



TOWN OF ANDOVER, MASSACHUSETTS

OTHER POSTEMPLOYMENT BENEFITS PROGRAM

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

Disclosures as of
June 30, 2024

KMS Actuarial, LLC
52 Hunt Road
Kingston, NH 03848

January, 2025



January 20, 2025

Mr. Patrick J. Lawlor
Chief Financial Officer
Town of Andover
36 Bartlet Street
Andover, MA 01810

Dear Patrick:

We are pleased to present the enclosed report of the July 1, 2023 actuarial valuation of the retiree health care benefits for the Town of Andover. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2024 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, 2023 and rolled forward to the plan's measurement date of June 30, 2024.

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 Andover 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.

Mr. Patrick J. Lawlor

January 20, 2025

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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 Rockland Trust.

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 Andover 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 Andover 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 Andover 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 Andover, other than as consulting actuary for this assignment, that would impair our independence.

Mr. Patrick J. Lawlor

January 20, 2025

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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.

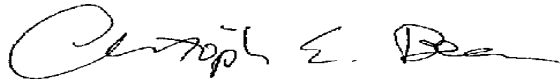
Respectfully submitted,



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EXECUTIVE SUMMARY

Purpose of Report

This report presents the results of the actuarial valuation of the Town of Andover's retiree health care benefits as of July 1, 2023. The valuation was prepared in accordance with and for the purpose of financial reporting and disclosures as of June 30, 2024 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 Andover. 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 Andover.

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 Andover's Other Postemployment Benefits Program

The Town of Andover 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 of Andover, 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:

Measurement Date	June 30, 2024	June 30, 2023	% Change
Valuation Date	July 1, 2023	July 1, 2021	
Membership Data			
Active Plan Members	1,348	1,360	(0.9%)
Inactive Plan Members (excludes covered spouses)	830	812	2.2%
Total Plan Members	2,178	2,172	0.3%
Covered Spouses	412	Not Provided	0.0%
Covered Payroll	\$117,469,204	\$107,162,203	9.6%
Net OPEB Liability			
Discount Rate	6.50%	6.00%	
Total OPEB Liability (TOL)	\$121,957,195	\$133,680,126	(8.8%)
Fiduciary Net Position (FNP)	\$33,335,557	\$27,798,792	19.9%
Net OPEB Liability	\$88,621,638	\$105,881,334	(16.3%)
FNP as % of TOL	27.3%	20.8%	
OPEB Expense			
OPEB Expense (Income)	(\$1,437,975)	\$1,710,632	
Deferred Outflows	\$0	\$0	
Deferred Inflows	\$27,080,141	\$18,299,183	
Recognition Period (Years)	6.66	5.76	

Transition

Results provided in this report prior to June 30, 2024 are from the FY2018-FY2023 reports completed by Stone Consulting, Inc. Many assumptions have been updated in this report, including aligning demographic assumptions with those used by the Andover Retirement System and MTRS, updating the medical trend table to reflect the most recent Getzen trend model published by the Society of Actuaries, changing the percent retiring with covered spouses to a single rate at all ages, and increasing the long-term rate of return assumption from 6% to 6.5% to align with the Town's investment policy and recent surveys of capital market expectations. Details of the impact of the assumption changes can be found in the "Changes of Assumptions" section below.

EXECUTIVE SUMMARY

Demographic 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 \$12,437,000. This gain is primarily attributable to the following:

- ◆ a gain due to lower than expected increase in Medicare premiums since the prior valuation
- ◆ a gain due to active employee turnover and a slight reduction in the number of active employees since the prior valuation

OPEB Plan Investments Gain and Loss

Projected Earnings during the measurement period, shown in Exhibit 1.1, are developed on the OPEB Plan Investments using the prior long-term rate of return assumption and are compared to actual earnings. As shown in Exhibit 1.1, the gain of \$1,822,722 is the difference in the projected earnings of \$1,735,021 and actual earnings of \$3,557,743.

Changes of Assumptions

The discount rate changed from 6% as of June 30, 2023 to 6.5% as of June 30, 2024. In addition, many other assumptions were updated in this valuation, including decrements, the salary scale, healthcare trend rates, mortality tables and mortality improvement rates, and percent retiring with covered spouses. A summary of the impact on the Total OPEB Liability (TOL) of each assumption change is provided below:

◆ Decrease due to change in Decrement	(512,000)
◆ Increase due to change in Salary Scale Assumption	2,911,000
◆ Decrease due to change in Trend Assumption	(5,174,000)
◆ Increase due to change in Mortality Tables and Mortality Improvement Rates	862,000
◆ Increase due to change in % Retiring with a Covered Spouse	4,386,000
◆ Decrease due to change in Discount Rate	(8,258,000)
Total	\$ (5,785,000)

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, 2024, is \$121,957,195. The Total OPEB Liability as of the prior measurement date, June 30, 2023, was \$133,680,126. During the current measurement period ending June 30, 2024, the Total OPEB Liability decreased by \$11,722,931, or -8.8%. 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, 2024, is \$33,335,557. The Fiduciary Net Position as of the prior measurement date, June 30, 2023, was \$27,798,792. During the plan years ended June 30, 2024 and June 30, 2023, the actual rates of return were 12.31% and 12.92%, respectively. The expected long-term rate of return is 6.50%. The Fiduciary Net Position is shown in Section 1, Exhibit 1.1.

Employer Future Period Contributions

The Town's annual contributions are equal to the sum of the actuarially determined contributions in the schedule provided by Stone Consulting in January 2021 for the Water and Sewer units, the savings from OPEB reform, and an appropriation to the General Fund increasing at 2.5% per year. Contributions are assumed to be payable through FY2041 for Water and Sewer and FY2065 for the General Fund.

Discount Rate

As of the June 30, 2024 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

OPEB Expense (Income)

The OPEB Income for the current measurement period ending June 30, 2024, is \$1,437,975. Benefit changes are recognized immediately and experience gains and losses and assumption changes developed in this valuation are recognized over 6.66 years. Investment gains and losses are recognized over 5 years. The OPEB Expense for the prior measurement period was \$1,710,632. The development of the OPEB expense for the current measurement period is shown in Section 4, Exhibit 4.2.

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 **2024** **2023**

Trust Fund Composition at Fiscal Year-End		
Domestic Equity - Large Cap	\$17,364,723	\$13,778,832
Domestic Equity - Small/Mid Cap	1,772,540	1,559,065
International Equity - Developed Market	2,587,363	1,553,770
International Equity - Emerging Market	836,783	718,327
Domestic-Fixed Income	6,152,058	5,163,719
High Yield Fixed Income	643,878	921,654
International Fixed Income	307,184	511,437
Alternatives	2,049,154	2,573,752
Real Estate	831,321	636,963
Cash	790,553	381,273
Total Market Value of Assets	\$33,335,557	\$27,798,792
Asset Activity		
Market value, beginning of year	\$27,798,792	\$22,810,641
Employer Premiums	5,061,741	5,020,021
OPEB Trust Contributions	1,979,022	1,902,301
Benefit Payments	(5,061,741)	(5,020,021)
Administrative Expenses	-	-
Investment Return	3,557,743	3,085,850
Market value, end of year	\$33,335,557	\$27,798,792
Money-Weighted Rate of Return	12.31%	12.92%
(Gain) / Loss on OPEB Plan Investments		
Projected earnings	\$1,735,021	\$1,425,708
Actual earnings	3,557,743	3,085,850
(Gain) / Loss on OPEB plan investments	(\$1,822,722)	(\$1,660,142)

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, 2024 measurement date was developed from an actuarial valuation as of July 1, 2023 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, 2023 to the end of the measurement period, June 30, 2024 is shown below:

Measurement Date	June 30, 2024
1. Total OPEB Liability, beginning of year:	\$133,680,126
2. Service Cost	\$3,482,210
3. Expected Benefit Payments	
a. Current retirees	(\$4,783,256)
b. Future retirees	(278,485)
c. Total (a. + b.)	(\$5,061,741)
4. Interest [6% x (1.c. + 2. + .5 x 3.c)]	\$8,077,888
5. Changes of benefit terms	\$0
6. Differences between expected and actual experience	(\$12,436,579)
7. Changes of assumptions or other inputs	(\$5,784,709)
8. Total OPEB Liability, end of year (1.c. + 2. + 3.c. + 4. + 5. + 6. + 7.)	
a. Actives	\$52,601,366
b. Retirees, Covered Spouses and Survivors	69,355,829
c. Total OPEB Liability at 6.5% (a. + b.)	\$121,957,195

SECTION 1 - PRINCIPAL VALUATION RESULTS

Exhibit 1.3 - Development of Actuarially Determined Employer Contributions

The Town's annual contributions are equal to the sum of the actuarially determined contributions in the schedule provided by Stone Consulting in January 2021 for the Water and Sewer units, the savings from OPEB reform, and an appropriation to the General Fund increasing at 2.5% per year. Contributions are assumed to be payable through FY2041 for Water and Sewer and FY2065 for the General Fund.

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

Fiscal Year Ending	June 30, 2024	June 30, 2025
Discount Rate	6.00%	6.50%
1. Normal Cost	\$3,482,210	\$3,103,944
2. Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$133,680,126	\$121,957,195
b. Actuarial Value of Plan Assets	\$27,798,792	\$33,335,557
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$105,881,334	\$88,621,638
3. Amortization of Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability	\$105,881,334	\$88,621,638
b. Amortization Period in years	30	30
c. Payroll Growth Rate	2.5%	2.5%
d. Amortization Factor	19.23	18.18
e. Amortization Amount (3.a. / 3.d.)	\$5,506,050	\$4,874,678
4. Interest on 1. and 3.e.	\$539,296	\$518,610
5. Actuarially Determined Employer Contribution (1. + 3.e. + 4.)	\$9,527,556	\$8,497,232
6. Actual Employer Contribution to OPEB Trust	\$1,979,022	TBD
7. Expected Benefit Payments	\$5,061,741	
8. Total Contribution (6. + 7.)	\$7,040,763	

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.1 - Plan Description

Plan Administration

The Town of Andover 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, 2024, OPEB plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefit payments ¹	830
Inactive plan members entitled to but not yet receiving benefit payments	0
Active plan members	1,348
	<u>2,178</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 of Andover, and the full cost of benefits is shared between the Town and retirees.

Employer Future Period Contributions

The Town's annual contributions are equal to the sum of the actuarially determined contributions in the schedule provided by Stone Consulting in January 2021 for the Water and Sewer units, the savings from OPEB reform, and an appropriation to the General Fund increasing at 2.5% per year. Contributions are assumed to be payable through FY2041 for Water and Sewer and FY2065 for the General Fund.

SECTION 2 - NOTES TO THE FINANCIAL STATEMENTS

Exhibit 2.2 - Net OPEB Liability

The components of the net OPEB liability at June 30, 2024, were as follows:

Total OPEB liability	\$	121,957,195
Fiduciary net position		(33,335,557)
Net OPEB liability	\$	88,621,638

Fiduciary net position as a percentage of the total OPEB liability 27.33%

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of July 1, 2023, 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	6.5%, net of investment expenses, including inflation.
Healthcare cost trend rate	8% for 2023, decreasing 0.5% per year to 6%, then grading down to an ultimate trend rate of 4%, 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 Mortality Table, projected with generational mortality improvement using Scale MP-2021.
Healthy Retiree Mortality - General and Public Safety employees	RP-2014 Blue Collar Mortality Table, projected with generational mortality improvement using scale MP-2021.
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-2021.
Pre-Retirement Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Employee Mortality Table, base year 2010, projected with generational mortality improvement using Scale MP-2021.
Healthy Retiree Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Retiree Mortality Table, base year 2010, projected with generational mortality improvement using Scale MP-2021.
Disabled Retiree Mortality - Teachers	PUB-2010 Teachers Headcount-Weighted Retiree Mortality Table, base year 2010, projected with generational mortality improvement using Scale MP-2021.

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, 2024 are summarized in the following table:

Asset Class	Target Allocation¹	Long-Term Expected Real Rates of Return²
Domestic Equity - Large Cap	52%	4.52%
Domestic Equity - Small/Mid Cap	6%	5.06%
International Equity - Developed Market	8%	5.08%
International Equity - Emerging Market	3%	5.80%
Domestic-Fixed Income	20%	2.44%
High Yield Fixed Income	2%	3.92%
International Fixed Income	1%	2.46%
Alternatives	5%	4.33%
Real Estate	2%	3.73%
Cash	1%	0.99%
Total	100%	

¹ Provided by Rockland Trust.

² Based on recent surveys of capital market expectations.

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	\$ 139,386,018	\$ 121,957,195	\$ 107,753,667
Fiduciary Net Position	(33,335,557)	(33,335,557)	(33,335,557)
Net OPEB Liability	\$ 106,050,461	\$ 88,621,638	\$ 74,418,110
% Change in NOL	19.7%		-16.0%

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%) or 1-percentage point higher (9% year 1 decreasing to 5%) than the current healthcare cost trend rates:

	1% Decrease 7% Year 1 Decreasing to 3%	Assumed Healthcare Cost Trend Rates 8% Year 1 Decreasing to 4%	1% Increase 9% Year 1 Decreasing to 5%
Total OPEB Liability	\$106,070,000	\$121,957,195	\$ 141,787,357
Fiduciary Net Position	(33,335,557)	(33,335,557)	(33,335,557)
Net OPEB Liability	\$ 72,734,443	\$ 88,621,638	\$ 108,451,800
% Change in NOL	-17.9%		22.4%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.1 - Changes in Net OPEB Liability and Related Ratios

Fiscal Year Ended June 30	2024	2023	2022	2021	2020
Total OPEB Liability					
Service cost	\$ 3,482,210	\$ 3,380,787	\$ 3,689,180	\$ 3,581,728	\$ 3,457,542
Interest	8,077,888	7,708,875	8,408,845	7,996,530	8,487,889
Changes of benefit terms	-	-	-	-	-
Differences between expected and actual experience	(12,436,579)	-	(13,220,552)	-	(6,118,571)
Changes of assumptions	(5,784,709)	-	(5,327,020)	-	(9,465,966)
Benefit payments	(5,061,741)	(5,020,021)	(4,796,414)	(4,831,167)	(4,517,623)
Net change in total OPEB liability	\$ (11,722,931)	\$ 6,069,641	\$ (11,245,961)	\$ 6,747,091	\$ (8,156,729)
Total OPEB liability—beginning	\$ 133,680,126	\$127,610,485	\$138,856,446	\$ 132,109,355	\$ 140,266,084
Total OPEB liability—ending (a)	\$ 121,957,195	\$133,680,126	\$127,610,485	\$ 138,856,446	\$ 132,109,355
Plan Fiduciary Net Position					
Contributions—employer	\$ 7,040,763	\$ 6,922,322	\$ 6,633,275	\$ 6,872,670	\$ 6,500,190
Net investment income	3,557,743	3,085,850	(315,095)	4,269,119	503,402
Benefit payments	(5,061,741)	(5,020,021)	(4,796,414)	(4,831,167)	(4,517,623)
Administrative expenses	-	-	-	-	-
Other	-	-	-	-	-
Net change in plan fiduciary net position	\$ 5,536,765	\$ 4,988,151	\$ 1,521,766	\$ 6,310,622	\$ 2,485,969
Plan fiduciary net position—beginning	\$ 27,798,792	\$ 22,810,641	\$ 21,288,875	\$ 14,978,253	\$ 12,492,284
Plan fiduciary net position—ending	\$ 33,335,557	\$ 27,798,792	\$ 22,810,641	\$ 21,288,875	\$ 14,978,253
Net OPEB liability—ending (a) – (b)	\$ 88,621,638	\$105,881,334	\$104,799,844	\$ 117,567,571	\$ 117,131,102
Plan fiduciary net position as a percentage of the total OPEB liability	27.33%	20.80%	17.88%	15.33%	11.34%
Covered payroll	\$ 117,469,204	\$107,162,203	\$108,522,888	\$ 102,030,165	\$ 106,084,030
Net OPEB liability as a percentage of covered payroll	75.44%	98.80%	96.57%	115.23%	110.41%
Discount Rate	6.50%	6.00%	6.00%	6.00%	6.00%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

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

Fiscal Year Ended June 30	2019	2018	2017	2016	2015
Total OPEB Liability					
Service cost	\$ 4,451,354	\$ 4,186,467			
Interest	8,448,402	7,514,930			
Changes of benefit terms	(10,540,194)	-			
Differences between expected and actual experience	-	10,865,916			
Changes of assumptions	(12,768,804)	1,599,726			
Benefit payments	(4,985,511)	(4,923,643)			
Net change in total OPEB liability	\$ (15,394,753)	\$ 19,243,396			
Total OPEB liability—beginning	\$ 155,660,837	\$ 136,417,441			
Total OPEB liability—ending (a)	\$ 140,266,084	\$ 155,660,837			
Plan Fiduciary Net Position					
Contributions—employer	\$ 6,804,459	\$ 6,572,364			
Net investment income	720,255	636,084			
Benefit payments	(4,985,511)	(4,923,643)			
Administrative expenses	-	-			
Other	-	-			
Net change in plan fiduciary net position	\$ 2,539,203	\$ 2,284,805			
Plan fiduciary net position—beginning	\$ 9,953,081	\$ 7,668,276			
Plan fiduciary net position—ending (b)	\$ 12,492,284	\$ 9,953,081			
Net OPEB liability—ending (a) – (b)	\$ 127,773,800	\$ 145,707,756			
Plan fiduciary net position as a percentage of the total OPEB liability	8.91%	6.39%			
Covered payroll	\$ 99,671,199	N/A			
Net OPEB liability as a percentage of covered payroll	128.20%	N/A			
Discount Rate	6.00%	5.36%			

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

Notes to Schedule

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% as of June 30, 2023 to 6.5% as of June 30, 2024. In addition, many other assumptions were updated in this valuation, including decrements, the salary scale, healthcare trend rates, mortality tables and mortality improvement rates, and percent retiring with covered spouses.

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.2 - Investment Returns

Fiscal Year Ended June 30	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Annual money-weighted rate of return, net of investment expenses	12.31%	12.92%	-1.40%	26.21%	3.65%	6.48%	7.21%			

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, 2023	\$ 27,798,792	12	1.00	\$ 31,220,577
Monthly net external cash flows:				
July	-	11	0.92	-
August	-	10	0.83	-
September	2,697	9	0.75	2,942
October	-	8	0.67	-
November	1,933,818	7	0.58	2,069,304
December	2,638	6	0.50	2,796
January	-	5	0.42	-
February	-	4	0.33	-
March	2,333	3	0.25	2,402
April	-	2	0.17	-
May	-	1	0.08	-
June	37,536	0	0.00	37,536
Ending value - June 30, 2024				\$ 33,335,557
Money-weighted rate of return:				12.31%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.3 - Schedule of Employer Contributions

Fiscal Year Ended June 30	2024	2023	2022	2021	2020
Actuarially determined contribution	\$ 9,527,556	\$ 8,685,000	\$ 8,280,000	\$ 8,826,000	\$ 9,610,000
Contributions in relation to the actuarially determined contribution	<u>7,040,763</u>	<u>6,922,322</u>	<u>6,633,275</u>	<u>6,872,670</u>	<u>6,500,190</u>
Contribution deficiency (excess)	<u>\$ 2,486,793</u>	<u>\$ 1,762,678</u>	<u>\$ 1,646,725</u>	<u>\$ 1,953,330</u>	<u>\$ 3,109,810</u>
Covered payroll	\$117,469,204	\$107,162,203	\$108,522,888	\$102,030,165	\$106,084,030
Contributions as a percentage of covered payroll	5.99%	6.46%	6.11%	6.74%	6.13%
Discount rate	6.00%	6.00%	6.00%	6.00%	6.00%
Inflation	2.50%	2.50%	2.50%	2.50%	2.75%

SECTION 3 - REQUIRED SUPPLEMENTARY INFORMATION

Exhibit 3.3 - Schedule of Employer Contributions, continued

Fiscal Year Ended June 30	2019	2018	2017	2016	2015
Actuarially determined contribution	\$ 10,148,000	\$ 9,968,000	\$ 9,437,501		
Contributions in relation to the actuarially determined contribution	6,804,459	6,572,364	6,150,379		
Contribution deficiency (excess)	\$ 3,343,541	\$ 3,395,636	\$ 3,287,122		
Covered payroll	\$ 99,671,199	N/A	N/A		
Contributions as a percentage of covered payroll	6.83%	N/A	N/A		
Discount rate	5.36%	5.44%	5.44%		
Inflation	2.75%	2.75%	3.75%		

Note: Only 8 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	Increasing at 2.5% over 30 years on an open amortization period for partial pre-funding.
Amortization period	30 years
Asset valuation method	Market value
Healthcare cost trend rates	8% for 2023, decreasing 0.5% per year to 6%, then grading down to an ultimate trend rate of 4%, 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, 2024	
	Experience Losses	Experience Gains	Amounts Recognized in OPEB Expense through June 30, 2024	Deferred Outflows of Resources	Deferred Inflows of Resources	
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)	
2019	\$ -	\$ -	\$ -	\$ -	\$ -	
2020	-	6,118,571	(6,022,215)	-	96,356	
2021	-	-	-	-	-	
2022	-	13,220,552	(6,885,705)	-	6,334,847	
2023	-	-	-	-	-	
2024	-	12,436,579	(1,861,763)	-	10,574,816	
Total				<u>\$ -</u>	<u>\$ 17,006,019</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, 2024	
	Increases in the Total OPEB Liability	Decreases in the Total OPEB Liability	Amounts Recognized in OPEB Expense through June 30, 2024	Deferred Outflows of Resources	Deferred Inflows of Resources	
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)	
2019	\$ -	\$ 12,768,804	\$ (12,768,804)	\$ -	\$ -	
2020	-	9,465,966	(9,316,895)	-	149,071	
2021	-	-	-	-	-	
2022	-	5,327,020	(2,774,490)	-	2,552,530	
2023	-	-	-	-	-	
2024	-	5,784,709	(865,974)	-	4,918,735	
Total				<u>\$ -</u>	<u>\$ 7,620,336</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, 2024	
	Investment Earnings Less Than Projected	Investment Earnings Greater Than Projected	Amounts Recognized in OPEB Expense through June 30, 2024	Deferred Outflows of Resources	Deferred Inflows of Resources	
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)	
2019	\$ -	\$ 138,022	\$ (138,022)	\$ -	\$ -	
2020	321,213	-	321,213	-	-	
2021	-	3,292,684	(2,634,148)	-	658,536	
2022	1,647,533	-	988,519	659,014	-	
2023	-	1,660,142	(664,056)	-	996,086	
2024	-	1,822,722	(364,544)	-	1,458,178	
Subtotal				\$ 659,014	\$ 3,112,800	
Net				\$ -	\$ 2,453,786	

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

Year ended June 30

2025	\$	(7,218,830)
2026	\$	(6,314,868)
2027	\$	(5,871,558)
2028	\$	(3,092,282)
2029	\$	(2,727,737)
Thereafter	\$	(1,854,866)
Deferred Outflows	\$	-
Deferred Inflows	\$	27,080,141

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, 2024 is presented below:

Fiscal Year Ended June 30, 2024

Measurement Date	6/30/2024
1. Service cost	\$ 3,482,210
2. Interest on the total OPEB liability	
a. Total OPEB liability, beginning of year	133,680,126
b. Service cost, beginning of year	3,482,210
c. Benefit payments	(5,061,741)
d. Interest on total OPEB liability = 6.0% times (a. + b. + .5 times c.)	8,077,888
3. Differences between expected and actual experience	(5,361,441)
4. Changes of benefit terms	-
5. Changes of assumptions	(4,940,252)
6. Projected earnings on OPEB plan investments	
a. Plan fiduciary net position, beginning of year	27,798,792
b. Contributions - Employer	7,040,763
c. Benefit payments	(5,061,741)
d. Administrative expenses and other	-
e. Total projected earnings	(1,735,021)
7. Differences between projected and actual earnings on OPEB plan investments	(961,359)
8. OPEB plan administrative expenses	-
9. Other changes in fiduciary net position	-
10. Total OPEB Expense (Income)	\$ (1,437,975)

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 Andover 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, 2024	Individual	Family
Blue Care Elect PPO	\$1,108.34	\$2,970.89
Network Blue New England HMO	\$911.93	\$2,458.41
Medicare Plans - July 1, 2024		
Medex	\$375.91	

Participant Contributions Retired employees contribute 49.99% of the total medical premium for the Town's PPO and HMO plans, with the exception of one retiree and one surviving spouse who contribute 15% of the total medical premium. Retired employees contribute 35% of the total medical premium for the Town's Medex plan.

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

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Medicare Part B Penalty Reimbursement

The Town reimburses the Medicare 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. For the 2024 valuation, the Part A premiums and penalties were not available separately from Part B penalties.

Dental Coverage

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

Life Insurance Coverage

Retirees are eligible for a \$2,000 life insurance benefit. The total monthly cost is \$2.32. Retirees contribute \$1.16 towards the monthly premiums.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date	July 1, 2023
Measurement Date	June 30, 2024
GASB 75 Reporting Date	June 30, 2024
Long-Term Expected Rate of Return	<p>6.5%, net of investment expenses and including inflation at 2.5%. Previously, 6%.</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	3.93%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2024.
Discount Rate (GASB)	<p>6.5%, compounded annually, for the measurement as of June 30, 2024. 6%, compounded annually, for the measurement as of June 30, 2023.</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%, compounded annually, for development of the Actuarially Determined Contribution (ADEC) as of June 30, 2024.
Amortization Method	Increasing at 2.5% over 30 years on an open amortization period for partial pre-funding.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Medical Trend Rates

Year	Trend
1	8.00%
2	7.50%
3	7.00%
4	6.50%
5	6.00%
Ultimate	4.00%

8% for 2023, decreasing 0.5% per year to 6%, then grading down to an ultimate trend rate of 4%, utilizing the Society of Actuaries Getzen Medical Trend Model. The ultimate medical 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.

Medicare Trend Rates

5.5% per year. Since the Part A premiums and penalties were not available separately from Part B penalties for a select group of retirees, we assumed that the amounts provided in the data were payable monthly for the retiree's lifetime and would increase annually with the 5.5% trend.

Inflation

2.5% per year, based on current economic data, analyses from economists and other experts, and professional judgment.

Payroll Growth

3% per year.

Participation Rates

Medical - 70% of eligible retired employees will elect to participate.

Dental - Not applicable as retirees pay 100% of dental premium.

Life - 50% 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.

55% 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, 2023 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	\$3,630	\$4,261	\$3,630	\$4,261
20-24	2,860	4,537	2,860	4,537
25-29	2,976	6,693	2,976	6,693
30-34	3,739	8,458	3,739	8,458
35-39	4,690	8,712	4,690	8,712
40-44	5,844	8,922	5,844	8,922
45-49	7,376	9,793	7,376	9,793
50-54	9,721	11,521	9,721	11,521
55-59	12,632	13,322	12,632	13,322
60-64	16,211	15,855	16,211	15,855
65-69	3,285	3,200	20,226	19,006
70-74	3,937	3,774	24,233	22,411
75-79	4,649	4,379	28,618	26,004
80-84	5,344	5,022	32,894	29,823
85-89	5,953	5,614	36,640	33,337
90-94	6,481	5,992	39,885	35,580
95+	6,888	5,794	42,397	34,404

Retiree Contributions

Annual per capita participant contributions for the fiscal year beginning July 1, 2023 are as follows:

Plan	Contribution
Non-Medicare	\$ 5,233
Medicare	1,462

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 measurement date.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Census Data

Employee and retiree data were compiled and submitted by the Town as of June 30, 2024. We made reasonable adjustments for missing or invalid data. Although we obtained additional or corrected data from the Town, the data required several enhancements before our analysis could be performed, including:

- ◆ Assumed dates of birth for 174 covered spouses due to the spouse dates of birth being unavailable for the MTRS retiree data. Male spouses are assumed to be three years older and female spouses are assumed to be three years younger than the retired employee.
- ◆ Assumed that two retirees who are at least 65 but currently have non-Medicare plans will never be eligible for Medicare.
- ◆ Assumed that two retirees over age 65 on non-Medicare plans with missing Medicare eligibility codes will never be eligible for Medicare.
- ◆ Resolved members who were in both the active and retiree census data and removed their records from the active census data.

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 Mortality Table, projected with generational mortality improvement using Scale MP-2021.

Healthy Retiree Mortality Healthy retiree mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Mortality Table, projected with generational mortality improvement using scale MP-2021.

Disabled Retiree Mortality Disabled retiree mortality rates for General and Public Safety employees are based on the RP-2014 Blue Collar Mortality Table set forward one year with full generational mortality improvement using Scale MP-2021.

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	0.00%
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-2021.

Healthy Retiree Mortality Healthy retiree mortality rates for Teachers are based on the PUB-2010 Teachers Headcount-Weighted Retiree Mortality Table, base year 2010, projected with generational mortality improvement using Scale MP-2021.

Disabled Retiree Mortality Disabled retiree 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-2021.

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:

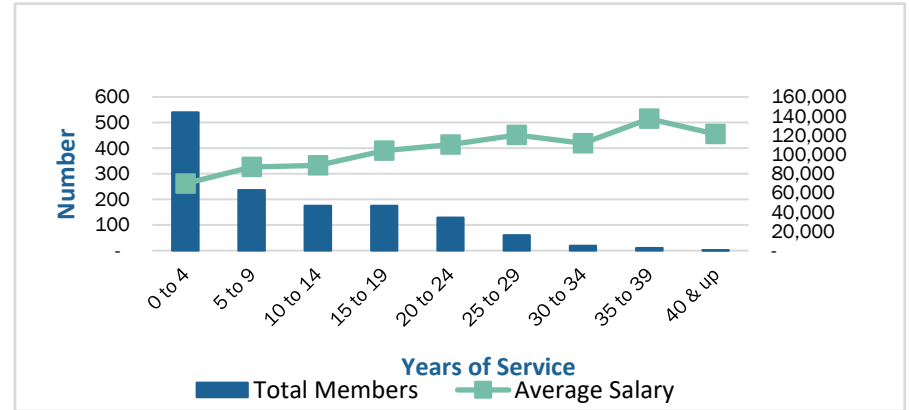
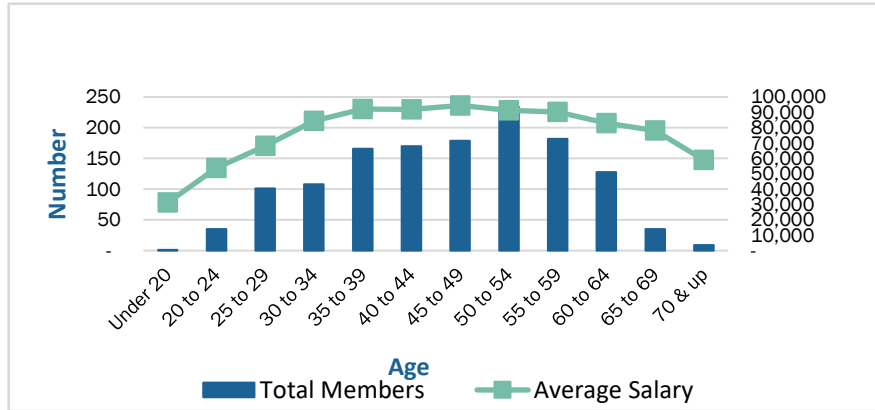
Age	Years of Service					
	Less than 20		20-29		30+	
	Male	Female	Male	Female	Male	Female
50	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
51	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
52	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
53	0.0%	0.0%	1.5%	1.0%	2.0%	1.5%
54	0.0%	0.0%	2.5%	1.0%	2.0%	2.0%
55	5.0%	3.0%	3.0%	3.0%	6.0%	5.0%
56	5.0%	3.0%	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, 2023

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	31,268	31,268
20 to 24	35	-	-	-	-	-	-	-	-	-	35	1,887,384	53,925
25 to 29	93	8	-	-	-	-	-	-	-	-	101	6,883,268	68,151
30 to 34	69	33	6	-	-	-	-	-	-	-	108	9,109,587	84,348
35 to 39	79	42	33	12	-	-	-	-	-	-	166	15,308,752	92,221
40 to 44	77	34	20	33	6	-	-	-	-	-	170	15,621,125	91,889
45 to 49	57	34	12	38	33	5	-	-	-	-	179	16,916,745	94,507
50 to 54	63	39	36	27	38	26	5	-	-	-	234	21,374,280	91,343
55 to 59	38	21	39	34	21	14	11	4	-	-	182	16,440,796	90,334
60 to 64	20	19	24	24	23	10	2	5	1	-	128	10,626,724	83,021
65 to 69	8	5	4	7	5	5	1	-	-	-	35	2,737,120	78,203
70 & up	-	2	1	-	3	1	-	1	1	1	9	532,156	59,128
Total	540	237	175	175	129	61	19	10	2	1,348	117,469,204	87,143	
Total Salary	37,696,312	20,678,807	15,528,887	18,218,706	14,265,668	7,339,308	2,125,508	1,372,907	243,101				
Average Salary	69,808	87,252	88,736	104,107	110,587	120,317	111,869	137,291	121,550				

Average Age: 46.6 Average Service: 10.1



SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.2 - Retired Members, Covered Spouses and Survivors as of July 1, 2023

Non-Medicare Plans		Medicare Plans		
Age	Blue Care Elect PPO	Network Blue New England HMO	Medex	Total
Under 40	0	0	0	0
40 to 44	0	3	0	3
45 to 49	0	0	0	0
50 to 54	1	3	0	4
55 to 59	1	14	0	15
60 to 64	10	48	29	87
65 to 69	1	8	160	169
70 to 74	0	2	185	187
75 to 79	0	2	160	162
80 to 84	0	0	101	101
85 to 89	1	1	47	49
90+	0	0	28	28
Total	14	81	710	805
Covered Spouses	8	40	364	412

Average Age: 73.7

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	Water	Sewer	Total
Summary of Member Data Used in Valuation				
Active Members	1,323	21	4	1,348
Average Age	46.6	44.3	49.8	46.6
Average Service	10.1	11.8	14.6	10.1
Covered Payroll	114,917,066	2,170,160	381,977	117,469,204
Retired Members and Survivors	814	14	2	830
Average Age	73.8	69.1	71.0	73.7
Covered Spouses	406	6	0	412
Expected Benefit Payments	4,936,492	118,093	7,156	5,061,741
OPEB Trust contributions	1,858,038	95,911	25,073	1,979,022
Total Employer Contributions	6,794,530	214,004	32,229	7,040,763
Beginning Net OPEB Liability - June 30, 2023				
Total OPEB Liability	126,737,757	5,592,381	1,349,988	133,680,126
Fiduciary Net Position	22,804,639	4,046,514	947,639	27,798,792
Net OPEB Liability	103,933,118	1,545,867	402,349	105,881,334
Total OPEB Liability, beginning of year	126,737,757	5,592,381	1,349,988	133,680,126
Service cost	3,429,535	44,485	8,190	3,482,210
Interest	7,661,943	334,669	81,276	8,077,888
Changes of benefit terms	0	0	0	0
Differences between expected and actual experience	(7,845,015)	(3,453,473)	(1,138,091)	(12,436,579)
Changes of assumptions	(5,556,255)	(213,427)	(15,027)	(5,784,709)
Benefit payments	(4,936,492)	(118,093)	(7,156)	(5,061,741)
Net change in total OPEB liability	(7,246,284)	(3,405,839)	(1,070,808)	(11,722,931)
Total OPEB Liability, end of year	119,491,473	2,186,542	279,180	121,957,195
Ending Net OPEB Liability - June 30, 2024				
Total OPEB Liability	119,491,473	2,186,542	279,180	121,957,195
Fiduciary Net Position	27,581,260	4,660,305	1,093,992	33,335,557
Net OPEB Liability	91,910,213	(2,473,763)	(814,812)	88,621,638

SECTION 9 - BREAKOUT OF RESULTS BY DEPARTMENT

Department	Town	Water	Sewer	Total
Total Deferred Outflows of Resources				
Differences between Expected and Actual Experience	0	0	0	0
Changes in Assumptions	0	0	0	0
Differences between Expected and Actual Earnings on OPEB Plan Investments	0	0	0	0
Total Deferred Outflows of Resources	0	0	0	0
Total Deferred Inflows of Resources				
Differences between Expected and Actual Experience	16,122,851	711,431	171,738	17,006,019
Changes in Assumptions	7,224,591	318,790	76,955	7,620,336
Differences between Expected and Actual Earnings on OPEB Plan Investments	2,012,955	357,184	83,648	2,453,786
Total Deferred Inflows of Resources	25,360,397	1,387,404	332,340	27,080,141
Total OPEB Expense (Income)	2,169,544	(2,685,390)	(922,129)	(1,437,975)
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate				
Current Discount Rate: 6.5%	91,910,213	(2,473,763)	(814,812)	88,621,638
1% Decrease in the Discount Rate: 5.5%	108,986,661	(2,161,286)	(774,915)	106,050,461
1% Increase in the Discount Rate: 7.5%	77,993,851	(2,728,415)	(847,326)	74,418,110
Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates				
Current Trend Rates	91,910,213	(2,473,763)	(814,812)	88,621,638
1% Decrease in Trend Rates	76,344,224	(2,758,601)	(851,180)	72,734,443
1% Increase in Trend Rates	111,339,450	(2,118,233)	(769,418)	108,451,800

SECTION 9 - BREAKOUT OF RESULTS BY DEPARTMENT

Department	Town	Water	Sewer	Total
Deferred Outflows of Resources and Deferred Inflows of Resources recognized in OPEB Expense				
2025	(6,760,393)	(369,844)	(88,593)	(7,218,830)
2026	(5,913,838)	(323,531)	(77,499)	(6,314,868)
2027	(5,498,680)	(300,819)	(72,059)	(5,871,558)
2028	(2,895,904)	(158,428)	(37,950)	(3,092,282)
2029	(2,554,510)	(139,751)	(33,476)	(2,727,737)
Thereafter	(1,737,071)	(95,031)	(22,764)	(1,854,866)

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.

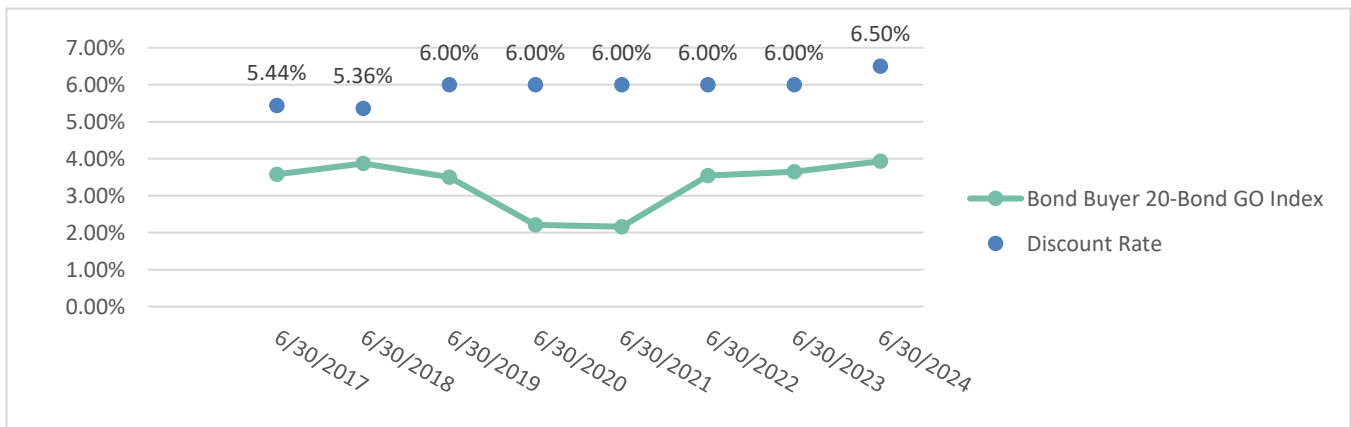
Projected cash flows into and out of the OPEB plan are assumed to be contributions to the OPEB plan, benefit payments, OPEB plan administrative expenses and OPEB plan investment earnings. These projected cash flows are used to project the OPEB plan's fiduciary net position at the beginning of each period. 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 3.93%, based on the Bond Buyer 20-Bond GO Index published on June 30, 2024. 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) * 2.52%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2024	119,535,835	-	119,535,835	5,061,740	1,979,022	-	7,040,762
2025	112,363,679	10,758,231	123,121,910	5,406,650	2,044,284	271,219	7,179,715
2026	106,450,503	20,365,064	126,815,567	5,808,828	2,111,963	513,410	7,407,381
2027	101,226,691	29,393,343	130,620,034	6,197,572	2,182,271	741,016	7,638,827
2028	95,969,558	38,569,077	134,538,635	6,596,222	2,255,362	972,339	7,879,245
2029	91,172,316	47,402,478	138,574,794	7,088,123	2,330,731	1,195,032	8,223,822
2030	86,563,927	56,168,111	142,732,038	7,483,602	2,409,172	1,416,017	8,476,757
2031	82,178,338	64,835,661	147,013,999	7,964,496	2,490,338	1,634,528	8,820,306
2032	77,969,910	73,454,509	151,424,419	8,347,142	2,574,585	1,851,813	9,069,914
2033	73,922,357	82,044,795	155,967,152	8,785,842	2,662,108	2,068,376	9,379,574
2034	69,704,312	90,941,855	160,646,167	9,219,377	2,752,958	2,292,674	9,679,661
2035	65,654,688	99,810,864	165,465,552	9,623,399	2,847,293	2,516,265	9,954,427
2036	61,689,224	108,740,295	170,429,519	9,868,762	2,945,515	2,741,379	10,072,898
2037	57,879,327	117,663,078	175,542,405	10,147,246	3,046,966	2,966,325	10,227,887
2038	54,261,950	126,546,727	180,808,677	10,486,446	3,152,039	3,190,285	10,448,200
2039	50,920,618	135,312,319	186,232,937	10,688,655	3,261,436	3,411,268	10,538,823
2040	47,751,704	144,068,221	191,819,925	11,019,206	3,374,683	3,632,008	10,761,881
2041	44,728,521	152,846,002	197,574,523	11,269,581	3,492,246	3,853,298	10,908,529
2042	41,795,165	161,706,594	203,501,759	11,508,051	3,401,637	4,076,677	10,833,011
2043	39,031,875	170,574,937	209,606,812	11,778,835	3,519,515	4,300,251	10,998,099
2044	36,282,602	179,612,414	215,895,016	11,934,416	3,641,652	4,528,088	11,047,980
2045	33,518,182	188,853,684	222,371,866	12,060,490	3,768,210	4,761,064	11,067,636
2046	30,841,562	198,201,460	229,043,022	12,336,682	3,899,352	4,996,724	11,239,310
2047	28,261,991	207,652,322	235,914,313	12,488,017	4,035,250	5,234,984	11,288,283
2048	25,769,891	217,221,851	242,991,742	12,545,707	4,176,082	5,476,235	11,245,554
2049	23,423,537	226,857,957	250,281,494	12,654,102	4,322,032	5,719,164	11,256,970
2050	21,202,176	236,587,763	257,789,939	12,614,286	4,473,294	5,964,456	11,123,124
2051	18,917,049	246,606,588	265,523,637	12,687,667	4,630,065	6,217,034	11,100,698
2052	16,906,836	256,582,510	273,489,346	12,811,922	4,792,554	6,468,530	11,135,946
2053	14,878,417	266,815,609	281,694,026	12,645,364	4,960,974	6,726,510	10,879,828
2054	13,025,049	277,119,798	290,144,847	12,820,786	5,135,549	6,986,282	10,970,053
2055	11,284,260	287,564,932	298,849,192	12,865,105	5,316,510	7,249,607	10,932,008

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) * 2.52%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2056	9,572,351	298,242,317	307,814,668	12,935,022	5,504,098	7,518,788	10,920,332
2057	7,964,081	309,085,027	317,049,108	13,034,799	5,698,563	7,792,136	10,941,226
2058	6,545,876	320,014,705	326,560,581	13,149,548	5,900,163	8,067,677	10,982,034
2059	5,231,098	331,126,300	336,357,398	13,073,360	6,109,170	8,347,804	10,834,726
2060	4,130,384	342,317,736	346,448,120	13,017,894	6,325,861	8,629,944	10,713,811
2061	3,180,025	353,661,539	356,841,564	12,920,861	6,550,529	8,915,925	10,555,465
2062	2,436,915	365,109,896	367,546,811	12,672,659	6,783,474	9,204,541	10,251,592
2063	1,749,042	376,824,173	378,573,215	12,523,130	7,025,010	9,499,862	10,048,278
2064	1,261,849	388,668,562	389,930,411	12,308,115	7,275,462	9,798,463	9,785,114
2065	911,003	400,717,320	401,628,323	12,172,871	7,535,168	10,102,216	9,605,823
2066	620,528	413,056,645	413,677,173	11,930,185	-	10,413,295	1,516,890
2067	394,222	425,693,266	426,087,488	11,729,965	-	10,731,868	998,097
2068	250,815	438,619,298	438,870,113	11,594,253	-	11,057,738	536,515
2069	177,229	451,858,987	452,036,216	11,415,622	-	11,391,515	24,107
2070	105,241	465,492,061	465,597,302	11,206,815	-	11,735,209	-
2071	77,017	479,488,204	479,565,221	11,001,672	-	12,088,056	-
2072	34,729	493,917,449	493,952,178	10,753,487	-	12,451,823	-
2073	12,219	508,758,524	508,770,743	10,515,464	-	12,825,971	-
2074	1,380	524,032,485	524,033,865	10,224,002	-	13,211,033	-
2075	-	539,754,881	539,754,881	9,923,872	-	13,607,399	-
2076	-	555,947,527	555,947,527	9,581,882	-	14,015,621	-
2077	-	572,625,953	572,625,953	9,214,899	-	14,436,090	-
2078	-	589,804,732	589,804,732	8,832,576	-	14,869,173	-
2079	-	607,498,874	607,498,874	8,432,757	-	15,315,248	-
2080	-	625,723,840	625,723,840	8,022,277	-	15,774,705	-
2081	-	644,495,555	644,495,555	7,588,063	-	16,247,946	-
2082	-	663,830,422	663,830,422	7,157,684	-	16,735,385	-
2083	-	683,745,335	683,745,335	6,693,069	-	17,237,446	-
2084	-	704,257,695	704,257,695	6,250,643	-	17,754,570	-
2085	-	725,385,426	725,385,426	5,793,057	-	18,287,207	-
2086	-	747,146,989	747,146,989	5,345,870	-	18,835,823	-
2087	-	769,561,399	769,561,399	4,905,026	-	19,400,898	-

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) * 2.52%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2088	-	792,648,241	792,648,241	4,454,341	-	19,982,925	-
2089	-	816,427,688	816,427,688	4,023,832	-	20,582,412	-
2090	-	840,920,519	840,920,519	3,595,553	-	21,199,885	-
2091	-	866,148,135	866,148,135	3,193,359	-	21,835,881	-
2092	-	892,132,579	892,132,579	2,801,470	-	22,490,958	-
2093	-	918,896,556	918,896,556	2,434,698	-	23,165,687	-
2094	-	946,463,453	946,463,453	2,086,873	-	23,860,657	-
2095	-	974,857,357	974,857,357	1,773,681	-	24,576,477	-
2096	-	1,004,103,078	1,004,103,078	1,485,032	-	25,313,771	-
2097	-	1,034,226,170	1,034,226,170	1,233,636	-	26,073,184	-
2098	-	1,065,252,955	1,065,252,955	1,008,675	-	26,855,380	-
2099	-	1,097,210,544	1,097,210,544	814,907	-	27,661,041	-
2100	-	1,130,126,860	1,130,126,860	647,810	-	28,490,873	-
2101	-	1,164,030,666	1,164,030,666	508,414	-	29,345,599	-
2102	-	1,198,951,586	1,198,951,586	392,601	-	30,225,967	-
2103	-	1,234,920,134	1,234,920,134	298,387	-	31,132,746	-
2104	-	1,271,967,738	1,271,967,738	222,890	-	32,066,728	-
2105	-	1,310,126,770	1,310,126,770	163,511	-	33,028,730	-
2106	-	1,349,430,573	1,349,430,573	117,703	-	34,019,592	-
2107	-	1,389,913,490	1,389,913,490	83,077	-	35,040,180	-
2108	-	1,431,610,895	1,431,610,895	57,452	-	36,091,385	-
2109	-	1,474,559,222	1,474,559,222	38,893	-	37,174,126	-
2110	-	1,518,795,999	1,518,795,999	25,759	-	38,289,350	-
2111	-	1,564,359,879	1,564,359,879	16,676	-	39,438,031	-
2112	-	1,611,290,675	1,611,290,675	10,546	-	40,621,172	-
2113	-	1,659,629,395	1,659,629,395	6,510	-	41,839,807	-
2114	-	1,709,418,277	1,709,418,277	3,922	-	43,095,001	-
2115	-	1,760,700,825	1,760,700,825	2,305	-	44,387,851	-
2116	-	1,813,521,850	1,813,521,850	1,321	-	45,719,487	-
2117	-	1,867,927,506	1,867,927,506	738	-	47,091,071	-
2118	-	1,923,965,331	1,923,965,331	401	-	48,503,803	-
2119	-	1,981,684,291	1,981,684,291	213	-	49,958,917	-

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) * 2.52%	Portion of Employer Contributions for Current Plan Members (g) = (d) + (e) - (f)
2120	-	2,041,134,820	2,041,134,820	109	-	51,457,685	-
2121	-	2,102,368,865	2,102,368,865	55	-	53,001,416	-
2122	-	2,165,439,931	2,165,439,931	26	-	54,591,458	-
2123	-	2,230,403,129	2,230,403,129	12	-	56,229,202	-
2124	-	2,297,315,223	2,297,315,223	5	-	57,916,078	-
2125	-	2,366,234,680	2,366,234,680	2	-	59,653,560	-
2126	-	2,437,221,720	2,437,221,720	-	-	61,443,167	-
2127	-	2,510,338,372	2,510,338,372	-	-	63,286,462	-

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)
2024	27,798,792	7,040,762	5,061,740	-	3,557,743	33,335,557
2025	33,335,557	7,179,715	5,406,650	-	2,224,436	37,333,058
2026	37,333,058	7,407,381	5,808,828	-	2,478,602	41,410,212
2027	41,410,212	7,638,827	6,197,572	-	2,738,505	45,589,973
2028	45,589,973	7,879,245	6,596,222	-	3,005,046	49,878,042
2029	49,878,042	8,223,822	7,088,123	-	3,278,983	54,292,724
2030	54,292,724	8,476,757	7,483,602	-	3,561,305	58,847,184
2031	58,847,184	8,820,306	7,964,496	-	3,852,881	63,555,875
2032	63,555,875	9,069,914	8,347,142	-	4,154,622	68,433,268
2033	68,433,268	9,379,574	8,785,842	-	4,467,459	73,494,459
2034	73,494,459	9,679,661	9,219,377	-	4,792,099	78,746,842
2035	78,746,842	9,954,427	9,623,399	-	5,129,303	84,207,173
2036	84,207,173	10,072,898	9,868,762	-	5,480,101	89,891,410
2037	89,891,410	10,227,887	10,147,246	-	5,845,563	95,817,615
2038	95,817,615	10,448,200	10,486,446	-	6,226,902	102,006,270
2039	102,006,270	10,538,823	10,688,655	-	6,625,538	108,481,977
2040	108,481,977	10,761,881	11,019,206	-	7,042,965	115,267,617
2041	115,267,617	10,908,529	11,269,581	-	7,480,661	122,387,226
2042	122,387,226	10,833,011	11,508,051	-	7,933,231	129,645,417
2043	129,645,417	10,998,099	11,778,835	-	8,401,578	137,266,258
2044	137,266,258	11,047,980	11,934,416	-	8,893,498	145,273,321
2045	145,273,321	11,067,636	12,060,490	-	9,410,498	153,690,965
2046	153,690,965	11,239,310	12,336,682	-	9,954,248	162,547,840
2047	162,547,840	11,288,283	12,488,017	-	10,526,618	171,874,724
2048	171,874,724	11,245,554	12,545,707	-	11,129,602	181,704,173
2049	181,704,173	11,256,970	12,654,102	-	11,765,364	192,072,405
2050	192,072,405	11,123,124	12,614,286	-	12,436,244	203,017,487
2051	203,017,487	11,100,698	12,687,667	-	13,144,560	214,575,079
2052	214,575,079	11,135,946	12,811,922	-	13,892,911	226,792,014
2053	226,792,014	10,879,828	12,645,364	-	14,684,101	239,710,578
2054	239,710,578	10,970,053	12,820,786	-	15,521,039	253,380,884
2055	253,380,884	10,932,008	12,865,105	-	16,406,932	267,854,719
2056	267,854,719	10,920,332	12,935,022	-	17,345,079	283,185,107
2057	283,185,107	10,941,226	13,034,799	-	18,338,991	299,430,525

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

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

Year	Projected Beginning Fiduciary Net Position (a)	Employer Contributions for Current Plan Members (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) +(e)
2058	299,430,525	10,982,034	13,149,548	-	19,392,540	316,655,551
2059	316,655,551	10,834,726	13,073,360	-	20,509,855	334,926,772
2060	334,926,772	10,713,811	13,017,894	-	21,695,358	354,318,048
2061	354,318,048	10,555,465	12,920,861	-	22,953,798	374,906,450
2062	374,906,450	10,251,592	12,672,659	-	24,290,235	396,775,617
2063	396,775,617	10,048,278	12,523,130	-	25,709,982	420,010,747
2064	420,010,747	9,785,114	12,308,115	-	27,218,701	444,706,447
2065	444,706,447	9,605,823	12,172,871	-	28,822,490	470,961,889
2066	470,961,889	1,516,890	11,930,185	-	30,274,091	490,822,685
2067	490,822,685	998,097	11,729,965	-	31,554,689	511,645,506
2068	511,645,506	536,515	11,594,253	-	32,897,581	533,485,349
2069	533,485,349	24,107	11,415,622	-	34,306,323	556,400,157
2070	556,400,157	-	11,206,815	-	35,801,789	580,995,131
2071	580,995,131	-	11,001,672	-	37,407,129	607,400,588
2072	607,400,588	-	10,753,487	-	39,131,550	635,778,651
2073	635,778,651	-	10,515,464	-	40,983,860	666,247,047
2074	666,247,047	-	10,224,002	-	42,973,778	698,996,823
2075	698,996,823	-	9,923,872	-	45,112,268	734,185,219
2076	734,185,219	-	9,581,882	-	47,410,628	772,013,965
2077	772,013,965	-	9,214,899	-	49,881,424	812,680,490
2078	812,680,490	-	8,832,576	-	52,537,173	856,385,087
2079	856,385,087	-	8,432,757	-	55,390,966	903,343,296
2080	903,343,296	-	8,022,277	-	58,456,590	953,777,609
2081	953,777,609	-	7,588,063	-	61,748,933	1,007,938,479
2082	1,007,938,479	-	7,157,684	-	65,283,376	1,066,064,171
2083	1,066,064,171	-	6,693,069	-	69,076,646	1,128,447,748
2084	1,128,447,748	-	6,250,643	-	73,145,958	1,195,343,063
2085	1,195,343,063	-	5,793,057	-	77,509,025	1,267,059,031
2086	1,267,059,031	-	5,345,870	-	82,185,096	1,343,898,257
2087	1,343,898,257	-	4,905,026	-	87,193,973	1,426,187,204
2088	1,426,187,204	-	4,454,341	-	92,557,402	1,514,290,265
2089	1,514,290,265	-	4,023,832	-	98,298,093	1,608,564,526
2090	1,608,564,526	-	3,595,553	-	104,439,839	1,709,408,812
2091	1,709,408,812	-	3,193,359	-	111,007,789	1,817,223,242

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)
2092	1,817,223,242	-	2,801,470	-	118,028,463	1,932,450,235
2093	1,932,450,235	-	2,434,698	-	125,530,138	2,055,545,675
2094	2,055,545,675	-	2,086,873	-	133,542,646	2,187,001,448
2095	2,187,001,448	-	1,773,681	-	142,097,450	2,327,325,217
2096	2,327,325,217	-	1,485,032	-	151,227,876	2,477,068,061
2097	2,477,068,061	-	1,233,636	-	160,969,331	2,636,803,756
2098	2,636,803,756	-	1,008,675	-	171,359,462	2,807,154,543
2099	2,807,154,543	-	814,907	-	182,438,561	2,988,778,197
2100	2,988,778,197	-	647,810	-	194,249,529	3,182,379,916
2101	3,182,379,916	-	508,414	-	206,838,171	3,388,709,673
2102	3,388,709,673	-	392,601	-	220,253,369	3,608,570,441
2103	3,608,570,441	-	298,387	-	234,547,381	3,842,819,435
2104	3,842,819,435	-	222,890	-	249,776,019	4,092,372,564
2105	4,092,372,564	-	163,511	-	265,998,903	4,358,207,956
2106	4,358,207,956	-	117,703	-	283,279,692	4,641,369,945
2107	4,641,369,945	-	83,077	-	301,686,346	4,942,973,214
2108	4,942,973,214	-	57,452	-	321,291,392	5,264,207,154
2109	5,264,207,154	-	38,893	-	342,172,201	5,606,340,462
2110	5,606,340,462	-	25,759	-	364,411,293	5,970,725,996
2111	5,970,725,996	-	16,676	-	388,096,648	6,358,805,968
2112	6,358,805,968	-	10,546	-	413,322,045	6,772,117,467
2113	6,772,117,467	-	6,510	-	440,187,424	7,212,298,381
2114	7,212,298,381	-	3,922	-	468,799,267	7,681,093,726
2115	7,681,093,726	-	2,305	-	499,271,017	8,180,362,438
2116	8,180,362,438	-	1,321	-	531,723,516	8,712,084,633
2117	8,712,084,633	-	738	-	566,285,477	9,278,369,372
2118	9,278,369,372	-	401	-	603,093,996	9,881,462,967
2119	9,881,462,967	-	213	-	642,295,086	10,523,757,840
2120	10,523,757,840	-	109	-	684,044,256	11,207,801,987
2121	11,207,801,987	-	55	-	728,507,127	11,936,309,059
2122	11,936,309,059	-	26	-	775,860,088	12,712,169,121
2123	12,712,169,121	-	12	-	826,290,992	13,538,460,101
2124	13,538,460,101	-	5	-	879,999,906	14,418,460,002
2125	14,418,460,002	-	2	-	937,199,900	15,355,659,900

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)
2126	15,355,659,900	-	-	-	998,117,894	16,353,777,794
2127	16,353,777,794	-	-	-	1,062,995,557	17,416,773,351

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

Table 3: Actuarial Present Value of Projected Benefit Payments

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%
2025	33,335,557	5,406,650	5,406,650	-	5,239,061	-	5,239,061
2026	37,333,058	5,808,828	5,808,828	-	5,285,233	-	5,285,233
2027	41,410,212	6,197,572	6,197,572	-	5,294,776	-	5,294,776
2028	45,589,973	6,596,222	6,596,222	-	5,291,413	-	5,291,413
2029	49,878,042	7,088,123	7,088,123	-	5,338,977	-	5,338,977
2030	54,292,724	7,483,602	7,483,602	-	5,292,829	-	5,292,829
2031	58,847,184	7,964,496	7,964,496	-	5,289,150	-	5,289,150
2032	63,555,875	8,347,142	8,347,142	-	5,204,940	-	5,204,940
2033	68,433,268	8,785,842	8,785,842	-	5,144,127	-	5,144,127
2034	73,494,459	9,219,377	9,219,377	-	5,068,510	-	5,068,510
2035	78,746,842	9,623,399	9,623,399	-	4,967,726	-	4,967,726
2036	84,207,173	9,868,762	9,868,762	-	4,783,460	-	4,783,460
2037	89,891,410	10,147,246	10,147,246	-	4,618,257	-	4,618,257
2038	95,817,615	10,486,446	10,486,446	-	4,481,347	-	4,481,347
2039	102,006,270	10,688,655	10,688,655	-	4,288,977	-	4,288,977
2040	108,481,977	11,019,206	11,019,206	-	4,151,752	-	4,151,752
2041	115,267,617	11,269,581	11,269,581	-	3,986,936	-	3,986,936
2042	122,387,226	11,508,051	11,508,051	-	3,822,818	-	3,822,818
2043	129,645,417	11,778,835	11,778,835	-	3,673,961	-	3,673,961
2044	137,266,258	11,934,416	11,934,416	-	3,495,295	-	3,495,295
2045	145,273,321	12,060,490	12,060,490	-	3,316,637	-	3,316,637
2046	153,690,965	12,336,682	12,336,682	-	3,185,531	-	3,185,531
2047	162,547,840	12,488,017	12,488,017	-	3,027,801	-	3,027,801
2048	171,874,724	12,545,707	12,545,707	-	2,856,139	-	2,856,139
2049	181,704,173	12,654,102	12,654,102	-	2,704,992	-	2,704,992
2050	192,072,405	12,614,286	12,614,286	-	2,531,907	-	2,531,907
2051	203,017,487	12,687,667	12,687,667	-	2,391,207	-	2,391,207
2052	214,575,079	12,811,922	12,811,922	-	2,267,253	-	2,267,253
2053	226,792,014	12,645,364	12,645,364	-	2,101,201	-	2,101,201
2054	239,710,578	12,820,786	12,820,786	-	2,000,328	-	2,000,328
2055	253,380,884	12,865,105	12,865,105	-	1,884,735	-	1,884,735
2056	267,854,719	12,935,022	12,935,022	-	1,779,322	-	1,779,322

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

Table 3: Actuarial Present Value of Projected Benefit Payments

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%
2057	283,185,107	13,034,799	13,034,799	-	1,683,612	-	1,683,612
2058	299,430,525	13,149,548	13,149,548	-	1,594,773	-	1,594,773
2059	316,655,551	13,073,360	13,073,360	-	1,488,764	-	1,488,764
2060	334,926,772	13,017,894	13,017,894	-	1,391,969	-	1,391,969
2061	354,318,048	12,920,861	12,920,861	-	1,297,271	-	1,297,271
2062	374,906,450	12,672,659	12,672,659	-	1,194,696	-	1,194,696
2063	396,775,617	12,523,130	12,523,130	-	1,108,544	-	1,108,544
2064	420,010,747	12,308,115	12,308,115	-	1,023,015	-	1,023,015
2065	444,706,447	12,172,871	12,172,871	-	950,023	-	950,023
2066	470,961,889	11,930,185	11,930,185	-	874,256	-	874,256
2067	490,822,685	11,729,965	11,729,965	-	807,121	-	807,121
2068	511,645,506	11,594,253	11,594,253	-	749,091	-	749,091
2069	533,485,349	11,415,622	11,415,622	-	692,535	-	692,535
2070	556,400,157	11,206,815	11,206,815	-	638,374	-	638,374
2071	580,995,131	11,001,672	11,001,672	-	588,440	-	588,440
2072	607,400,588	10,753,487	10,753,487	-	540,061	-	540,061
2073	635,778,651	10,515,464	10,515,464	-	495,875	-	495,875
2074	666,247,047	10,224,002	10,224,002	-	452,705	-	452,705
2075	698,996,823	9,923,872	9,923,872	-	412,597	-	412,597
2076	734,185,219	9,581,882	9,581,882	-	374,064	-	374,064
2077	772,013,965	9,214,899	9,214,899	-	337,782	-	337,782
2078	812,680,490	8,832,576	8,832,576	-	304,007	-	304,007
2079	856,385,087	8,432,757	8,432,757	-	272,531	-	272,531
2080	903,343,296	8,022,277	8,022,277	-	243,441	-	243,441
2081	953,777,609	7,588,063	7,588,063	-	216,211	-	216,211
2082	1,007,938,479	7,157,684	7,157,684	-	191,501	-	191,501
2083	1,066,064,171	6,693,069	6,693,069	-	168,141	-	168,141
2084	1,128,447,748	6,250,643	6,250,643	-	147,443	-	147,443
2085	1,195,343,063	5,793,057	5,793,057	-	128,309	-	128,309
2086	1,267,059,031	5,345,870	5,345,870	-	111,178	-	111,178
2087	1,343,898,257	4,905,026	4,905,026	-	95,784	-	95,784
2088	1,426,187,204	4,454,341	4,454,341	-	81,674	-	81,674

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

Table 3: Actuarial Present Value of Projected Benefit Payments

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%
2089	1,514,290,265	4,023,832	4,023,832	-	69,277	-	69,277
2090	1,608,564,526	3,595,553	3,595,553	-	58,125	-	58,125
2091	1,709,408,812	3,193,359	3,193,359	-	48,473	-	48,473
2092	1,817,223,242	2,801,470	2,801,470	-	39,929	-	39,929
2093	1,932,450,235	2,434,698	2,434,698	-	32,583	-	32,583
2094	2,055,545,675	2,086,873	2,086,873	-	26,224	-	26,224
2095	2,187,001,448	1,773,681	1,773,681	-	20,928	-	20,928
2096	2,327,325,217	1,485,032	1,485,032	-	16,453	-	16,453
2097	2,477,068,061	1,233,636	1,233,636	-	12,833	-	12,833
2098	2,636,803,756	1,008,675	1,008,675	-	9,853	-	9,853
2099	2,807,154,543	814,907	814,907	-	7,474	-	7,474
2100	2,988,778,197	647,810	647,810	-	5,579	-	5,579
2101	3,182,379,916	508,414	508,414	-	4,111	-	4,111
2102	3,388,709,673	392,601	392,601	-	2,981	-	2,981
2103	3,608,570,441	298,387	298,387	-	2,127	-	2,127
2104	3,842,819,435	222,890	222,890	-	1,492	-	1,492
2105	4,092,372,564	163,511	163,511	-	1,028	-	1,028
2106	4,358,207,956	117,703	117,703	-	695	-	695
2107	4,641,369,945	83,077	83,077	-	460	-	460
2108	4,942,973,214	57,452	57,452	-	299	-	299
2109	5,264,207,154	38,893	38,893	-	190	-	190
2110	5,606,340,462	25,759	25,759	-	118	-	118
2111	5,970,725,996	16,676	16,676	-	72	-	72
2112	6,358,805,968	10,546	10,546	-	43	-	43
2113	6,772,117,467	6,510	6,510	-	25	-	25
2114	7,212,298,381	3,922	3,922	-	14	-	14
2115	7,681,093,726	2,305	2,305	-	8	-	8
2116	8,180,362,438	1,321	1,321	-	4	-	4
2117	8,712,084,633	738	738	-	2	-	2
2118	9,278,369,372	401	401	-	1	-	1
2119	9,881,462,967	213	213	-	1	-	1
2120	10,523,757,840	109	109	-	-	-	-

APPENDIX A - CALCULATION OF SINGLE DISCOUNT RATE

Table 3: Actuarial Present Value of Projected Benefit Payments

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%
2121	11,207,801,987	55	55	-	-	-	-
2122	11,936,309,059	26	26	-	-	-	-
2123	12,712,169,121	12	12	-	-	-	-
2124	13,538,460,101	5	5	-	-	-	-
2125	14,418,460,002	2	2	-	-	-	-
2126	15,355,659,900	-	-	-	-	-	-
2127	16,353,777,794	-	-	-	-	-	-

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

Year	Differences between Expected and Actual Experience	Recognition Period (Years)										
			2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2019	-	5.56	-	-	-	-	-	-	-	-	-	-
2020	(6,118,571)	5.08	(1,204,443)	(96,356)	-	-	-	-	-	-	-	-
2021	-	5.08	-	-	-	-	-	-	-	-	-	-
2022	(13,220,552)	5.76	(2,295,235)	(2,295,235)	(2,295,235)	(1,744,377)	-	-	-	-	-	-
2023	-	5.76	-	-	-	-	-	-	-	-	-	-
2024	(12,436,579)	6.68	(1,861,763)	(1,861,763)	(1,861,763)	(1,861,763)	(1,861,763)	(1,861,763)	(1,861,763)	(1,266,001)	-	-
Net Increase (Decrease) in OPEB Expense			(5,361,441)	(4,253,354)	(4,156,998)	(3,606,140)	(1,861,763)	(1,861,763)	(1,266,001)	-	-	-

Year	Changes of Assumptions	Recognition Period (Years)										
			2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2019	(12,768,804)	5.56	(1,286,069)	-	-	-	-	-	-	-	-	-
2020	(9,465,966)	5.08	(1,863,379)	(149,071)	-	-	-	-	-	-	-	-
2021	-	5.08	-	-	-	-	-	-	-	-	-	-
2022	(5,327,020)	5.76	(924,830)	(924,830)	(924,830)	(702,870)	-	-	-	-	-	-
2023	-	5.76	-	-	-	-	-	-	-	-	-	-
2024	(5,784,709)	6.68	(865,974)	(865,974)	(865,974)	(865,974)	(865,974)	(865,974)	(865,974)	(588,865)	-	-
Net Increase (Decrease) in OPEB Expense			(4,940,252)	(1,939,875)	(1,790,804)	(1,568,844)	(865,974)	(865,974)	(588,865)	-	-	-

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)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2019	(138,022)	5	-	-	-	-	-	-	-	-	-	-
2020	321,213	5	64,243	-	-	-	-	-	-	-	-	-
2021	(3,292,684)	5	(658,537)	(658,536)	-	-	-	-	-	-	-	-
2022	1,647,533	5	329,507	329,507	329,507	-	-	-	-	-	-	-
2023	(1,660,142)	5	(332,028)	(332,028)	(332,029)	(332,029)	-	-	-	-	-	-
2024	(1,822,722)	5	(364,544)	(364,544)	(364,544)	(364,545)	(364,545)	-	-	-	-	-
Net Increase (Decrease) in OPEB Expense			(961,359)	(1,025,601)	(367,066)	(696,574)	(364,545)	-	-	-	-	-