911	2,065,479	466,248	167,764	2,748,745	-	2,748,745
2043	2,188,749	84,534,399	3,146,632	82,831,218	1,703,181	466,625	172,599	2,827,973	-	2,827,973
2044	2,265,355	89,112,865	3,311,678	87,795,933	1,316,932	466,997	177,603	2,909,955	-	2,909,955
2045	2,344,642	93,900,191	3,369,486	92,995,011	905,180	466,588	182,730	2,993,960	-	2,993,960
2046	2,426,704	99,023,477	3,507,761	98,556,376	467,101	467,101	188,097	3,081,902	-	3,081,902
2047	2,511,639	104,424,474	3,557,485	104,424,474	-	-	163,257	2,674,896	-	2,674,896
2048	2,599,546	110,215,677	3,654,217	110,215,677	-	-	168,970	2,768,516	-	2,768,516
2049	2,690,530	116,377,103	3,724,894	116,377,103	-	-	174,884	2,865,414	-	2,865,414
2050	2,784,699	122,962,980	3,874,331	122,962,980	-	-	181,005	2,965,704	-	2,965,704

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.1 - Plan Description

Plan Administration

The Town of Littleton 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 ¹	168
Inactive plan members entitled to but not yet receiving benefit payments	0
Active plan members	360
	<u>528</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

Contributions will be made based on the actuarially determined contributions developed in the most recent actuarial valuation.

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	\$ 27,713,069
Fiduciary net position	(21,650,957)
Net OPEB liability	\$ 6,062,112

Fiduciary net position as a percentage of the total OPEB liability 78.13%

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 judgment.
Discount rate	6.5 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 Employee Mortality Table, projected with generational mortality improvement using scale MP-2017.
Post-Retirement Mortality - General and Public Safety employees	RP-2014 Blue Collar Healthy Annuitant Mortality Table, projected with generational mortality improvement using scale MP-2017.
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 ¹
Domestic Equity	35%	5.34%
International Equity	20%	6.10%
Domestic Bond	20%	1.62%
Alternative	20%	4.21%
International Bond	5%	1.26%
Cash & Equivalents	0%	0.00%
Total	100%	

¹ provided by the Town's investment consultant, Bartholomew & Company.

Discount Rate

The discount rate used to measure the total OPEB liability was 6.5%. 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 available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.2 - Net OPEB Liability

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

The following presents the net OPEB liability calculated using the current discount rate of 6.5 percent, as well as what the net OPEB liability would be if it were calculated using a discount rate 1-percentage point lower (5.5 percent) or 1-percentage point higher (7.5 percent) than the current rate:

	1% Decrease (5.5%)	Assumed Discount Rate (6.5%)	1% Increase (7.5%)
Total OPEB Liability	\$ 31,915,482	\$ 27,713,069	\$ 24,327,625
Fiduciary Net Position	(21,650,957)	(21,650,957)	(21,650,957)
Net OPEB Liability	\$ 10,264,525	\$ 6,062,112	\$ 2,676,668

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	\$ 23,803,076	\$ 27,713,069	\$ 32,672,846
Fiduciary Net Position	(21,650,957)	(21,650,957)	(21,650,957)
Net OPEB Liability	\$ 2,152,119	\$ 6,062,112	\$ 11,021,889

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
Total OPEB Liability					
Service cost	\$ 1,225,955	\$ 1,022,757	\$ 923,015	\$ 887,514	\$ 853,379
Interest	2,285,218	2,157,973	1,949,574	1,818,827	1,690,414
Changes of benefit terms	-	(406,443)	-	-	-
Differences between expected and actual experience	(9,876,472)	-	(1,661,369)	-	-
Changes of assumptions	2,019,866	3,264,788	2,595,779	-	-
Benefit payments	(1,141,254)	(1,179,063)	(1,077,132)	(919,952)	(811,562)
Net change in total OPEB liability	\$ (5,486,687)	\$ 4,860,012	\$ 2,729,867	\$ 1,786,389	\$ 1,732,231
Total OPEB liability—beginning	\$ 33,199,756	\$ 28,339,744	\$ 25,609,877	\$ 23,823,488	\$ 22,091,257
Total OPEB liability—ending (a)	\$ 27,713,069	\$ 33,199,756	\$ 28,339,744	\$ 25,609,877	\$ 23,823,488
Plan Fiduciary Net Position					
Contributions—employer	\$ 3,839,864	\$ 3,441,437	\$ 3,498,393	\$ 2,352,890	\$ 1,959,853
Net investment income	4,325,944	274,805	664,043	461,845	541,215
Benefit payments	(1,141,254)	(1,179,063)	(1,077,132)	(919,952)	(811,562)
Administrative expenses	-	-	-	-	-
Other	-	-	-	-	-
Net change in plan fiduciary net position	\$ 7,024,554	\$ 2,537,179	\$ 3,085,304	\$ 1,894,783	\$ 1,689,506
Plan fiduciary net position—beginning	\$ 14,626,403	\$ 12,089,224	\$ 9,003,920	\$ 7,109,137	\$ 5,419,631
Plan fiduciary net position—ending (b)	\$ 21,650,957	\$ 14,626,403	\$ 12,089,224	\$ 9,003,920	\$ 7,109,137
Net OPEB liability—ending (a) – (b)	\$ 6,062,112	\$ 18,573,353	\$ 16,250,520	\$ 16,605,957	\$ 16,714,351
Plan fiduciary net position as a percentage of the total OPEB liability	78.13%	44.06%	42.66%	35.16%	29.84%
Covered payroll	\$ 22,079,971	\$ 23,272,636	\$ 21,401,305	\$ 19,528,449	\$ 20,907,161
Net OPEB liability as a percentage of covered payroll	27.46%	79.81%	75.93%	85.03%	79.95%
Discount Rate	6.50%	6.75%	7.50%	7.50%	7.50%

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 6.75% as of June 30, 2020 to 6.5% as of June 30, 2021. In addition, many other assumptions were updated in this valuation, including the inflation rate, healthcare trend rates, mortality tables and mortality improvement rates, percent retiring with covered spouses, and participation rates.

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	26.99%	2.11%	6.73%	5.90%	8.66%					

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 _{mw}) ^(c)
Beginning value - July 1, 2020	\$ 14,626,403	12	1.00	\$ 18,573,906
Monthly net external cash flows:				
July	-	11	0.92	-
August	-	10	0.83	-
September	1,000,000	9	0.75	1,196,256
October	698,610	8	0.67	819,241
November	-	7	0.58	-
December	-	6	0.50	-
January	-	5	0.42	-
February	-	4	0.33	-
March	1,000,000	3	0.25	1,061,552
April	-	2	0.17	-
May	-	1	0.08	-
June	-	0	0.00	-
Ending value - June 30, 2021				\$ 21,650,957
Money-weighted rate of return:				26.99%

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	\$ 2,843,309	\$ 2,519,732	\$ 2,657,431	\$ 2,383,507	\$ 2,602,241
Contributions in relation to the actuarially determined contribution	<u>3,839,864</u>	<u>3,441,437</u>	<u>3,498,393</u>	<u>2,352,890</u>	<u>1,959,853</u>
Contribution deficiency (excess)	<u>\$ (996,555)</u>	<u>\$ (921,705)</u>	<u>\$ (840,962)</u>	<u>\$ 30,617</u>	<u>\$ 642,388</u>
Covered payroll	\$ 22,079,971	\$ 23,272,636	\$ 21,401,305	\$ 19,528,449	\$ 20,907,161
Contributions as a percentage of covered payroll	17.39%	14.79%	16.35%	12.05%	9.37%
Discount rate	6.75%	7.50%	7.50%	7.50%	6.70%
Inflation	2.20%	2.40%	2.60%	3.00%	3.00%

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 26 years on a closed amortization period for partial pre-funding.
Amortization period	26 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	\$ -	\$ -	\$ -	\$ -	\$ -
2019	-	1,661,369	(626,145)	-	1,035,224
2020	-	-	-	-	-
2021	-	9,876,472	(1,316,863)	-	8,559,609
Total				<u>\$ -</u>	<u>\$ 9,594,833</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	2,595,779	-	978,309	1,617,470	-
2020	3,264,788	-	820,298	2,444,490	-
2021	2,019,866	-	269,315	1,750,551	-
Total				<u>\$ 5,812,511</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, 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	\$ 125,075	\$ -	\$ 100,060	\$ 25,015	\$ -	
2019	75,432	-	45,258	30,174	-	
2020	702,166	-	280,866	421,300	-	
2021	-	3,240,895	(648,179)	-	2,592,716	
Subtotal				\$ 476,489	\$ 2,592,716	
Net				\$ -	\$ 2,116,227	

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	\$	(987,655)
2023	\$	(1,012,670)
2024	\$	(1,027,756)
2025	\$	(1,168,190)
2026	\$	(524,705)
Thereafter		(1,177,573)
Deferred Outflows	\$	5,812,511
Deferred Inflows	\$	11,711,060

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	\$ 1,225,955
2. Interest on the total OPEB liability	
a. Total OPEB liability, beginning of year	33,199,756
b. Service cost, beginning of year	1,225,955
c. Benefit payments	(1,141,254)
d. Interest on total OPEB liability = 6.75% times (a. + b. + .5 times c.)	2,285,218
3. Differences between expected and actual experience	(1,525,578)
4. Changes of benefit terms	-
5. Changes of assumptions	1,005,567
6. Projected earnings on OPEB plan investments	
a. Plan fiduciary net position, beginning of year	14,626,403
b. Contributions - Employer	3,839,864
c. Benefit payments	(1,141,254)
d. Administrative expenses and other	-
e. Total projected earnings	(1,085,049)
7. Differences between projected and actual earnings on OPEB plan investments	(467,645)
8. OPEB plan administrative expenses	-
9. Other changes in fiduciary net position	-
10. Total OPEB Expense	\$ 1,438,468

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 Middlesex County and Massachusetts Teachers Retirement System.

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 - June 1, 2021	Individual	Family
HMO	\$817.32	\$2,143.59
PPO	\$992.95	\$2,604.22

Medicare Plans - January 1, 2022	
Medex	\$326.05

Participant Contributions Retired employees contribute 30% of the health plan premium.

Continuation of Coverage to Spouse After Death of Retiree Surviving spouse may continue coverage for lifetime by paying 30% of the required medical premium for employees hired prior to July 1, 2010. For employees hired after July 1, 2010, surviving spouses may continue coverage for lifetime by paying 50% of the required medical premium.

Dental Coverage Dental coverage is provided. Retirees contribute 100% of the monthly premiums.

Life Insurance Coverage Retirees are eligible for a \$5,000 life insurance benefit. The total monthly cost is \$3.95. Retirees contribute \$1.18 towards the monthly premiums.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date	July 1, 2020
Disclosure Date	June 30, 2021
GASB 75 Reporting Date	June 30, 2021
Long-Term Expected Rate of Return	<p>6.5%, 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	2.16%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2021.
Discount Rate (GASB)	<p>6.5%, compounded annually, for the measurement as of June 30, 2021.</p> <p>6.75%, 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>
Discount Rate (ADEC)	6.75%, compounded annually, for development of the Actuarially Determined Contribution (ADEC) as of June 30, 2021.
Amortization Method	Level dollar amount over 26 years on a closed 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

Not applicable as retirees pay 100% of the dental premium.

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 - Not applicable as retirees pay 100% of dental premium

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.

60% 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	\$4,274	\$5,017	\$4,274	\$5,017
20-24	3,368	5,342	3,368	5,342
25-29	3,504	7,880	3,504	7,880
30-34	4,402	9,957	4,402	9,957
35-39	5,521	10,256	5,521	10,256
40-44	6,880	10,504	6,880	10,504
45-49	8,684	11,530	8,684	11,530
50-54	11,444	13,564	11,444	13,564
55-59	14,872	15,684	14,872	15,684
60-64	19,085	18,667	19,085	18,667
65-69	2,820	2,747	23,812	22,376
70-74	3,380	3,240	28,530	26,385
75-79	3,991	3,759	33,701	30,641
80-84	4,587	4,311	38,735	35,128
85-89	5,110	4,819	44,333	40,103
90-94	5,563	5,143	44,333	40,103
95+	5,913	4,974	44,333	40,103

Retiree Contributions

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

Plan	Contribution
Non-Medicare	\$ 3,637
Medicare	1,063

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 Healthy Annuitant Mortality Table, projected with generational mortality improvement using scale MP-2017.

Pre-Retirement Mortality

Pre-retirement mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Employee Mortality Table, projected with generational mortality improvement using scale MP-2017.

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	0.00%	0.00%	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	50.00%	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:

	Service					
	0		5		10+	
Age	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

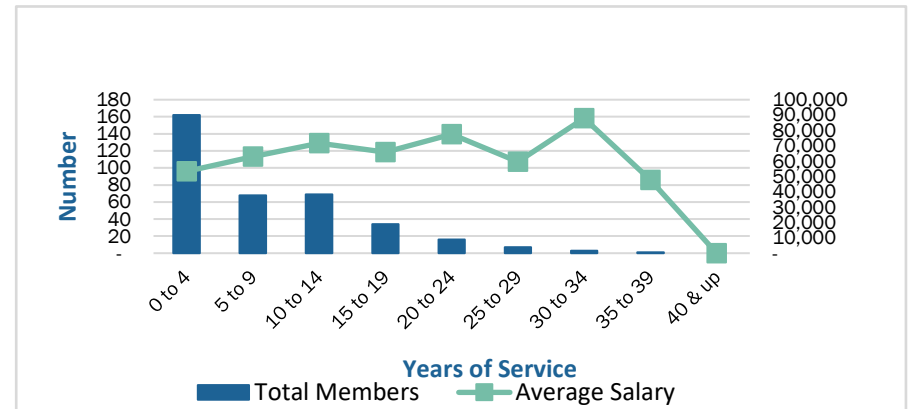
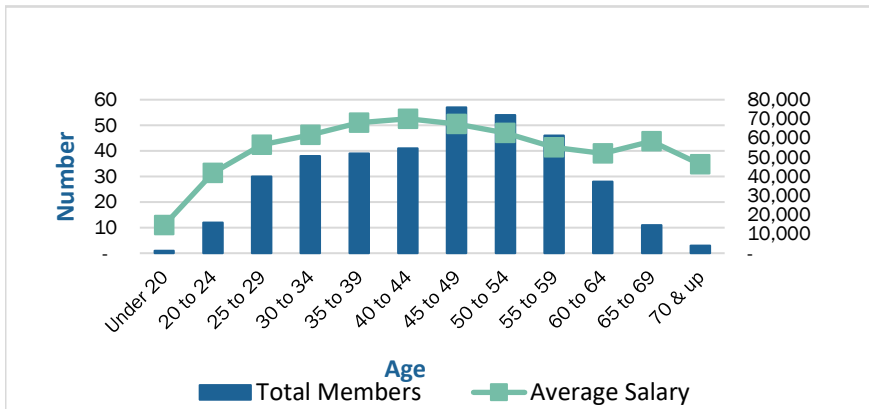
Age	Years of Service									Total	Total Salary	Average Salary
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up			
Under 20	1	-	-	-	-	-	-	-	-	1	14,588	14,588
20 to 24	12	-	-	-	-	-	-	-	-	12	501,924	41,827
25 to 29	28	2	-	-	-	-	-	-	-	30	1,693,608	56,454
30 to 34	24	9	5	-	-	-	-	-	-	38	2,345,783	61,731
35 to 39	23	9	6	1	-	-	-	-	-	39	2,652,342	68,009
40 to 44	18	10	6	5	2	-	-	-	-	41	2,872,452	70,060
45 to 49	26	6	15	4	5	1	-	-	-	57	3,838,621	67,344
50 to 54	11	14	16	8	3	2	-	-	-	54	3,385,003	62,685
55 to 59	11	11	9	9	3	-	3	-	-	46	2,540,163	55,221
60 to 64	6	6	10	4	1	1	-	-	-	28	1,453,854	51,923
65 to 69	1	1	1	3	1	3	-	1	-	11	642,592	58,417
70 & up	1	-	1	-	1	-	-	-	-	3	139,041	46,347
Total	162	68	69	34	16	7	3	1	-	360	22,079,971	61,333
Total Salary	8,647,834	4,275,194	4,948,506	2,240,830	1,238,530	417,561	263,758	47,758	-			
Average Salary	53,382	62,870	71,717	65,907	77,408	59,652	87,919	47,758	-			

Average Age:

45.8

Average Service:

8.3



SECTION 7 - PLAN MEMBER INFORMATION

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

Non-Medicare Plans			Medicare Plans	
Age	HMO	PPO	Medex	Total
Under 40	0	0	0	0
40 to 44	0	0	0	0
45 to 49	0	0	0	0
50 to 54	1	1	0	2
55 to 59	8	1	0	9
60 to 64	11	2	2	15
65 to 69	0	0	25	25
70 to 74	2	0	45	47
75 to 79	0	0	27	27
80 to 84	0	0	6	6
85 to 89	0	0	8	8
90+	0	0	4	4
Total	22	4	117	143
Covered Spouses	17	2	67	86

Average Age: 72.8

In addition, there are 25 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	Public Safety	Teachers	Dispatch	Water	Total
Summary of Member Data Used in Valuation						
Active Members	58	37	247	8	10	360
Average Age	48.9	38.0	46.5	39.1	45.5	45.8
Average Service	8.0	7.4	8.4	5.7	12.1	8.3
Covered Payroll	3,553,089	3,301,407	13,786,074	532,346	907,054	22,079,971
Retired Members and Survivors	35	13	116	0	4	168
Average Age	73.7	67.5	73.3	-	67.1	72.8
Covered Spouses	14	5	64	0	3	86
Expected Benefit Payments	245,177	115,698	727,883	2,265	50,231	1,141,254
OPEB Trust contributions	437,224	362,734	1,827,051	21,601	50,000	2,698,610
Total Employer Contributions	682,401	478,432	2,554,934	23,866	100,231	3,839,864
Beginning Net OPEB Liability - June 30, 2020						
Total OPEB Liability	4,805,735	3,750,835	23,082,611	193,525	1,367,050	33,199,756
Fiduciary Net Position	2,126,033	1,659,350	10,211,631	85,614	543,775	14,626,403
Net OPEB Liability	2,679,702	2,091,485	12,870,980	107,911	823,275	18,573,353
Total OPEB Liability, beginning of year	4,805,735	3,750,835	23,082,611	193,525	1,367,050	33,199,756
Service cost	189,017	317,926	669,597	22,184	27,231	1,225,955
Interest	328,871	270,737	1,578,707	14,484	92,419	2,285,218
Changes of benefit terms	0	0	0	0	0	0
Differences between expected and actual experience	(999,860)	(844,330)	(7,645,509)	(28,624)	(358,149)	(9,876,472)
Changes of assumptions	305,917	258,038	1,364,218	17,309	74,384	2,019,866
Benefit payments	(245,177)	(115,698)	(727,883)	(2,265)	(50,231)	(1,141,254)
Net change in total OPEB liability	(421,232)	(113,327)	(4,760,870)	23,088	(214,346)	(5,486,687)
Total OPEB Liability, end of year	4,384,503	3,637,508	18,321,741	216,613	1,152,704	27,713,069
Ending Net OPEB Liability - June 30, 2021						
Total OPEB Liability	4,384,503	3,637,508	18,321,741	216,613	1,152,704	27,713,069
Fiduciary Net Position	3,198,094	2,520,569	15,049,790	133,337	749,167	21,650,957
Net OPEB Liability	1,186,409	1,116,939	3,271,951	83,276	403,537	6,062,112

SECTION 9 - BREAKOUT OF RESULTS BY DEPARTMENT

Department	Town	Public Safety	Teachers	Dispatch	Water	Total
Total Deferred Outflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Changes in Assumptions	841,373	656,685	4,041,232	33,882	239,339	5,812,511
Differences between Expected and Actual Earnings on OPEB Plan Investments	0	0	0	0	0	0
Total Deferred Outflows of Resources	841,373	656,685	4,041,232	33,882	239,339	5,812,511
Total Deferred Inflows of Resources						
Differences between Expected and Actual Experience	1,388,872	1,084,003	6,670,947	55,929	395,082	9,594,833
Changes in Assumptions	0	0	0	0	0	0
Differences between Expected and Actual Earnings on OPEB Plan Investments	307,606	240,084	1,477,474	12,387	78,676	2,116,227
Total Deferred Inflows of Resources	1,696,478	1,324,087	8,148,420	68,316	473,758	11,711,060
Total OPEB Expense (Income)	667,786	634,027	(9,882)	55,894	90,643	1,438,468
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate						
Current Discount Rate: 6.5%	1,186,409	1,116,939	3,271,951	83,276	403,537	6,062,112
1% Decrease in the Discount Rate: 5.5%	1,851,276	1,668,531	6,050,262	116,123	578,333	10,264,525
1% Increase in the Discount Rate: 7.5%	650,796	672,579	1,033,757	56,814	262,722	2,676,668
Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates						
Current Trend Rates	1,186,409	1,116,939	3,271,951	83,276	403,537	6,062,112
1% Decrease in Trend Rates	567,806	603,729	686,966	52,714	240,904	2,152,119
1% Increase in Trend Rates	1,971,099	1,767,940	6,550,973	122,043	609,835	11,021,889
Deferred Outflows of Resources and Deferred Inflows of Resources recognized in OPEB Expense						
2022	(143,179)	(111,750)	(687,709)	(5,766)	(39,251)	(987,655)
2023	(146,805)	(114,580)	(705,128)	(5,912)	(40,245)	(1,012,670)
2024	(148,992)	(116,287)	(715,632)	(6,000)	(40,845)	(1,027,756)
2025	(169,351)	(132,177)	(813,416)	(6,820)	(46,426)	(1,168,190)
2026	(76,066)	(59,369)	(365,354)	(3,063)	(20,853)	(524,705)
Thereafter	(170,711)	(133,239)	(819,950)	(6,874)	(46,799)	(1,177,573)

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

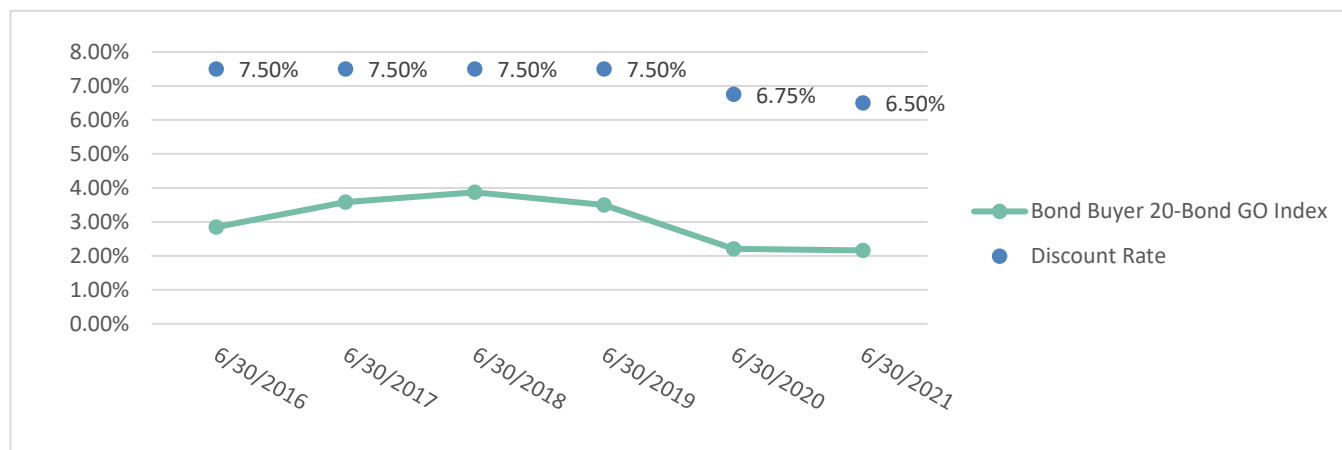
Projected cash flows into and out of the OPEB plan are assumed to be contributions to the OPEB plan, benefit payments, OPEB plan administrative expenses and OPEB plan investment earnings. These projected cash flows are used to project the OPEB plan's fiduciary net position at the beginning of each period.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

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

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

For purposes of this valuation, liabilities are based on a discount rate of 6.5%, a long-term investment return rate of 6.5% 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 available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability. Projected benefit payments are discounted to their actuarial present value using a single discount rate of 6.5%.

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) * 4.51%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2021	22,788,273	-	22,788,273	1,141,254	2,698,610	-	3,839,864
2022	21,392,732	2,193,131	23,585,863	1,278,494	350,388	98,824	1,530,058
2023	20,161,945	4,249,423	24,411,368	1,328,274	340,200	191,481	1,476,993
2024	19,199,664	6,066,102	25,265,766	1,380,534	328,745	273,342	1,435,937
2025	18,192,903	7,957,165	26,150,068	1,459,387	292,738	358,554	1,393,571
2026	17,285,024	9,780,296	27,065,320	1,527,042	268,725	440,705	1,355,062
2027	16,434,281	11,578,325	28,012,606	1,573,186	268,307	521,726	1,319,767
2028	15,688,220	13,304,827	28,993,047	1,698,473	189,959	599,523	1,288,909
2029	14,857,854	15,149,950	30,007,804	1,831,525	105,514	682,665	1,254,374
2030	14,116,284	16,941,793	31,058,077	1,904,623	82,687	763,406	1,223,904
2031	13,380,272	18,764,838	32,145,110	2,002,706	37,011	845,554	1,194,163
2032	12,699,869	20,570,320	33,270,189	2,122,033	-	926,910	1,195,123
2033	12,025,730	22,408,916	34,434,646	2,205,304	-	1,009,758	1,195,546
2034	11,390,507	24,249,352	35,639,859	2,291,283	-	1,092,689	1,198,594
2035	10,816,925	26,070,329	36,887,254	2,408,908	-	1,174,743	1,234,165
2036	10,293,424	27,884,884	38,178,308	2,450,247	-	1,256,508	1,193,739
2037	9,673,288	29,841,261	39,514,549	2,583,223	-	1,344,663	1,238,560
2038	9,106,716	31,790,842	40,897,558	2,757,229	-	1,432,513	1,324,716
2039	8,542,038	33,786,935	42,328,973	2,783,522	-	1,522,458	1,261,064
2040	7,991,124	35,819,363	43,810,487	2,830,463	-	1,614,040	1,216,423
2041	7,503,565	37,840,289	45,343,854	2,910,117	-	1,705,104	1,205,013
2042	7,019,151	39,911,738	46,930,889	3,038,277	-	1,798,445	1,239,832
2043	6,542,676	42,030,794	48,573,470	3,146,632	-	1,893,930	1,252,702
2044	6,046,927	44,226,614	50,273,541	3,311,678	-	1,992,875	1,318,803
2045	5,446,419	46,586,696	52,033,115	3,369,486	-	2,099,222	1,270,264
2046	4,923,263	48,931,011	53,854,274	3,507,761	-	2,204,858	1,302,903
2047	4,458,241	51,280,933	55,739,174	3,557,485	-	2,310,747	1,246,738
2048	4,081,977	53,608,068	57,690,045	3,654,217	-	2,415,609	1,238,608
2049	3,724,234	55,984,963	59,709,197	3,724,894	-	2,522,713	1,202,181
2050	3,327,561	58,471,458	61,799,019	3,874,331	-	2,634,756	1,239,575
2051	2,929,961	61,032,024	63,961,985	4,048,913	-	2,750,136	1,298,777
2052	2,568,583	63,632,071	66,200,654	3,952,767	-	2,867,296	1,085,471

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) * 4.51%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2053	2,165,066	66,352,611	68,517,677	3,961,946	-	2,989,885	972,061
2054	1,891,895	69,023,901	70,915,796	3,969,179	-	3,110,255	858,924
2055	1,607,189	71,790,660	73,397,849	3,953,218	-	3,234,926	718,292
2056	1,355,537	74,611,237	75,966,774	3,963,470	-	3,362,023	601,447
2057	1,154,267	77,471,344	78,625,611	3,966,005	-	3,490,901	475,104
2058	936,208	80,441,299	81,377,507	3,897,629	-	3,624,729	272,900
2059	707,144	83,518,576	84,225,720	3,832,412	-	3,763,393	69,019
2060	508,441	86,665,179	87,173,620	3,785,874	-	3,905,180	-
2061	399,795	89,824,902	90,224,697	3,559,972	-	4,047,559	-
2062	285,313	93,097,248	93,382,561	3,533,157	-	4,195,013	-
2063	208,143	96,442,808	96,650,951	3,462,037	-	4,345,765	-
2064	137,708	99,896,026	100,033,734	3,331,372	-	4,501,369	-
2065	110,171	103,424,744	103,534,915	3,330,117	-	4,660,375	-
2066	51,137	107,107,500	107,158,637	3,283,596	-	4,826,322	-
2067	28,415	110,880,774	110,909,189	3,265,471	-	4,996,348	-
2068	11,676	114,779,335	114,791,011	3,214,348	-	5,172,019	-
2069	1,975	118,806,721	118,808,696	3,179,101	-	5,353,496	-
2070	1,063	122,965,937	122,967,000	3,122,401	-	5,540,912	-
2071	640	127,270,205	127,270,845	3,046,647	-	5,734,865	-
2072	385	131,724,940	131,725,325	2,993,980	-	5,935,598	-
2073	192	136,335,519	136,335,711	2,923,192	-	6,143,353	-
2074	-	141,107,461	141,107,461	2,856,685	-	6,358,379	-
2075	-	146,046,222	146,046,222	2,768,399	-	6,580,922	-
2076	-	151,157,840	151,157,840	2,682,246	-	6,811,255	-
2077	-	156,448,364	156,448,364	2,589,527	-	7,049,649	-
2078	-	161,924,057	161,924,057	2,491,688	-	7,296,386	-
2079	-	167,591,399	167,591,399	2,397,862	-	7,551,760	-
2080	-	173,457,098	173,457,098	2,281,881	-	7,816,071	-
2081	-	179,528,096	179,528,096	2,177,939	-	8,089,634	-
2082	-	185,811,579	185,811,579	2,056,593	-	8,372,771	-
2083	-	192,314,984	192,314,984	1,940,041	-	8,665,818	-
2084	-	199,046,008	199,046,008	1,821,176	-	8,969,122	-

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) * 4.51%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2085	-	206,012,618	206,012,618	1,688,392	-	9,283,041	-
2086	-	213,223,060	213,223,060	1,567,446	-	9,607,947	-
2087	-	220,685,867	220,685,867	1,433,870	-	9,944,225	-
2088	-	228,409,872	228,409,872	1,308,037	-	10,292,273	-
2089	-	236,404,218	236,404,218	1,183,616	-	10,652,503	-
2090	-	244,678,366	244,678,366	1,056,919	-	11,025,341	-
2091	-	253,242,109	253,242,109	940,932	-	11,411,227	-
2092	-	262,105,583	262,105,583	825,390	-	11,810,620	-
2093	-	271,279,278	271,279,278	719,242	-	12,223,992	-
2094	-	280,774,053	280,774,053	617,464	-	12,651,832	-
2095	-	290,601,145	290,601,145	525,510	-	13,094,646	-
2096	-	300,772,185	300,772,185	441,941	-	13,552,959	-
2097	-	311,299,211	311,299,211	366,694	-	14,027,312	-
2098	-	322,194,683	322,194,683	300,928	-	14,518,268	-
2099	-	333,471,497	333,471,497	242,983	-	15,026,407	-
2100	-	345,142,999	345,142,999	193,275	-	15,552,332	-
2101	-	357,223,004	357,223,004	151,080	-	16,096,663	-
2102	-	369,725,809	369,725,809	116,354	-	16,660,046	-
2103	-	382,666,212	382,666,212	88,112	-	17,243,148	-
2104	-	396,059,529	396,059,529	65,606	-	17,846,658	-
2105	-	409,921,613	409,921,613	48,011	-	18,471,291	-
2106	-	424,268,869	424,268,869	34,520	-	19,117,786	-
2107	-	439,118,279	439,118,279	24,398	-	19,786,909	-
2108	-	454,487,419	454,487,419	16,959	-	20,479,451	-
2109	-	470,394,479	470,394,479	11,597	-	21,196,232	-
2110	-	486,858,286	486,858,286	7,799	-	21,938,100	-
2111	-	503,898,326	503,898,326	5,167	-	22,705,933	-
2112	-	521,534,767	521,534,767	3,372	-	23,500,641	-
2113	-	539,788,484	539,788,484	2,165	-	24,323,163	-
2114	-	558,681,081	558,681,081	1,365	-	25,174,474	-
2115	-	578,234,919	578,234,919	847	-	26,055,581	-
2116	-	598,473,141	598,473,141	516	-	26,967,526	-

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) * 4.51%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2117	-	619,419,701	619,419,701	304	-	27,911,389	-
2118	-	641,099,391	641,099,391	176	-	28,888,288	-
2119	-	663,537,870	663,537,870	98	-	29,899,378	-
2120	-	686,761,695	686,761,695	51	-	30,945,856	-
2121	-	710,798,354	710,798,354	27	-	32,028,961	-
2122	-	735,676,296	735,676,296	13	-	33,149,975	-
2123	-	761,424,966	761,424,966	7	-	34,310,224	-
2124	-	788,074,840	788,074,840	3	-	35,511,082	-
2125	-	815,657,459	815,657,459	2	-	36,753,970	-
2126	-	844,205,470	844,205,470	1	-	38,040,359	-
2127	-	873,752,661	873,752,661	-	-	39,371,771	-

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	14,626,403	3,839,864	1,141,254	-	4,325,944	21,650,957
2022	21,650,957	1,530,058	1,278,494	-	1,415,488	23,318,009
2023	23,318,009	1,476,993	1,328,274	-	1,520,504	24,987,231
2024	24,987,231	1,435,937	1,380,534	-	1,625,971	26,668,606
2025	26,668,606	1,393,571	1,459,387	-	1,731,320	28,334,110
2026	28,334,110	1,355,062	1,527,042	-	1,836,128	29,998,258
2027	29,998,258	1,319,767	1,573,186	-	1,941,651	31,686,490
2028	31,686,490	1,288,909	1,698,473	-	2,046,311	33,323,237
2029	33,323,237	1,254,374	1,831,525	-	2,147,253	34,893,339
2030	34,893,339	1,223,904	1,904,623	-	2,245,944	36,458,565
2031	36,458,565	1,194,163	2,002,706	-	2,343,529	37,993,550
2032	37,993,550	1,195,123	2,122,033	-	2,439,456	39,506,096
2033	39,506,096	1,195,546	2,205,304	-	2,535,079	41,031,417
2034	41,031,417	1,198,594	2,291,283	-	2,631,530	42,570,258
2035	42,570,258	1,234,165	2,408,908	-	2,728,888	44,124,403
2036	44,124,403	1,193,739	2,450,247	-	2,827,250	45,695,145
2037	45,695,145	1,238,560	2,583,223	-	2,926,483	47,276,965
2038	47,276,965	1,324,716	2,757,229	-	3,026,446	48,870,898
2039	48,870,898	1,261,064	2,783,522	-	3,127,129	50,475,569
2040	50,475,569	1,216,423	2,830,463	-	3,228,456	52,089,985
2041	52,089,985	1,205,013	2,910,117	-	3,330,433	53,715,314
2042	53,715,314	1,239,832	3,038,277	-	3,433,046	55,349,915
2043	55,349,915	1,252,702	3,146,632	-	3,536,192	56,992,177
2044	56,992,177	1,318,803	3,311,678	-	3,639,723	58,639,025
2045	58,639,025	1,270,264	3,369,486	-	3,743,312	60,283,115
2046	60,283,115	1,302,903	3,507,761	-	3,846,745	61,925,002
2047	61,925,002	1,246,738	3,557,485	-	3,950,026	63,564,281
2048	63,564,281	1,238,608	3,654,217	-	4,053,171	65,201,843
2049	65,201,843	1,202,181	3,724,894	-	4,156,132	66,835,262
2050	66,835,262	1,239,575	3,874,331	-	4,258,662	68,459,168
2051	68,459,168	1,298,777	4,048,913	-	4,360,467	70,069,499
2052	70,069,499	1,085,471	3,952,767	-	4,461,330	71,663,533
2053	71,663,533	972,061	3,961,946	-	4,560,958	73,234,606
2054	73,234,606	858,924	3,969,179	-	4,659,166	74,783,517

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)
2055	74,783,517	718,292	3,953,218	-	4,755,794	76,304,385
2056	76,304,385	601,447	3,963,470	-	4,850,519	77,792,881
2057	77,792,881	475,104	3,966,005	-	4,943,083	79,245,063
2058	79,245,063	272,900	3,897,629	-	5,033,125	80,653,459
2059	80,653,459	69,019	3,832,412	-	5,120,165	82,010,231
2060	82,010,231	-	3,785,874	-	5,207,624	83,431,981
2061	83,431,981	-	3,559,972	-	5,307,380	85,179,389
2062	85,179,389	-	3,533,157	-	5,421,833	87,068,065
2063	87,068,065	-	3,462,037	-	5,546,908	89,152,936
2064	89,152,936	-	3,331,372	-	5,686,671	91,508,235
2065	91,508,235	-	3,330,117	-	5,839,807	94,017,925
2066	94,017,925	-	3,283,596	-	6,004,448	96,738,777
2067	96,738,777	-	3,265,471	-	6,181,893	99,655,199
2068	99,655,199	-	3,214,348	-	6,373,122	102,813,973
2069	102,813,973	-	3,179,101	-	6,579,587	106,214,459
2070	106,214,459	-	3,122,401	-	6,802,462	109,894,520
2071	109,894,520	-	3,046,647	-	7,044,128	113,892,001
2072	113,892,001	-	2,993,980	-	7,305,676	118,203,697
2073	118,203,697	-	2,923,192	-	7,588,237	122,868,742
2074	122,868,742	-	2,856,685	-	7,893,626	127,905,683
2075	127,905,683	-	2,768,399	-	8,223,896	133,361,180
2076	133,361,180	-	2,682,246	-	8,581,304	139,260,238
2077	139,260,238	-	2,589,527	-	8,967,756	145,638,467
2078	145,638,467	-	2,491,688	-	9,385,521	152,532,300
2079	152,532,300	-	2,397,862	-	9,836,669	159,971,107
2080	159,971,107	-	2,281,881	-	10,323,961	168,013,187
2081	168,013,187	-	2,177,939	-	10,850,074	176,685,322
2082	176,685,322	-	2,056,593	-	11,417,707	186,046,436
2083	186,046,436	-	1,940,041	-	12,029,967	196,136,362
2084	196,136,362	-	1,821,176	-	12,689,675	207,004,861
2085	207,004,861	-	1,688,392	-	13,400,443	218,716,912
2086	218,716,912	-	1,567,446	-	14,165,657	231,315,123
2087	231,315,123	-	1,433,870	-	14,988,882	244,870,135
2088	244,870,135	-	1,308,037	-	15,874,048	259,436,146

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)
2089	259,436,146	-	1,183,616	-	16,824,882	275,077,412
2090	275,077,412	-	1,056,919	-	17,845,682	291,866,175
2091	291,866,175	-	940,932	-	18,940,721	309,865,964
2092	309,865,964	-	825,390	-	20,114,463	329,155,037
2093	329,155,037	-	719,242	-	21,371,702	349,807,497
2094	349,807,497	-	617,464	-	22,717,420	371,907,453
2095	371,907,453	-	525,510	-	24,156,905	395,538,848
2096	395,538,848	-	441,941	-	25,695,662	420,792,569
2097	420,792,569	-	366,694	-	27,339,599	447,765,474
2098	447,765,474	-	300,928	-	29,094,976	476,559,522
2099	476,559,522	-	242,983	-	30,968,472	507,285,011
2100	507,285,011	-	193,275	-	32,967,244	540,058,980
2101	540,058,980	-	151,080	-	35,098,924	575,006,824
2102	575,006,824	-	116,354	-	37,371,662	612,262,132
2103	612,262,132	-	88,112	-	39,794,175	651,968,195
2104	651,968,195	-	65,606	-	42,375,801	694,278,390
2105	694,278,390	-	48,011	-	45,126,535	739,356,914
2106	739,356,914	-	34,520	-	48,057,078	787,379,472
2107	787,379,472	-	24,398	-	51,178,873	838,533,947
2108	838,533,947	-	16,959	-	54,504,155	893,021,143
2109	893,021,143	-	11,597	-	58,045,997	951,055,543
2110	951,055,543	-	7,799	-	61,818,357	1,012,866,101
2111	1,012,866,101	-	5,167	-	65,836,129	1,078,697,063
2112	1,078,697,063	-	3,372	-	70,115,200	1,148,808,891
2113	1,148,808,891	-	2,165	-	74,672,508	1,223,479,234
2114	1,223,479,234	-	1,365	-	79,526,106	1,303,003,975
2115	1,303,003,975	-	847	-	84,695,231	1,387,698,359
2116	1,387,698,359	-	516	-	90,200,377	1,477,898,220
2117	1,477,898,220	-	304	-	96,063,374	1,573,961,290
2118	1,573,961,290	-	176	-	102,307,478	1,676,268,592
2119	1,676,268,592	-	98	-	108,957,455	1,785,225,949
2120	1,785,225,949	-	51	-	116,039,685	1,901,265,583
2121	1,901,265,583	-	27	-	123,582,262	2,024,847,818
2122	2,024,847,818	-	13	-	131,615,108	2,156,462,913

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)
2123	2,156,462,913	-	7	-	140,170,089	2,296,632,995
2124	2,296,632,995	-	3	-	149,281,145	2,445,914,137
2125	2,445,914,137	-	2	-	158,984,419	2,604,898,554
2126	2,604,898,554	-	1	-	169,318,406	2,774,216,959
2127	2,774,216,959	-	-	-	180,324,102	2,954,541,061

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) = 6.5%
2022	21,650,957	1,278,494	1,278,494	-	1,238,865	-	1,238,865
2023	23,318,009	1,328,274	1,328,274	-	1,208,546	-	1,208,546
2024	24,987,231	1,380,534	1,380,534	-	1,179,432	-	1,179,432
2025	26,668,606	1,459,387	1,459,387	-	1,170,703	-	1,170,703
2026	28,334,110	1,527,042	1,527,042	-	1,150,212	-	1,150,212
2027	29,998,258	1,573,186	1,573,186	-	1,112,647	-	1,112,647
2028	31,686,490	1,698,473	1,698,473	-	1,127,941	-	1,127,941
2029	33,323,237	1,831,525	1,831,525	-	1,142,065	-	1,142,065
2030	34,893,339	1,904,623	1,904,623	-	1,115,160	-	1,115,160
2031	36,458,565	2,002,706	2,002,706	-	1,101,022	-	1,101,022
2032	37,993,550	2,122,033	2,122,033	-	1,095,421	-	1,095,421
2033	39,506,096	2,205,304	2,205,304	-	1,068,927	-	1,068,927
2034	41,031,417	2,291,283	2,291,283	-	1,042,818	-	1,042,818
2035	42,570,258	2,408,908	2,408,908	-	1,029,439	-	1,029,439
2036	44,124,403	2,450,247	2,450,247	-	983,197	-	983,197
2037	45,695,145	2,583,223	2,583,223	-	973,292	-	973,292
2038	47,276,965	2,757,229	2,757,229	-	975,448	-	975,448
2039	48,870,898	2,783,522	2,783,522	-	924,648	-	924,648
2040	50,475,569	2,830,463	2,830,463	-	882,856	-	882,856
2041	52,089,985	2,910,117	2,910,117	-	852,301	-	852,301
2042	53,715,314	3,038,277	3,038,277	-	835,527	-	835,527
2043	55,349,915	3,146,632	3,146,632	-	812,511	-	812,511
2044	56,992,177	3,311,678	3,311,678	-	802,938	-	802,938
2045	58,639,025	3,369,486	3,369,486	-	767,093	-	767,093
2046	60,283,115	3,507,761	3,507,761	-	749,833	-	749,833
2047	61,925,002	3,557,485	3,557,485	-	714,049	-	714,049
2048	63,564,281	3,654,217	3,654,217	-	688,699	-	688,699
2049	65,201,843	3,724,894	3,724,894	-	659,173	-	659,173
2050	66,835,262	3,874,331	3,874,331	-	643,773	-	643,773
2051	68,459,168	4,048,913	4,048,913	-	631,721	-	631,721
2052	70,069,499	3,952,767	3,952,767	-	579,079	-	579,079
2053	71,663,533	3,961,946	3,961,946	-	544,999	-	544,999

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) = 6.5%
2054	73,234,606	3,969,179	3,969,179	-	512,671	-	512,671
2055	74,783,517	3,953,218	3,953,218	-	479,445	-	479,445
2056	76,304,385	3,963,470	3,963,470	-	451,351	-	451,351
2057	77,792,881	3,966,005	3,966,005	-	424,075	-	424,075
2058	79,245,063	3,897,629	3,897,629	-	391,327	-	391,327
2059	80,653,459	3,832,412	3,832,412	-	361,295	-	361,295
2060	82,010,231	3,785,874	3,785,874	-	335,125	-	335,125
2061	83,431,981	3,559,972	3,559,972	-	295,895	-	295,895
2062	85,179,389	3,533,157	3,533,157	-	275,743	-	275,743
2063	87,068,065	3,462,037	3,462,037	-	253,701	-	253,701
2064	89,152,936	3,331,372	3,331,372	-	229,226	-	229,226
2065	91,508,235	3,330,117	3,330,117	-	215,155	-	215,155
2066	94,017,925	3,283,596	3,283,596	-	199,201	-	199,201
2067	96,738,777	3,265,471	3,265,471	-	186,011	-	186,011
2068	99,655,199	3,214,348	3,214,348	-	171,924	-	171,924
2069	102,813,973	3,179,101	3,179,101	-	159,661	-	159,661
2070	106,214,459	3,122,401	3,122,401	-	147,242	-	147,242
2071	109,894,520	3,046,647	3,046,647	-	134,901	-	134,901
2072	113,892,001	2,993,980	2,993,980	-	124,478	-	124,478
2073	118,203,697	2,923,192	2,923,192	-	114,118	-	114,118
2074	122,868,742	2,856,685	2,856,685	-	104,715	-	104,715
2075	127,905,683	2,768,399	2,768,399	-	95,285	-	95,285
2076	133,361,180	2,682,246	2,682,246	-	86,685	-	86,685
2077	139,260,238	2,589,527	2,589,527	-	78,581	-	78,581
2078	145,638,467	2,491,688	2,491,688	-	70,997	-	70,997
2079	152,532,300	2,397,862	2,397,862	-	64,154	-	64,154
2080	159,971,107	2,281,881	2,281,881	-	57,325	-	57,325
2081	168,013,187	2,177,939	2,177,939	-	51,374	-	51,374
2082	176,685,322	2,056,593	2,056,593	-	45,551	-	45,551
2083	186,046,436	1,940,041	1,940,041	-	40,347	-	40,347
2084	196,136,362	1,821,176	1,821,176	-	35,563	-	35,563
2085	207,004,861	1,688,392	1,688,392	-	30,958	-	30,958

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) = 6.5%
2086	218,716,912	1,567,446	1,567,446	-	26,986	-	26,986
2087	231,315,123	1,433,870	1,433,870	-	23,180	-	23,180
2088	244,870,135	1,308,037	1,308,037	-	19,855	-	19,855
2089	259,436,146	1,183,616	1,183,616	-	16,870	-	16,870
2090	275,077,412	1,056,919	1,056,919	-	14,145	-	14,145
2091	291,866,175	940,932	940,932	-	11,824	-	11,824
2092	309,865,964	825,390	825,390	-	9,739	-	9,739
2093	329,155,037	719,242	719,242	-	7,969	-	7,969
2094	349,807,497	617,464	617,464	-	6,423	-	6,423
2095	371,907,453	525,510	525,510	-	5,133	-	5,133
2096	395,538,848	441,941	441,941	-	4,053	-	4,053
2097	420,792,569	366,694	366,694	-	3,158	-	3,158
2098	447,765,474	300,928	300,928	-	2,433	-	2,433
2099	476,559,522	242,983	242,983	-	1,845	-	1,845
2100	507,285,011	193,275	193,275	-	1,378	-	1,378
2101	540,058,980	151,080	151,080	-	1,011	-	1,011
2102	575,006,824	116,354	116,354	-	731	-	731
2103	612,262,132	88,112	88,112	-	520	-	520
2104	651,968,195	65,606	65,606	-	364	-	364
2105	694,278,390	48,011	48,011	-	250	-	250
2106	739,356,914	34,520	34,520	-	169	-	169
2107	787,379,472	24,398	24,398	-	112	-	112
2108	838,533,947	16,959	16,959	-	73	-	73
2109	893,021,143	11,597	11,597	-	47	-	47
2110	951,055,543	7,799	7,799	-	30	-	30
2111	1,012,866,101	5,167	5,167	-	18	-	18
2112	1,078,697,063	3,372	3,372	-	11	-	11
2113	1,148,808,891	2,165	2,165	-	7	-	7
2114	1,223,479,234	1,365	1,365	-	4	-	4
2115	1,303,003,975	847	847	-	2	-	2
2116	1,387,698,359	516	516	-	1	-	1
2117	1,477,898,220	304	304	-	1	-	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) = 6.5%
2118	1,573,961,290	176	176	-	-	-	-
2119	1,676,268,592	98	98	-	-	-	-
2120	1,785,225,949	51	51	-	-	-	-
2121	1,901,265,583	27	27	-	-	-	-
2122	2,024,847,818	13	13	-	-	-	-
2123	2,156,462,913	7	7	-	-	-	-
2124	2,296,632,995	3	3	-	-	-	-
2125	2,445,914,137	2	2	-	-	-	-
2126	2,604,898,554	1	1	-	-	-	-
2127	2,774,216,959	-	-	-	-	-	-

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	-	7.71	-	-	-	-	-	-	-	-	-	-
2019	(1,661,369)	7.96	(208,715)	(208,715)	(208,715)	(208,715)	(208,715)	(200,364)	-	-	-	-
2020	-	7.96	-	-	-	-	-	-	-	-	-	-
2021	(9,876,472)	7.50	(1,316,863)	(1,316,863)	(1,316,863)	(1,316,863)	(1,316,863)	(1,316,863)	(1,316,863)	(658,431)	-	-
Net Increase (Decrease) in OPEB Expense			(1,525,578)	(1,525,578)	(1,525,578)	(1,525,578)	(1,525,578)	(1,517,227)	(1,316,863)	(658,431)	-	-

Year	Changes of Assumptions	Recognition Period (Years)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2018	-	7.71	-	-	-	-	-	-	-	-	-	-
2019	2,595,779	7.96	326,103	326,103	326,103	326,103	326,103	313,058	-	-	-	-
2020	3,264,788	7.96	410,149	410,149	410,149	410,149	410,149	410,149	393,745	-	-	-
2021	2,019,866	7.50	269,315	269,315	269,315	269,315	269,315	269,315	269,315	134,661	-	-
Net Increase (Decrease) in OPEB Expense			1,005,567	1,005,567	1,005,567	1,005,567	1,005,567	992,522	663,060	134,661	-	-

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	125,075	5	25,015	25,015	-	-	-	-	-	-	-	-
2019	75,432	5	15,086	15,087	15,087	-	-	-	-	-	-	-
2020	702,166	5	140,433	140,433	140,433	140,434	-	-	-	-	-	-
2021	(3,240,895)	5	(648,179)	(648,179)	(648,179)	(648,179)	(648,179)	-	-	-	-	-
Net Increase (Decrease) in OPEB Expense			(467,645)	(467,644)	(492,659)	(507,745)	(648,179)	-	-	-	-	-