



TOWN OF OXFORD, MASSACHUSETTS

OTHER POSTEMPLOYMENT BENEFITS PROGRAM

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

Disclosures as of
June 30, 2023

KMS Actuarial, LLC
52 Hunt Road
Kingston, NH 03848

December, 2023



December 18, 2023

Ms. Katie McKenna
Finance Director
Town of Oxford
325 Main Street
Oxford, MA 01540

Dear Katie:

We are pleased to present the enclosed report of the July 1, 2022 actuarial valuation of the retiree health care benefits for the Town of Oxford. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2023 under the following Governmental Accounting Standards Board (GASB) Statements:

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

Results are based on liabilities developed in an actuarial valuation performed as of July 1, 2022 and rolled forward to the plan's measurement date of June 30, 2023.

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

Our calculations are based on member census data and other information provided by the Town of Oxford 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 3.73%, the rate that reflects a blended-rate of the long-term expected rate of return on OPEB plan assets and the municipal bond rate. The municipal bond rate of 3.65% is based on the Bond Buyer 20-Bond GO Index published on June 30, 2023. The long-term expected rate of return is 6%. The long-term expected rate of return is based on the target allocations provided in the investment policy statement and long-term expected rates of return by asset class provided by the Town's investment consultant, Bartholomew & Company.

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

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques. The potential range of future measurements was not assessed as it was outside the scope of the project.

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 valuation report is intended for the sole use of the Town of Oxford and may only be provided to other parties in its entirety, unless expressly authorized by KMS Actuaries. Further, it is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

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

Ms. Katie McKenna
December 18, 2023
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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. All other assumptions and methods have been selected based on the expertise of the undersigned pension actuaries, Linda L. Bournival, FSA, EA and Amanda J. Makarevich, FSA.

The undersigned credentialed actuaries agree that the analysis, assumptions and results are overall reasonable. They 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.

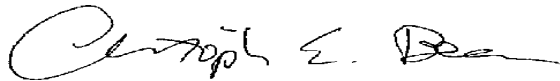
Respectfully submitted,



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EXECUTIVE SUMMARY

Purpose of Report

This report presents the results of the actuarial valuation of the Town of Oxford's retiree health care benefits as of July 1, 2022. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2023 under the following Governmental Accounting Standards Board (GASB) Statements:

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

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

GASB Accounting Standards

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

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

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

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

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

EXECUTIVE SUMMARY

Town of Oxford Other Postemployment Benefits Program

The Town of Oxford 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, 2023	June 30, 2022	% Change
Valuation Date	July 1, 2022	July 1, 2020	
Membership Data			
Active Plan Members	409	383	6.8%
Inactive Plan Members (excludes covered spouses)	200	202	(1.0%)
Total Plan Members	609	585	4.1%
Covered Spouses	80	81	(1.2%)
Covered Payroll	\$25,594,959	\$23,785,211	7.6%
Net OPEB Liability			
Discount Rate	3.73%	3.64%	
Total OPEB Liability (TOL)	\$35,858,927	\$49,403,689	(27.4%)
Fiduciary Net Position (FNP)	\$5,370,082	\$4,915,919	9.2%
Net OPEB Liability	\$30,488,845	\$44,487,770	(31.5%)
FNP as % of TOL	15.0%	10.0%	50.0%
OPEB Expense (Income)			
OPEB Expense (Income)	(\$13,660,156)	\$1,986,944	
Deferred Outflows	\$10,226,869	\$13,986,785	
Deferred Inflows	\$23,302,132	\$27,734,423	
Recognition Period	7.59	7.01	

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 \$1,098,000. This gain is primarily attributable to the following:

- ◆ a gain due to active employee turnover replaced by lower service employees
- ◆ a gain due to fewer retirements with coverage than expected since the prior valuation
- ◆ a gain due to more retirees dying or dropping coverage than expected since the prior valuation
- ◆ a loss due to the inclusion of both active employees who were hired prior to June 30, 2021 and retirees who were retired prior to June 30, 2021 who were not included in the prior valuation's census data
- ◆ a loss due to a decrease in the average age of the active employee population

Changes of Assumptions

The discount rate changed from 3.64% as of June 30, 2022 to 3.73% as of June 30, 2023. In addition, many other assumptions were updated in this valuation, including the inflation rate, healthcare trend rates, and mortality improvement rates. A summary of the impact on the Total OPEB Liability (TOL) of each assumption change is provided below:

◆ Decrease due to change in Inflation Assumption	(103,000)
◆ Increase due to change in Trend Assumption	659,000
◆ Decrease due to change in Mortality Improvement Rates	(455,000)
◆ Decrease due to change in Discount Rate	(517,000)
Total	\$ (416,000)

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

Changes of Benefit Terms

The Town moved from offering Fallon non-Medicare health plans to offering Harvard Pilgrim non-Medicare health plans since the prior valuation. The Town also replaced the Medicare plans previously offered with an Aetna Medicare Advantage PPO. The impact of this benefit change is a gain of approximately \$10,462,000.

Additionally, sixteen inactive retired Plan members previously ineligible for Medicare migrated to Medicare in 2023. The impact of the changes to those retirees' Medicare eligibility statuses offset by Town reimbursement of Part A premiums and penalties and Part B penalties (approximately \$146,000 for FY2023) is a gain of approximately \$4,108,000.

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, 2023, is \$35,858,927. The Total OPEB Liability as of the prior measurement date, June 30, 2022, was \$49,403,689. During the current measurement period ending June 30, 2023, the Total OPEB Liability decreased by \$13,544,762, or -27.4%. The development of the Total OPEB Liability for the current measurement period is shown in Section 1, Exhibit 1.2.

EXECUTIVE SUMMARY

Fiduciary Net Position

The Fiduciary Net Position is equal to the market value of assets and as of the current measurement date, June 30, 2023, is \$5,370,082. The Fiduciary Net Position as of the prior measurement date, June 30, 2022, was \$4,915,919. During the plan years ended June 30, 2023 and June 30, 2022, the actual rates of return were 7.82% and -14.16%, respectively. The expected long-term rate of return is 6.00%. The Fiduciary Net Position is shown in Section 1, Exhibit 1.1.

Employer Future Period Contributions

Future contributions for fiscal years 2024 through 2050 are assumed to be made according to the funding schedule provided by the Town.

Discount Rate

As of the June 30, 2023 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 9 periods of projected future benefit payments and the 3.65% 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 3.73%.

OPEB Expense (Income)

The OPEB Income for the current measurement period ending June 30, 2023, is \$13,660,156. Benefit changes are recognized immediately and experience gains and losses and assumption changes developed in this valuation are recognized over 7.59 years. Investment gains and losses are recognized over 5 years. The OPEB Expense for the prior measurement period was \$1,986,944. 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, other than medical trend rates in the short term, do not reflect the potential impact of the COVID-19 pandemic on the OPEB program. Especially in the short range, it is very likely that the pandemic materially affected 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, contributions from employers to the OPEB trust and earnings on those contributions 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	2023	2022
Trust Fund Composition at Fiscal Year-End		
Domestic Equities	\$2,265,616	\$1,922,203
Domestic Bonds	1,044,449	1,095,315
Alternatives	778,277	723,339
International Equities	1,040,981	894,882
International Bonds	229,077	237,804
Cash and Equivalents	11,682	42,376
Total Market Value of Assets	\$5,370,082	\$4,915,919
Asset Activity		
Market value, beginning of year	\$4,915,919	\$5,666,289
Employer Premiums	946,144	1,214,444
OPEB Trust Contributions	65,000	60,000
Benefit Payments	(946,144)	(1,214,444)
Administrative Expenses	-	-
Investment Return	389,163	(810,370)
Market value, end of year	\$5,370,082	\$4,915,919
Money-Weighted Rate of Return	7.82%	-14.16%
(Gain) / Loss on OPEB Plan Investments		
Projected earnings	\$323,398	\$371,875
Actual earnings	389,163	(810,370)
(Gain) / Loss on OPEB plan investments	(\$65,765)	\$1,182,245

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, 2023 measurement date was developed from an actuarial valuation as of July 1, 2022 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, 2022 to the end of the measurement period, June 30, 2023 is shown below:

Measurement Date	June 30, 2023
1. Total OPEB Liability, beginning of year:	
a. Actives	\$26,549,141
b. Retirees, Covered Spouses and Survivors	22,854,548
c. Total OPEB Liability at 3.64% (a. + b.)	\$49,403,689
2. Service Cost	\$1,988,505
3. Expected Benefit Payments	
a. Current retirees	(\$857,936)
b. Future retirees	(88,208)
c. Total (a. + b.)	(\$946,144)
4. Interest [3.64% x (1.c. + 2. + .5 x 3.c)]	\$1,853,456
5. Changes of benefit terms	(\$14,926,994)
6. Differences between expected and actual experience	(\$1,098,495)
7. Changes of assumptions or other inputs	(\$415,090)
8. Total OPEB Liability, end of year (1.c. + 2. + 3.c. + 4. + 5. + 6. + 7.)	
a. Actives	\$20,864,360
b. Retirees, Covered Spouses and Survivors	14,994,567
c. Total OPEB Liability at 3.73% (a. + b.)	\$35,858,927

SECTION 1 - PRINCIPAL VALUATION RESULTS

Exhibit 1.3 - Development of Actuarially Determined Employer Contributions

Future contributions for fiscal years 2024 through 2050 are assumed to be made according to the funding schedule provided by the Town.

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

Fiscal Year Ending	June 30, 2023	June 30, 2024
Discount Rate	3.64%	3.73%
1. Normal Cost	\$1,988,505	\$1,975,146
2. Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$49,403,689	\$35,858,927
b. Actuarial Value of Plan Assets	\$4,915,919	\$5,370,082
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$44,487,770	\$30,488,845
3. Amortization of Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability	\$44,487,770	\$30,488,845
b. Amortization Period in years	30	30
c. Payroll Growth Rate	0.0%	0.0%
d. Amortization Factor	18.73	18.54
e. Amortization Amount (3.a. / 3.d.)	\$2,375,215	\$1,644,490
4. Interest on 1. and 3.e.	\$158,839	\$135,012
5. Actuarially Determined Employer Contribution (1. + 3.e. + 4.)	\$4,522,559	\$3,754,648
6. Actual Employer Contribution to OPEB Trust	\$65,000	TBD
7. Expected Benefit Payments	\$946,144	
8. Total Contribution (6. + 7.)	\$1,011,144	

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.1 - Plan Description

Plan Administration

The Town of Oxford 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, 2023, OPEB plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefit payments ¹	200
Inactive plan members entitled to but not yet receiving benefit payments	0
Active plan members	409
	<u>609</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

Future contributions for fiscal years 2024 through 2050 are assumed to be made according to the funding schedule provided by the Town.

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.2 - Net OPEB Liability

The components of the net OPEB liability at June 30, 2023, were as follows:

Total OPEB liability	\$ 35,858,927
Fiduciary net position	(5,370,082)
Net OPEB liability	\$ 30,488,845

Fiduciary net position as a percentage of the total OPEB liability 14.98%

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of July 1, 2022, rolled forward to the measurement date and using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.5% per year, based on current economic data, analyses from economists and other experts, and professional judgment.
Discount rate	3.73%, net of investment expenses, including inflation.
Healthcare cost trend rate	8% for 2022, decreasing 0.5% per year to 6%, then grading down to an ultimate trend rate of 4.1%, utilizing the Society of Actuaries Getzen Medical Trend Model. The ultimate medical trend rate is reached in 2075.
Pre-Retirement Mortality - General and Public Safety employees	RP-2014 Blue Collar Employees Mortality Table, projected with generational mortality improvement using scale MP-2020.
Healthy Retiree Mortality - General and Public Safety employees	RP-2014 Blue Collar Healthy Annuitant Mortality Table, projected with generational mortality improvement using scale MP-2020.
Disabled Retiree Mortality - General and Public Safety employees	RP-2014 Blue Collar Mortality Table set forward one year with full generational mortality improvement using Scale MP-2020.

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.2 - Net OPEB Liability

Actuarial Assumptions (continued)

Pre-Retirement Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Employee Mortality Table, base year 2010, projected with generational mortality improvement using Scale MP-2020.
Healthy Retiree Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Retiree Mortality Table, base year 2010, projected with generational mortality improvement using Scale MP-2020.
Disabled Retiree Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Disabled Mortality Table, base year 2010, projected with generational mortality improvement using Scale MP-2020.

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, 2023 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rates of Return ¹
Domestic Equities	34%	3.90%
Domestic Bonds	20%	1.39%
Alternatives	20%	3.14%
International Equities	22%	5.75%
International Bonds	4%	1.21%
Cash and Equivalents	0%	0.00%
Total	100%	

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

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.2 - Net OPEB Liability

Discount Rate

The discount rate used to measure the total OPEB liability was 3.73%. 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 9 periods of projected future benefit payments and the 3.65% municipal bond rate was applied to all periods thereafter to determine the total 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 3.73 percent, as well as what the net OPEB liability would be if it were calculated using a discount rate 1-percentage point lower (2.73 percent) or 1-percentage point higher (4.73 percent) than the current rate:

	<u>1% Decrease (2.73%)</u>	<u>Assumed Discount Rate (3.73%)</u>	<u>1% Increase (4.73%)</u>
Total OPEB Liability	\$ 42,278,844	\$ 35,858,927	\$ 30,782,750
Fiduciary Net Position	(5,370,082)	(5,370,082)	(5,370,082)
Net OPEB Liability	\$ 36,908,762	\$ 30,488,845	\$ 25,412,668
% Change in Net OPEB Liability	21.1%		-16.6%

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

The following presents the net OPEB liability calculated using the current healthcare cost trend rates as well as what the net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage point lower (7% year 1 decreasing to 3.1%) or 1-percentage point higher (9% year 1 decreasing to 5.1%) than the current healthcare cost trend rates:

	<u>1% Decrease 7% Year 1 Decreasing to 3.1%</u>	<u>Assumed Healthcare Cost Trend Rates 8% Year 1 Decreasing to 4.1%</u>	<u>1% Increase 9% Year 1 Decreasing to 5.1%</u>
Total OPEB Liability	\$ 29,951,827	\$ 35,858,927	\$ 43,589,670
Fiduciary Net Position	(5,370,082)	(5,370,082)	(5,370,082)
Net OPEB Liability	\$ 24,581,745	\$ 30,488,845	\$ 38,219,588
% Change in Net OPEB Liability	-19.4%		25.4%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.1 - Changes in Net OPEB Liability and Related Ratios

Fiscal Year Ended June 30	2023	2022	2021	2020	2019
Total OPEB Liability					
Service cost	\$ 1,988,505	\$ 2,977,376	\$ 3,373,867	\$ 2,302,197	\$ 2,002,998
Interest	1,853,456	1,401,037	1,691,167	2,030,947	2,020,189
Changes of benefit terms	(14,926,994)	-	-	(1,414,740)	-
Differences between expected and actual experience	(1,098,495)	-	(14,613,935)	-	(7,382,205)
Changes of assumptions	(415,090)	(14,785,458)	(990,020)	15,841,429	9,827,250
Benefit payments	(946,144)	(1,214,444)	(1,121,084)	(1,323,440)	(1,241,476)
Net change in total OPEB liability	\$ (13,544,762)	\$ (11,621,489)	\$ (11,660,005)	\$ 17,436,393	\$ 5,226,756
Total OPEB liability—beginning	\$ 49,403,689	\$ 61,025,178	\$ 72,685,183	\$ 55,248,790	\$ 50,022,034
Total OPEB liability—ending (a)	\$ 35,858,927	\$ 49,403,689	\$ 61,025,178	\$ 72,685,183	\$ 55,248,790
Plan Fiduciary Net Position					
Contributions—employer	\$ 1,011,144	\$ 1,274,444	\$ 1,176,999	\$ 1,373,440	\$ 1,291,476
Net investment income	389,163	(810,370)	1,201,968	117,496	245,915
Benefit payments	(946,144)	(1,214,444)	(1,121,084)	(1,323,440)	(1,241,476)
Administrative expenses	-	-	-	-	-
Other	-	-	-	-	-
Net change in plan fiduciary net position	\$ 454,163	\$ (750,370)	\$ 1,257,883	\$ 167,496	\$ 295,915
Plan fiduciary net position—beginning	\$ 4,915,919	\$ 5,666,289	\$ 4,408,406	\$ 4,240,910	\$ 3,944,995
Plan fiduciary net position—ending (b)	\$ 5,370,082	\$ 4,915,919	\$ 5,666,289	\$ 4,408,406	\$ 4,240,910
Net OPEB liability—ending (a) – (b)	\$ 30,488,845	\$ 44,487,770	\$ 55,358,889	\$ 68,276,777	\$ 51,007,880
Plan fiduciary net position as a percentage of the total OPEB liability	14.98%	9.95%	9.29%	6.07%	7.68%
Covered payroll	\$ 25,594,959	\$ 23,785,211	\$ 20,991,040	\$ 21,580,097	\$ 20,730,793
Net OPEB liability as a percentage of covered payroll	119.12%	187.04%	263.73%	316.39%	246.05%
Discount Rate	3.73%	3.64%	2.21%	2.24%	3.57%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.1 - Changes in Net OPEB Liability and Related Ratios, continued

Fiscal Year Ended June 30	2018	2017
Total OPEB Liability		
Service cost	\$ 2,102,507	\$ 2,506,859
Interest	1,865,002	1,615,467
Changes of benefit terms	(20,706)	-
Differences between expected and actual experience	-	-
Changes of assumptions	(2,545,072)	(6,602,086)
Benefit payments	(1,309,320)	(1,196,195)
Net change in total OPEB liability	\$ 92,411	\$ (3,675,955)
Total OPEB liability—beginning	\$ 49,929,623	\$ 53,605,578
Total OPEB liability—ending (a)	\$ 50,022,034	\$ 49,929,623
Plan Fiduciary Net Position		
Contributions—employer	\$ 1,374,320	\$ 1,248,695
Net investment income	181,990	194,711
Benefit payments	(1,309,320)	(1,196,195)
Administrative expenses	-	-
Other	-	-
Net change in plan fiduciary net position	\$ 246,990	\$ 247,211
Plan fiduciary net position—beginning	\$ 3,698,005	\$ 3,450,794
Plan fiduciary net position—ending (b)	\$ 3,944,995	\$ 3,698,005
Net OPEB liability—ending (a) – (b)	\$ 46,077,039	\$ 46,231,618
Plan fiduciary net position as a percentage of the total OPEB liability	7.89%	7.41%
Covered payroll	\$ 22,414,238	\$ 22,036,578
Net OPEB liability as a percentage of covered payroll	205.57%	209.79%
Discount rate	3.93%	3.63%

Note: Only 7 years are presented here and on the previous page, beginning with the year of implementation; 10 years of information will be required.

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.1 - Changes in Net OPEB Liability and Related Ratios, continued

Changes of Benefit Terms

The Town moved from offering Fallon non-Medicare health plans to offering Harvard Pilgrim non-Medicare health plans since the prior valuation. The Town also replaced the Medicare plans previously offered with an Aetna Medicare Advantage PPO.

Changes of Assumptions

The discount rate changed from 3.64% as of June 30, 2022 to 3.73% as of June 30, 2023. In addition, many other assumptions were updated in this valuation, including the inflation rate, healthcare trend rates, and mortality improvement rates.

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.2 - Investment Returns

Fiscal Year Ended June 30	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expenses	7.82%	-14.16%	26.96%	2.75%	6.19%	4.91%	5.63%			

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

Note: Only 7 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, 2022	\$ 4,915,919	12	1.00	\$ 5,300,437
Monthly net external cash flows:				
July	65,000	11	0.92	69,646
August	-	10	0.83	-
September	-	9	0.75	-
October	-	8	0.67	-
November	-	7	0.58	-
December	-	6	0.50	-
January	-	5	0.42	-
February	-	4	0.33	-
March	-	3	0.25	-
April	-	2	0.17	-
May	-	1	0.08	-
June	-	0	0.00	-
Ending value - June 30, 2023				\$ 5,370,082
Money-weighted rate of return:				7.82%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.3 - Schedule of Employer Contributions

Fiscal Year Ended June 30	2023	2022	2021	2020	2019
Actuarially determined contribution	\$ 4,522,559	\$ 5,587,345	\$ 6,599,540	\$ 5,182,525	\$ 4,723,076
Contributions in relation to the actuarially determined contribution	<u>1,011,144</u>	<u>1,274,444</u>	<u>1,176,999</u>	<u>1,373,440</u>	<u>1,291,476</u>
Contribution deficiency (excess)	<u>\$ 3,511,415</u>	<u>\$ 4,312,901</u>	<u>\$ 5,422,541</u>	<u>\$ 3,809,085</u>	<u>\$ 3,431,600</u>
Covered payroll	\$ 25,594,959	\$ 23,785,211	\$ 20,991,040	\$ 21,580,097	\$20,730,793
Contributions as a percentage of covered payroll	3.95%	5.36%	5.61%	6.36%	6.23%
Discount rate	3.64%	2.21%	2.24%	3.57%	3.93%
Inflation	2.50%	2.40%	2.20%	2.40%	2.60%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.3 - Schedule of Employer Contributions, continued

Fiscal Year Ended June 30	2018	2017
Actuarially determined contribution	\$ 4,734,018	\$ 4,269,222
Contributions in relation to the actuarially determined contribution	<u>1,374,320</u>	<u>1,248,695</u>
Contribution deficiency (excess)	<u>\$ 3,359,698</u>	<u>\$ 3,020,527</u>
Covered payroll	\$ 22,414,238	\$ 22,036,578
Contributions as a percentage of covered payroll	6.13%	5.67%
Discount rate	3.63%	4.00%
Inflation	2.60%	2.60%

Note: Only 7 years are presented here and on the previous page, beginning with the year of implementation; 10 years of information will be required.

Notes to Schedule

Valuation date

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

Methods and assumptions as of current measurement date

Actuarial cost method	Entry Age Normal
Amortization method	Level dollar amount over 30 years on an open amortization period
Amortization period	30 years
Asset valuation method	Market value
Healthcare cost trend rates	8% for 2022, decreasing 0.5% per year to 6%, then grading down to an ultimate trend rate of 4.1%, utilizing the Society of Actuaries Getzen Medical Trend Model. The ultimate medical trend 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, 2023	
	Experience Losses	Experience Gains	Amounts Recognized in OPEB Expense through June 30, 2023	Deferred Outflows of Resources	Deferred Inflows of Resources	
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)	
2018	\$ -	\$ -	\$ -	\$ -	\$ -	
2019	-	7,382,205	(5,176,860)	-	2,205,345	
2020	-	-	-	-	-	
2021	-	14,613,935	(6,254,181)	-	8,359,754	
2022	-	-	-	-	-	
2023	-	1,098,495	(144,729)	-	953,766	
Total				<u>\$ -</u>	<u>\$ 11,518,865</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, 2023	
	Increases in the Total OPEB Liability	Decreases in the Total OPEB Liability	Amounts Recognized in OPEB Expense through June 30, 2023	Deferred Outflows of Resources	Deferred Inflows of Resources	
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)	
2018	\$ -	\$ 2,545,072	\$ (2,255,604)	\$ -	\$ 289,468	
2019	9,827,250	-	6,891,480	2,935,770	-	
2020	15,841,429	-	8,887,196	6,954,233	-	
2021	-	990,020	(423,690)	-	566,330	
2022	-	14,785,458	(4,218,390)	-	10,567,068	
2023	-	415,090	(54,689)	-	360,401	
Total				<u>\$ 9,890,003</u>	<u>\$ 11,783,267</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, 2023	
Year	Investment Earnings Less Than Projected (a)	Investment Earnings Greater Than Projected (b)	Amounts Recognized in OPEB Expense through June 30, 2023 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) + (c)	
2018	\$ 97,798	\$ -	\$ 97,798	\$ -	\$ -	
2019	52,114	-	52,114	-	-	
2020	202,726	-	162,180	40,546	-	
2021	-	901,036	(540,621)	-	360,415	
2022	1,182,245	-	472,898	709,347	-	
2023	-	65,765	(13,153)	-	52,612	
Subtotal				<u>\$ 749,893</u>	<u>\$ 413,027</u>	
Net				<u>\$ 336,866</u>	<u>\$ -</u>	

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

Year ended June 30		
2024	\$	(2,175,680)
2025	\$	(1,926,759)
2026	\$	(2,044,898)
2027	\$	(4,258,887)
2028	\$	(2,330,869)
Thereafter		(338,170)
Deferred Outflows	\$	10,226,869
Deferred Inflows	\$	23,302,132

SECTION 4 - EMPLOYER REPORTING AMOUNTS UNDER GASB 75

Exhibit 4.2 - OPEB Expense (Income)

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, 2023 is presented below:

Fiscal Year Ended June 30, 2023

Measurement Date	6/30/2023
1. Service cost	\$ 1,988,505
2. Interest on the total OPEB liability	
a. Total OPEB liability, beginning of year	49,403,689
b. Service cost, beginning of year	1,988,505
c. Benefit payments	<u>(946,144)</u>
d. Interest on total OPEB liability = 3.64% times (a. + b. + .5 times c.)	1,853,456
3. Differences between expected and actual experience	(3,264,828)
4. Changes of benefit terms	(14,926,994)
5. Changes of assumptions	919,047
6. Projected earnings on OPEB plan investments	
a. Plan fiduciary net position, beginning of year	4,915,919
b. Contributions - Employer	1,011,144
c. Benefit payments	(946,144)
d. Administrative expenses and other	<u>-</u>
e. Total projected earnings	(323,398)
7. Differences between projected and actual earnings on OPEB plan investments	94,056
8. OPEB plan administrative expenses	-
9. Other changes in fiduciary net position	-
10. Total OPEB Expense (Income)	<u>\$ (13,660,156)</u>

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, 2023	Individual	Family
Harvard Pilgrim Health Care HPI Focus	\$781.70	\$2,032.35
Harvard Pilgrim Health Care HPI Network	\$868.56	\$2,258.13
Harvard Pilgrim Health Care HPI PPO	\$1,461.20	\$3,799.12
Medicare Plans - January 1, 2023		
Aetna Medicare Advantage PPO	\$290.00	

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

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

Medicare Part B Penalty Reimbursement The Town reimburses the Medicare Part B late-enrollment penalty, if applicable, based on information provided in the retiree data.

Medicare Part A Reimbursement The Town reimburses the Medicare Part A premium and late-enrollment penalty, if applicable, based on information provided in the retiree data.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Dental Coverage

Dental coverage is not offered to retirees.

Life Insurance Coverage

Retirees are eligible for a \$1,000 life insurance benefit. The total monthly cost is \$0.74. Retirees contribute \$0.37 towards the monthly premiums.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date	July 1, 2022
Disclosure Date	June 30, 2023
GASB 75 Reporting Date	June 30, 2023
Long-Term Expected Rate of Return	<p>6%, net of investment expenses and including inflation at 2.5%. Previously, 6.5%.</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	3.65%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2023.
Discount Rate (GASB)	<p>3.73%, compounded annually, for the measurement as of June 30, 2023.</p> <p>3.64%, compounded annually, for the measurement as of June 30, 2022.</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)	3.64%, compounded annually, for development of the Actuarially Determined Contribution (ADEC) as of June 30, 2023.
Amortization Method	Level dollar amount over 30 years on an open amortization period for partial pre-funding.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Medical Trend Rates

Year	Trend
1	8.00%
2	7.50%
3	7.00%
4	6.50%
5	6.00%
Ultimate	4.10%

Trend rates after year 5 grade down to the ultimate rate of 4.1 percent utilizing the Society of Actuaries Getzen Medical Trend Model. The ultimate trend rate is reached in 2075.

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

Dental Trend Rates

Dental coverage is not offered to retirees.

Medicare Part A Trend Rates

2.5% per year.

Medicare Part B Trend Rates

5.5% per year.

Inflation

2.5% 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 - 75% of eligible retired employees will elect to participate.

Dental - Not offered to retired employees.

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

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

Dependent Status

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

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

For current retirees, the actual census information is used.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Medical Per Capita Costs

The following annual per capita costs are for the fiscal year beginning July 1, 2022 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	\$3,635	\$4,267	\$3,635	\$4,267
20-24	2,864	4,544	2,864	4,544
25-29	2,981	6,703	2,981	6,703
30-34	3,744	8,469	3,744	8,469
35-39	4,696	8,724	4,696	8,724
40-44	5,852	8,934	5,852	8,934
45-49	7,386	9,807	7,386	9,807
50-54	9,734	11,537	9,734	11,537
55-59	12,649	13,340	12,649	13,340
60-64	16,233	15,877	16,233	15,877
65-69	2,721	2,650	20,253	19,032
70-74	3,261	3,126	24,266	22,442
75-79	3,851	3,627	28,654	26,037
80-84	4,426	4,160	32,937	29,863
85-89	4,931	4,650	36,690	33,382
90-94	5,368	4,963	39,942	35,626
95+	5,705	4,799	42,453	34,453

Retiree Contributions

Annual per capita participant contributions for the fiscal year beginning July 1, 2022 are as follows:

Plan	Contribution
Non-Medicare	\$ 4,954
Medicare	1,675

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.

Actuarial Value of Assets

Market value of assets as of the disclosure date.

Census Data

Employee and retiree data were compiled and submitted by the Town as of June 30, 2023. We made reasonable adjustments for missing or invalid data.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Use of ProVal®

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

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

General and Public Safety Employees

Pre-Retirement Mortality

Pre-retirement mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Employees Mortality Table, projected with generational mortality improvement using scale MP-2020.

Healthy Retiree 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-2020.

Disabled Retiree Mortality - General and Public Safety

Disabled retiree mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Mortality Table set forward one year with full generational mortality improvement using Scale MP-2020.

Turnover Rates

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

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

Disability Rates

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

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

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

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

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

General and Public Safety Employees

Retirement Rates

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

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

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Teachers

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

Healthy Retiree 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 improvement using Scale MP-2020.

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

Turnover Rates Turnover rates for Teachers are as follows:

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

Disability Rates Disability rates for Teachers are as follows:

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

35% of the disabilities are job-related.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Teachers

Retirement Rates

Retirement rates for Teachers are as follows:

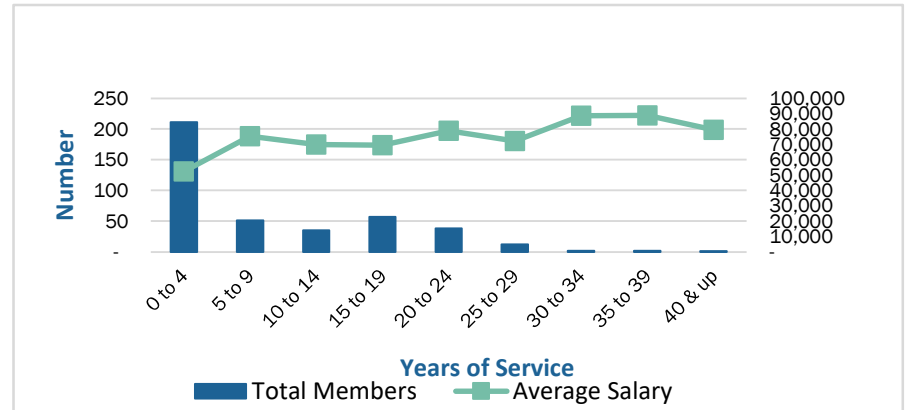
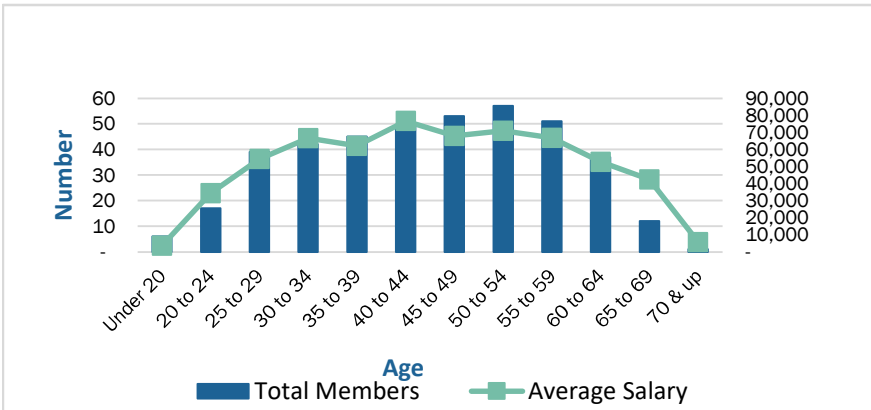
Age	Years of Service					
	Less than 20		20-29		30+	
	Male	Female	Male	Female	Male	Female
50	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
51	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
52	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
53	0.0%	0.0%	1.5%	1.0%	2.0%	1.5%
54	0.0%	0.0%	2.5%	1.0%	2.0%	2.0%
55	5.0%	3.0%	3.0%	3.0%	6.0%	5.0%
56	5.0%	3.0%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

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.1 - Active Members by Age and Years of Service as of July 1, 2022

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	6	-	-	-	-	-	-	-	-	-	6	22,317	3,720
20 to 24	16	1	-	-	-	-	-	-	-	-	17	583,153	34,303
25 to 29	36	3	-	-	-	-	-	-	-	-	39	2,123,322	54,444
30 to 34	31	10	1	-	-	-	-	-	-	-	42	2,798,697	66,636
35 to 39	23	10	8	3	1	-	-	-	-	-	45	2,792,465	62,055
40 to 44	21	6	5	11	6	-	-	-	-	-	49	3,756,928	76,672
45 to 49	26	3	8	7	9	-	-	-	-	-	53	3,599,883	67,922
50 to 54	18	10	4	13	9	3	-	-	-	-	57	4,042,087	70,914
55 to 59	19	4	5	11	5	4	2	1	-	-	51	3,408,076	66,825
60 to 64	7	4	3	11	7	3	-	1	1	-	37	1,953,196	52,789
65 to 69	7	-	1	1	1	2	-	-	-	-	12	509,117	42,426
70 & up	1	-	-	-	-	-	-	-	-	-	1	5,717	5,717
Total	211	51	35	57	38	12	2	2	1	409	25,594,959	62,579	
Total Salary	11,053,461	3,834,721	2,446,531	3,962,782	2,996,068	866,741	177,380	177,817	79,459				
Average Salary	52,386	75,191	69,901	69,522	78,844	72,228	88,690	88,909	79,459				

Average Age: 44.8 Average Service: 8.6



SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.2 - Retired Members, Covered Spouses and Survivors as of July 1, 2022

Age	Non-Medicare Plans			Medicare Plans		Total
	Harvard Pilgrim Health Care HPI Focus	Harvard Pilgrim Health Care HPI Network	Harvard Pilgrim Health Care HPI PPO	Aetna Medicare Advantage PPO		
Under 40	0	0	0	0		0
40 to 44	0	0	0	0		0
45 to 49	0	0	0	0		0
50 to 54	0	0	0	0		0
55 to 59	0	3	0	0		3
60 to 64	2	13	0	2		17
65 to 69	0	0	0	49		49
70 to 74	0	0	0	53		53
75 to 79	0	0	0	43		43
80 to 84	0	0	0	21		21
85 to 89	0	0	0	7		7
90+	0	0	0	4		4
Total	2	16	0	179		197
Covered Spouses	3	3	0	74		80

Average Age: 73.3

In addition, there are 3 retirees 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	115	294	409
Average Age	44.6	44.9	44.8
Average Service	8.6	8.6	8.6
Covered Payroll	8,472,535	17,122,424	25,594,959
Retired Members and Survivors	43	157	200
Average Age	71.2	73.9	73.3
Covered Spouses	15	65	80
Expected Benefit Payments	226,091	720,053	946,144
OPEB Trust contributions	16,922	48,078	65,000
Total Employer Contributions	243,013	768,131	1,011,144
Beginning Net OPEB Liability - June 30, 2022			
Total OPEB Liability	13,131,391	36,272,298	49,403,689
Fiduciary Net Position	1,306,640	3,609,279	4,915,919
Net OPEB Liability	11,824,751	32,663,019	44,487,770
Total OPEB Liability, beginning of year	13,131,391	36,272,298	49,403,689
Service cost	781,007	1,207,498	1,988,505
Interest	502,296	1,351,160	1,853,456
Changes of benefit terms	(2,851,757)	(12,075,237)	(14,926,994)
Differences between expected and actual experience	(1,837,252)	738,757	(1,098,495)
Changes of assumptions	(267,983)	(147,107)	(415,090)
Benefit payments	(226,091)	(720,053)	(946,144)
Net change in total OPEB liability	(3,899,780)	(9,644,982)	(13,544,762)
Total OPEB Liability, end of year	9,231,611	26,627,316	35,858,927
Ending Net OPEB Liability - June 30, 2023			
Total OPEB Liability	9,231,611	26,627,316	35,858,927
Fiduciary Net Position	1,398,026	3,972,056	5,370,082
Net OPEB Liability	7,833,585	22,655,260	30,488,845

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	2,628,741	7,261,262	9,890,003
Differences between Expected and Actual Earnings on OPEB Plan Investments	89,538	247,328	336,866
Total Deferred Outflows of Resources	2,718,279	7,508,590	10,226,869
Total Deferred Inflows of Resources			
Differences between Expected and Actual Experience	3,061,689	8,457,176	11,518,865
Changes in Assumptions	3,131,966	8,651,301	11,783,267
Differences between Expected and Actual Earnings on OPEB Plan Investments	0	0	0
Total Deferred Inflows of Resources	6,193,655	17,108,477	23,302,132
Total OPEB Expense (Income)	(3,896,102)	(9,764,054)	(13,660,156)
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate			
Current Discount Rate: 3.73%	7,833,585	22,655,260	30,488,845
1% Decrease in the Discount Rate: 2.73%	9,486,344	27,422,418	36,908,762
1% Increase in the Discount Rate: 4.73%	6,526,761	18,885,907	25,412,668
Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates			
Current Trend Rates	7,833,585	22,655,260	30,488,845
1% Decrease in Trend Rates	6,312,847	18,268,898	24,581,745
1% Increase in Trend Rates	9,823,807	28,395,781	38,219,588
Deferred Outflows of Resources and Deferred Inflows of Resources recognized in OPEB Expense			
2024	(578,291)	(1,597,389)	(2,175,680)
2025	(512,128)	(1,414,631)	(1,926,759)
2026	(543,529)	(1,501,369)	(2,044,898)
2027	(1,132,003)	(3,126,884)	(4,258,887)
2028	(619,540)	(1,711,329)	(2,330,869)
Thereafter	(89,885)	(248,285)	(338,170)

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.

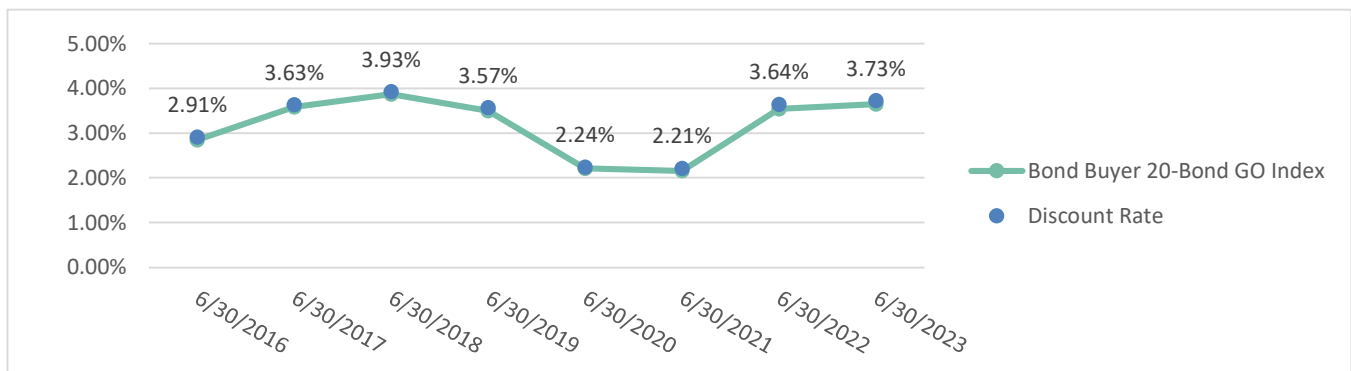
Projected cash flows into and out of the OPEB plan are assumed to be contributions to the OPEB plan, benefit payments, OPEB plan administrative expenses and OPEB plan investment earnings. These projected cash flows are used to project the OPEB plan's fiduciary net position at the beginning of each period. 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 3.73%, a long-term investment return rate of 6% and a municipal bond rate of 3.65%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2023. 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 9 periods of projected future benefit payments and the 3.65% 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 3.73%.

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) * 7.19%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2023	26,524,466	-	26,524,466	946,144	65,000	-	1,011,144
2024	25,028,129	2,424,693	27,452,822	1,027,783	70,000	174,449	923,334
2025	23,778,827	4,634,844	28,413,671	1,102,295	75,000	333,463	843,832
2026	22,656,245	6,751,904	29,408,149	1,198,066	80,000	485,779	792,287
2027	21,662,722	8,774,712	30,437,434	1,237,826	85,000	631,314	691,512
2028	20,794,934	10,707,810	31,502,744	1,354,562	90,000	770,394	674,168
2029	19,974,543	12,630,797	32,605,340	1,430,787	95,000	908,747	617,040
2030	19,142,851	14,603,676	33,746,527	1,563,610	100,000	1,050,690	612,920
2031	18,180,547	16,747,108	34,927,655	1,681,140	105,000	1,204,903	581,237
2032	17,418,469	18,731,654	36,150,123	1,847,889	110,000	1,347,685	610,204
2033	16,539,053	20,876,324	37,415,377	1,938,701	115,000	1,501,988	551,713
2034	15,697,651	23,027,264	38,724,915	2,041,067	120,000	1,656,741	504,326
2035	14,877,239	25,203,048	40,080,287	2,137,672	125,000	1,813,282	449,390
2036	13,921,170	27,561,927	41,483,097	2,247,137	130,000	1,982,996	394,141
2037	13,004,408	29,930,597	42,935,005	2,348,207	135,000	2,153,415	329,792
2038	12,141,219	32,296,511	44,437,730	2,398,782	140,000	2,323,635	215,147
2039	11,380,565	34,612,486	45,993,051	2,491,331	145,000	2,490,262	146,069
2040	10,675,696	36,927,112	47,602,808	2,596,950	150,000	2,656,792	90,158
2041	9,964,192	39,304,714	49,268,906	2,638,109	155,000	2,827,854	-
2042	9,302,264	41,691,054	50,993,318	2,633,011	160,000	2,999,544	-
2043	8,706,904	44,071,180	52,778,084	2,706,991	165,000	3,170,786	-
2044	8,107,883	46,517,434	54,625,317	2,737,950	170,000	3,346,787	-
2045	7,541,978	48,995,225	56,537,203	2,760,228	175,000	3,525,056	-
2046	7,016,713	51,499,292	58,516,005	2,798,031	180,000	3,705,216	-
2047	6,424,576	54,139,489	60,564,065	2,919,124	185,000	3,895,170	-
2048	5,904,192	56,779,615	62,683,807	2,971,177	190,000	4,085,119	-
2049	5,448,880	59,428,860	64,877,740	2,879,997	195,000	4,275,724	-
2050	4,990,136	62,158,325	67,148,461	2,879,894	200,000	4,472,101	-
2051	4,569,043	64,929,614	69,498,657	2,879,988	-	4,671,487	-
2052	4,154,589	67,776,521	71,931,110	2,865,945	-	4,876,313	-
2053	3,737,460	70,711,239	74,448,699	2,868,106	-	5,087,457	-
2054	3,327,882	73,726,521	77,054,403	2,943,639	-	5,304,397	-

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) * 7.19%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2055	2,813,938	76,937,369	79,751,307	2,999,089	-	5,535,408	-
2056	2,389,980	80,152,623	82,542,603	3,079,812	-	5,766,735	-
2057	1,959,395	83,472,199	85,431,594	3,083,026	-	6,005,569	-
2058	1,574,483	86,847,217	88,421,700	3,056,295	-	6,248,391	-
2059	1,259,486	90,256,974	91,516,460	3,102,803	-	6,493,713	-
2060	1,006,990	93,712,546	94,719,536	3,036,851	-	6,742,330	-
2061	786,938	97,247,782	98,034,720	3,039,424	-	6,996,680	-
2062	594,625	100,871,310	101,465,935	3,082,004	-	7,257,381	-
2063	440,628	104,576,615	105,017,243	2,978,575	-	7,523,967	-
2064	299,316	108,393,531	108,692,847	2,966,975	-	7,798,582	-
2065	219,911	112,277,186	112,497,097	2,962,555	-	8,077,999	-
2066	165,942	116,268,553	116,434,495	2,927,050	-	8,365,166	-
2067	124,241	120,385,461	120,509,702	2,862,632	-	8,661,365	-
2068	84,768	124,642,774	124,727,542	2,838,900	-	8,967,665	-
2069	61,649	129,031,357	129,093,006	2,825,728	-	9,283,411	-
2070	36,284	133,574,977	133,611,261	2,783,387	-	9,610,310	-
2071	25,424	138,262,231	138,287,655	2,741,807	-	9,947,544	-
2072	15,398	143,112,325	143,127,723	2,691,813	-	10,296,493	-
2073	12,129	148,125,064	148,137,193	2,650,713	-	10,657,144	-
2074	6,200	153,315,795	153,321,995	2,601,581	-	11,030,601	-
2075	4,832	158,683,433	158,688,265	2,550,587	-	11,416,786	-
2076	3,834	164,238,520	164,242,354	2,478,286	-	11,816,458	-
2077	1,173	169,989,663	169,990,836	2,409,014	-	12,230,235	-
2078	33	175,940,482	175,940,515	2,346,847	-	12,658,378	-
2079	-	182,098,433	182,098,433	2,252,761	-	13,101,424	-
2080	-	188,471,878	188,471,878	2,166,518	-	13,559,974	-
2081	-	195,068,394	195,068,394	2,069,523	-	14,034,573	-
2082	-	201,895,788	201,895,788	1,966,024	-	14,525,783	-
2083	-	208,962,141	208,962,141	1,872,583	-	15,034,185	-
2084	-	216,275,816	216,275,816	1,758,696	-	15,560,382	-
2085	-	223,845,470	223,845,470	1,651,757	-	16,104,995	-
2086	-	231,680,061	231,680,061	1,542,624	-	16,668,670	-

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) * 7.19%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2087	-	239,788,863	239,788,863	1,430,302	-	17,252,073	-
2088	-	248,181,473	248,181,473	1,322,424	-	17,855,896	-
2089	-	256,867,825	256,867,825	1,207,358	-	18,480,852	-
2090	-	265,858,199	265,858,199	1,097,587	-	19,127,682	-
2091	-	275,163,236	275,163,236	991,145	-	19,797,151	-
2092	-	284,793,949	284,793,949	889,801	-	20,490,051	-
2093	-	294,761,737	294,761,737	789,311	-	21,207,203	-
2094	-	305,078,398	305,078,398	694,371	-	21,949,455	-
2095	-	315,756,142	315,756,142	606,125	-	22,717,686	-
2096	-	326,807,607	326,807,607	525,133	-	23,512,805	-
2097	-	338,245,873	338,245,873	451,548	-	24,335,753	-
2098	-	350,084,479	350,084,479	384,019	-	25,187,505	-
2099	-	362,337,436	362,337,436	322,903	-	26,069,068	-
2100	-	375,019,246	375,019,246	267,552	-	26,981,485	-
2101	-	388,144,920	388,144,920	219,983	-	27,925,837	-
2102	-	401,729,992	401,729,992	178,582	-	28,903,241	-
2103	-	415,790,542	415,790,542	144,453	-	29,914,855	-
2104	-	430,343,211	430,343,211	115,118	-	30,961,875	-
2105	-	445,405,223	445,405,223	90,667	-	32,045,540	-
2106	-	460,994,406	460,994,406	70,236	-	33,167,134	-
2107	-	477,129,210	477,129,210	53,871	-	34,327,984	-
2108	-	493,828,732	493,828,732	40,748	-	35,529,463	-
2109	-	511,112,738	511,112,738	30,371	-	36,772,994	-
2110	-	529,001,684	529,001,684	22,284	-	38,060,049	-
2111	-	547,516,743	547,516,743	16,081	-	39,392,151	-
2112	-	566,679,829	566,679,829	11,402	-	40,770,876	-
2113	-	586,513,623	586,513,623	7,936	-	42,197,857	-
2114	-	607,041,600	607,041,600	5,419	-	43,674,782	-
2115	-	628,288,056	628,288,056	3,627	-	45,203,399	-
2116	-	650,278,138	650,278,138	2,377	-	46,785,518	-
2117	-	673,037,873	673,037,873	1,524	-	48,423,011	-
2118	-	696,594,199	696,594,199	955	-	50,117,817	-

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) * 7.19%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2119	-	720,974,996	720,974,996	584	-	51,871,940	-
2120	-	746,209,121	746,209,121	349	-	53,687,458	-
2121	-	772,326,440	772,326,440	205	-	55,566,519	-
2122	-	799,357,865	799,357,865	117	-	57,511,347	-
2123	-	827,335,390	827,335,390	65	-	59,524,245	-
2124	-	856,292,129	856,292,129	35	-	61,607,593	-
2125	-	886,262,354	886,262,354	18	-	63,763,859	-
2126	-	917,281,536	917,281,536	9	-	65,995,594	-
2127	-	949,386,390	949,386,390	4	-	68,305,440	-
2128	-	982,614,914	982,614,914	2	-	70,696,130	-
2129	-	1,017,006,436	1,017,006,436	1	-	73,170,495	-
2130	-	1,052,601,661	1,052,601,661	1	-	75,731,462	-
2131	-	1,089,442,719	1,089,442,719	-	-	78,382,063	-

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)
2023	4,915,919	1,011,144	946,144	-	389,163	5,370,082
2024	5,370,082	923,334	1,027,783	-	319,071	5,584,704
2025	5,584,704	843,832	1,102,295	-	327,328	5,653,569
2026	5,653,569	792,287	1,198,066	-	327,041	5,574,831
2027	5,574,831	691,512	1,237,826	-	318,100	5,346,617
2028	5,346,617	674,168	1,354,562	-	300,385	4,966,608
2029	4,966,608	617,040	1,430,787	-	273,584	4,426,445
2030	4,426,445	612,920	1,563,610	-	237,066	3,712,821
2031	3,712,821	581,237	1,681,140	-	189,772	2,802,690
2032	2,802,690	610,204	1,847,889	-	131,031	1,696,036
2033	1,696,036	551,713	1,938,701	-	60,153	369,201
2034	369,201	504,326	2,041,067	-	-	-
2035	-	449,390	2,137,672	-	-	-
2036	-	394,141	2,247,137	-	-	-
2037	-	329,792	2,348,207	-	-	-
2038	-	215,147	2,398,782	-	-	-
2039	-	146,069	2,491,331	-	-	-
2040	-	90,158	2,596,950	-	-	-
2041	-	-	2,638,109	-	-	-
2042	-	-	2,633,011	-	-	-
2043	-	-	2,706,991	-	-	-
2044	-	-	2,737,950	-	-	-
2045	-	-	2,760,228	-	-	-
2046	-	-	2,798,031	-	-	-
2047	-	-	2,919,124	-	-	-
2048	-	-	2,971,177	-	-	-
2049	-	-	2,879,997	-	-	-
2050	-	-	2,879,894	-	-	-
2051	-	-	2,879,988	-	-	-
2052	-	-	2,865,945	-	-	-
2053	-	-	2,868,106	-	-	-
2054	-	-	2,943,639	-	-	-
2055	-	-	2,999,089	-	-	-
2056	-	-	3,079,812	-	-	-

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

Year	Projected Beginning Fiduciary Net Position (a)	Employer Contributions for Current Plan Members (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2057	-	-	3,083,026	-	-	-
2058	-	-	3,056,295	-	-	-
2059	-	-	3,102,803	-	-	-
2060	-	-	3,036,851	-	-	-
2061	-	-	3,039,424	-	-	-
2062	-	-	3,082,004	-	-	-
2063	-	-	2,978,575	-	-	-
2064	-	-	2,966,975	-	-	-
2065	-	-	2,962,555	-	-	-
2066	-	-	2,927,050	-	-	-
2067	-	-	2,862,632	-	-	-
2068	-	-	2,838,900	-	-	-
2069	-	-	2,825,728	-	-	-
2070	-	-	2,783,387	-	-	-
2071	-	-	2,741,807	-	-	-
2072	-	-	2,691,813	-	-	-
2073	-	-	2,650,713	-	-	-
2074	-	-	2,601,581	-	-	-
2075	-	-	2,550,587	-	-	-
2076	-	-	2,478,286	-	-	-
2077	-	-	2,409,014	-	-	-
2078	-	-	2,346,847	-	-	-
2079	-	-	2,252,761	-	-	-
2080	-	-	2,166,518	-	-	-
2081	-	-	2,069,523	-	-	-
2082	-	-	1,966,024	-	-	-
2083	-	-	1,872,583	-	-	-
2084	-	-	1,758,696	-	-	-
2085	-	-	1,651,757	-	-	-
2086	-	-	1,542,624	-	-	-
2087	-	-	1,430,302	-	-	-
2088	-	-	1,322,424	-	-	-
2089	-	-	1,207,358	-	-	-
2090	-	-	1,097,587	-	-	-

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)
2091	-	-	991,145	-	-	-
2092	-	-	889,801	-	-	-
2093	-	-	789,311	-	-	-
2094	-	-	694,371	-	-	-
2095	-	-	606,125	-	-	-
2096	-	-	525,133	-	-	-
2097	-	-	451,548	-	-	-
2098	-	-	384,019	-	-	-
2099	-	-	322,903	-	-	-
2100	-	-	267,552	-	-	-
2101	-	-	219,983	-	-	-
2102	-	-	178,582	-	-	-
2103	-	-	144,453	-	-	-
2104	-	-	115,118	-	-	-
2105	-	-	90,667	-	-	-
2106	-	-	70,236	-	-	-
2107	-	-	53,871	-	-	-
2108	-	-	40,748	-	-	-
2109	-	-	30,371	-	-	-
2110	-	-	22,284	-	-	-
2111	-	-	16,081	-	-	-
2112	-	-	11,402	-	-	-
2113	-	-	7,936	-	-	-
2114	-	-	5,419	-	-	-
2115	-	-	3,627	-	-	-
2116	-	-	2,377	-	-	-
2117	-	-	1,524	-	-	-
2118	-	-	955	-	-	-
2119	-	-	584	-	-	-
2120	-	-	349	-	-	-
2121	-	-	205	-	-	-
2122	-	-	117	-	-	-
2123	-	-	65	-	-	-
2124	-	-	35	-	-	-

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)
2125	-	-	18	-	-	-
2126	-	-	9	-	-	-
2127	-	-	4	-	-	-
2128	-	-	2	-	-	-
2129	-	-	1	-	-	-
2130	-	-	1	-	-	-
2131	-	-	-	-	-	-

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) = 3.73%
2024	5,370,082	1,027,783	1,027,783	-	998,271	-	1,009,144
2025	5,584,704	1,102,295	1,102,295	-	1,010,041	-	1,043,406
2026	5,653,569	1,198,066	1,198,066	-	1,035,657	-	1,093,302
2027	5,574,831	1,237,826	1,237,826	-	1,009,460	-	1,088,987
2028	5,346,617	1,354,562	1,354,562	-	1,042,131	-	1,148,856
2029	4,966,608	1,430,787	1,430,787	-	1,038,467	-	1,169,891
2030	4,426,445	1,563,610	1,563,610	-	1,070,632	-	1,232,545
2031	3,712,821	1,681,140	1,681,140	-	1,085,950	-	1,277,562
2032	2,802,690	1,847,889	1,847,889	-	1,126,098	-	1,353,810
2033	1,696,036	1,938,701	-	1,938,701	-	1,379,121	1,369,293
2034	369,201	2,041,067	-	2,041,067	-	1,400,811	1,389,782
2035	-	2,137,672	-	2,137,672	-	1,415,448	1,403,247
2036	-	2,247,137	-	2,247,137	-	1,435,533	1,422,087
2037	-	2,348,207	-	2,348,207	-	1,447,274	1,432,639
2038	-	2,398,782	-	2,398,782	-	1,426,382	1,410,896
2039	-	2,491,331	-	2,491,331	-	1,429,247	1,412,666
2040	-	2,596,950	-	2,596,950	-	1,437,375	1,419,630
2041	-	2,638,109	-	2,638,109	-	1,408,737	1,390,299
2042	-	2,633,011	-	2,633,011	-	1,356,502	1,337,740
2043	-	2,706,991	-	2,706,991	-	1,345,505	1,325,897
2044	-	2,737,950	-	2,737,950	-	1,312,970	1,292,862
2045	-	2,760,228	-	2,760,228	-	1,277,041	1,256,537
2046	-	2,798,031	-	2,798,031	-	1,248,944	1,227,967
2047	-	2,919,124	-	2,919,124	-	1,257,112	1,235,067
2048	-	2,971,177	-	2,971,177	-	1,234,470	1,211,909
2049	-	2,879,997	-	2,879,997	-	1,154,449	1,132,498
2050	-	2,879,894	-	2,879,894	-	1,113,756	1,091,756
2051	-	2,879,988	-	2,879,988	-	1,074,570	1,052,552
2052	-	2,865,945	-	2,865,945	-	1,031,674	1,009,775
2053	-	2,868,106	-	2,868,106	-	996,095	974,217
2054	-	2,943,639	-	2,943,639	-	986,327	963,937
2055	-	2,999,089	-	2,999,089	-	969,519	946,798

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) = 3.73%
2056	-	3,079,812	-	3,079,812	-	960,554	937,337
2057	-	3,083,026	-	3,083,026	-	927,695	904,591
2058	-	3,056,295	-	3,056,295	-	887,267	864,519
2059	-	3,102,803	-	3,102,803	-	869,048	846,130
2060	-	3,036,851	-	3,036,851	-	820,623	798,381
2061	-	3,039,424	-	3,039,424	-	792,396	770,338
2062	-	3,082,004	-	3,082,004	-	775,202	753,056
2063	-	2,978,575	-	2,978,575	-	722,805	701,627
2064	-	2,966,975	-	2,966,975	-	694,636	673,776
2065	-	2,962,555	-	2,962,555	-	669,176	648,592
2066	-	2,927,050	-	2,927,050	-	637,874	617,788
2067	-	2,862,632	-	2,862,632	-	601,867	582,476
2068	-	2,838,900	-	2,838,900	-	575,859	556,886
2069	-	2,825,728	-	2,825,728	-	553,002	534,380
2070	-	2,783,387	-	2,783,387	-	525,534	507,455
2071	-	2,741,807	-	2,741,807	-	499,453	481,908
2072	-	2,691,813	-	2,691,813	-	473,079	456,117
2073	-	2,650,713	-	2,650,713	-	449,451	433,010
2074	-	2,601,581	-	2,601,581	-	425,586	409,710
2075	-	2,550,587	-	2,550,587	-	402,551	387,242
2076	-	2,478,286	-	2,478,286	-	377,366	362,742
2077	-	2,409,014	-	2,409,014	-	353,901	339,930
2078	-	2,346,847	-	2,346,847	-	332,627	319,256
2079	-	2,252,761	-	2,252,761	-	308,048	295,442
2080	-	2,166,518	-	2,166,518	-	285,823	273,920
2081	-	2,069,523	-	2,069,523	-	263,412	252,252
2082	-	1,966,024	-	1,966,024	-	241,426	231,024
2083	-	1,872,583	-	1,872,583	-	221,854	212,136
2084	-	1,758,696	-	1,758,696	-	201,024	192,073
2085	-	1,651,757	-	1,651,757	-	182,152	173,911
2086	-	1,542,624	-	1,542,624	-	164,126	156,583
2087	-	1,430,302	-	1,430,302	-	146,817	139,964

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) = 3.73%
2088	-	1,322,424	-	1,322,424	-	130,964	124,756
2089	-	1,207,358	-	1,207,358	-	115,358	109,807
2090	-	1,097,587	-	1,097,587	-	101,177	96,236
2091	-	991,145	-	991,145	-	88,147	83,780
2092	-	889,801	-	889,801	-	76,348	72,510
2093	-	789,311	-	789,311	-	65,340	62,009
2094	-	694,371	-	694,371	-	55,457	52,590
2095	-	606,125	-	606,125	-	46,704	44,257
2096	-	525,133	-	525,133	-	39,039	36,965
2097	-	451,548	-	451,548	-	32,386	30,643
2098	-	384,019	-	384,019	-	26,573	25,124
2099	-	322,903	-	322,903	-	21,557	20,366
2100	-	267,552	-	267,552	-	17,233	16,268
2101	-	219,983	-	219,983	-	13,670	12,895
2102	-	178,582	-	178,582	-	10,706	10,092
2103	-	144,453	-	144,453	-	8,355	7,870
2104	-	115,118	-	115,118	-	6,424	6,046
2105	-	90,667	-	90,667	-	4,881	4,591
2106	-	70,236	-	70,236	-	3,648	3,429
2107	-	53,871	-	53,871	-	2,700	2,535
2108	-	40,748	-	40,748	-	1,970	1,849
2109	-	30,371	-	30,371	-	1,417	1,328
2110	-	22,284	-	22,284	-	1,003	940
2111	-	16,081	-	16,081	-	698	654
2112	-	11,402	-	11,402	-	478	447
2113	-	7,936	-	7,936	-	321	300
2114	-	5,419	-	5,419	-	211	197
2115	-	3,627	-	3,627	-	136	127
2116	-	2,377	-	2,377	-	86	80
2117	-	1,524	-	1,524	-	53	50
2118	-	955	-	955	-	32	30
2119	-	584	-	584	-	19	18

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) = 3.73%
2120	-	349	-	349	-	11	10
2121	-	205	-	205	-	6	6
2122	-	117	-	117	-	3	3
2123	-	65	-	65	-	2	2
2124	-	35	-	35	-	1	1
2125	-	18	-	18	-	-	-
2126	-	9	-	9	-	-	-
2127	-	4	-	4	-	-	-
2128	-	2	-	2	-	-	-
2129	-	1	-	1	-	-	-
2130	-	1	-	1	-	-	-
2131	-	-	-	-	-	-	-

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

Year	Differences between Expected and Actual Experience	Recognition Period (Years)											
			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
2018	-	6.77	-	-	-	-	-	-	-	-	-	-	-
2019	(7,382,205)	7.13	(1,035,372)	(1,035,372)	(1,035,372)	(134,601)	-	-	-	-	-	-	-
2020	-	7.13	-	-	-	-	-	-	-	-	-	-	-
2021	(14,613,935)	7.01	(2,084,727)	(2,084,727)	(2,084,727)	(2,084,727)	(2,084,727)	(20,846)	-	-	-	-	-
2022	-	7.01	-	-	-	-	-	-	-	-	-	-	-
2023	(1,098,495)	7.59	(144,729)	(144,729)	(144,729)	(144,729)	(144,729)	(144,729)	(144,729)	(144,729)	(85,392)	-	-
Net Increase (Decrease) in OPEB Expense			(3,264,828)	(3,264,828)	(3,264,828)	(2,364,057)	(2,229,456)	(165,575)	(144,729)	(85,392)	-	-	-

Year	Changes of Assumptions	Recognition Period (Years)											
			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
2018	(2,545,072)	6.77	(375,934)	(289,468)	-	-	-	-	-	-	-	-	-
2019	9,827,250	7.13	1,378,296	1,378,296	1,378,296	179,178	-	-	-	-	-	-	-
2020	15,841,429	7.13	2,221,799	2,221,799	2,221,799	2,221,799	288,836	-	-	-	-	-	-
2021	(990,020)	7.01	(141,230)	(141,230)	(141,230)	(141,230)	(141,230)	(1,410)	-	-	-	-	-
2022	(14,785,458)	7.01	(2,109,195)	(2,109,195)	(2,109,195)	(2,109,195)	(2,109,195)	(2,109,195)	(21,093)	-	-	-	-
2023	(415,090)	7.59	(54,689)	(54,689)	(54,689)	(54,689)	(54,689)	(54,689)	(54,689)	(54,689)	(32,267)	-	-
Net Increase (Decrease) in OPEB Expense			919,047	1,005,513	1,294,981	95,863	(2,016,278)	(2,165,294)	(75,782)	(32,267)	-	-	-

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

Year	Differences between Projected and Actual Earnings on OPEB Plan Investments	Recognition Period (Years)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
2018	97,798	5	-	-	-	-	-	-	-	-	-	-
2019	52,114	5	10,422	-	-	-	-	-	-	-	-	-
2020	202,726	5	40,545	40,546	-	-	-	-	-	-	-	-
2021	(901,036)	5	(180,207)	(180,207)	(180,208)	-	-	-	-	-	-	-
2022	1,182,245	5	236,449	236,449	236,449	236,449	-	-	-	-	-	-
2023	(65,765)	5	(13,153)	(13,153)	(13,153)	(13,153)	(13,153)	-	-	-	-	-
Net Increase (Decrease) in OPEB Expense			94,056	83,635	43,088	223,296	(13,153)	-	-	-	-	-