Town of Needham
Other Postemployment Benefits Plan

GASB 75 Actuarial Valuation

With a Valuation Date of June 30, 2018

As of the Measurement Date: June 30, 2018	&	As of the Measurement Date: June 30, 2019
For the Reporting Date: June 30, 2019		For the Reporting Date: June 30, 2020

Delivered May 9, 2019

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May 9, 2019

Personal and Confidential

Mr. David Davison
Asst Town Manager & Director of Finance
Town of Needham
1471 Highland Avenue
Needham, MA 02492

Dear Mr. Davison:

We have performed an actuarial valuation of the Town of Needham Other Postemployment Benefits Plan for the Reporting Date & fiscal year ending June 30, 2019 with a Measurement Date of June 30, 2018 and a Valuation Date of June 30, 2018. The figures presented in this report reflect the adoption, by the Town of Needham, of Statement No. 75 of the Governmental Accounting Standards Board ("GASB 75") effective for the fiscal years ending June 30, 2017 and June 30, 2018 respectively.

The financial results of the actuarial valuation are summarized in the report. The Executive Summaries highlight the results of the valuation. Additional information summarizing census data, actuarial assumptions, claim rates and the methodology for developing them, as well as a glossary of selected terms used in this study, is also included in the report.

All costs, liabilities and other factors under the plan were determined in accordance with generally accepted actuarial principles and procedures. In our opinion, the actuarial assumptions used are reasonable, reflecting the experience of the plan and reasonable expectations and, in combination, represent our best estimate of the anticipated experience under the plan.

We will be pleased to answer any questions that you may have regarding this actuarial valuation report.

Very truly yours,

Parker E. Elmore, ASA, EA, FCA, MAAA
President, CEO & Actuary

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ACTUARIAL CERTIFICATION

This is to certify that Odyssey Advisors has conducted an actuarial valuation of certain benefit obligations of the Town of Needham other postemployment benefit programs with a Valuation Date of June 30, 2018 with a Measurement Date of June 30, 2018 for the Reporting Date & fiscal year ending June 30, 2019 in accordance with Government Account Standards Board Statement No. 74 & 75 and Actuarial Standards of Practice as issued by the American Academy of Actuaries. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statements Numbers 74 & 75 for the determination of the liability for postemployment benefits other than pensions.

The actuarial data is based on the plan of benefits verified by the Town and on participant claims or premium data provided by the Town and/or vendors employed by the Town.

The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may yield results significantly different than those reported here. As such, additional determinations may be needed for other purposes including determining the benefit security at termination and/or adequacy of the funding of an ongoing plan.

To the best of our knowledge, this report is complete and accurate and in our opinion represents the information necessary to comply with GASB Statements Number 74 and 75 with respect to the benefit obligations addressed. The signing actuaries are members of the Society of Actuaries, the American Academy of Actuaries and other professional actuarial organizations and meet their "General Qualification Standards for Statements of Actuarial Opinion" to render the actuarial opinion contained herein. Further, in our opinion, the assumptions as approved by the Town are reasonably related to the experience and expectations of the postemployment benefits programs.

Parker E. Elmore, ASA, EA, FCA, MAAA
President, CEO & Actuary

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EXECUTIVE SUMMARY

What caused plan liabilities to change from FY 18 to FY 19?

For the year ending on the Measurement Date of June 30, 2018, the Plan saw an experience gain of $9,997,742 or 11.97% of the beginning Total OPEB Liability ("TOL"). This was mainly due to a decrease in the number of retirees and spouses with medical coverage as well as premiums for Medicare supplement plans decreasing slightly vs an expected 7.0% increase.

Assumption changes

Some key assumptions have changed since the prior valuation - their impact is detailed below.

- ✓ Due to the GASB 75 standards the discount rate has been changed from 7.50% to 7.00% increasing the disclosed liability by $5.9 million.
- ✓ The expected medical trend has been updated increasing the disclosed liability by $6.5 million.
- ✓ Based on recommendations by PERAC, the mortality table has been updated to the RP-2000 Mortality Table projected generationally with scale BB and a base year 2009 for males and females increasing the disclosed liability by $3 million.
- ✓ The percentage of employees assumed to elect coverage in retirement has been updated increasing the disclosed liability by $6 million.
- ✓ Assumption changes caused Service Cost to increase by $1.2 million.

It is important to remember that actuarial assumptions or changes in such do not impact the actual cost of the Plan. Rather, they impact the timing of the recognition of such costs.

Changes in Benefits Terms

- ✓ To the best of our knowledge there have been no material changes in benefit terms that would impact the figures shown in this report.

Recognition Period

- ✓ Changes in assumptions & plan experience are amortized into the net OPEB expense over time until fully recognized
- ✓ Changes in benefit terms are to be recognized in full immediately

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EXECUTIVE SUMMARY

Events Subsequent to the Measurement Date

To the best of our knowledge there were no material events subsequent to the Measurement Date that would impact the figures shown in this report.

Key Drivers of Plan Liabilities

Several key drivers of plan costs and liabilities are:

- ✓ Premiums for Post 65 (Medicare integrated) plans - represent 69% of the total plan liabilities
- ✓ Age at which plan participants retire
- ✓ Percentage of plan participants who elect coverage for themselves and/or a spouse
- ✓ Medical care cost inflation rate – We currently assume medical costs increase by 9.00% for 2019, grading down 0.50% per year for an ultimate trend rate of 4.50%.
- ✓ Discount Rate (7.00%) – Higher discount rates yield lower liabilities and vice versa
- ✓ Cost Sharing - Under Massachusetts law you may charge retirees up to 50% of premiums for health insurance

Discount Rate Determinants

- ✓ Employer Current and Future Benefit Payments
- ✓ Municipal Bond Rate – The municipal bond rate was 2.98% as of June 30, 2018.
- ✓ Current Asset Level – The Town had $32,878,807 of assets as of June 30, 2018.
- ✓ Funding Policy - The Town is expected to make annual contributions to the trust with the goal to be fully funded by FY 2041.
- ✓ Investment Policy - The Town is expected to earn 7.04% on assets based on its investment policy.

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EXECUTIVE SUMMARY

Key Plan Metrics

While an actuarial valuation under GASB 74/75 can be very complex with many variables, we find it helpful to look at several key metrics shown below to better allow you to manage your plan.

Representative Plan Statistics

Valuation Date	**June 30, 2018**	**June 30, 2017**
Measurement Date & Period Ending	**June 30, 2018**	**June 30, 2017**
Reporting Date/Fiscal Year End	**June 30, 2019**	**June 30, 2018**
Total OPEB Liability	99,527,289	83,552,257
Per Eligible Active Plan Participant	44,611	N/A
Per Retiree/Spouse Plan Participant	49,511	N/A
Total Annual Service Cost (annual benefit accrual)	2,614,866	2,486,847
Expected Employer Share of Retiree Costs	3,280,000	3,958,395
Per Retiree/Spouse Plan Participant	3,792	4,243
Net OPEB Liability as a % of Payroll	71.60%	63.50%
Average Annual Medical Plan Premium (Single Coverage)	6,369	N/A
Average Annual Medical Plan Premium (Family Coverage)	23,866	N/A
Projected 2022 Excise Tax Thresholds		
Annual Medical Plan Premium (Single Coverage)	12,511	
Annual Medical Plan Premium (Family Coverage)	32,676	

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PRINCIPAL RESULTS OF THE VALUATION

Town of Needham
Assuming Funding - 7.00% discount rate
Comparison of Plan Liabilities to Prior Valuation

	Valuation Date	**June 30, 2018**	**June 30, 2017**
	For the Measurement Period ending on the Measurement Date of:	**June 30, 2018**	**June 30, 2017**
	For the Reporting Period & Fiscal Year ending on:	**June 30, 2019**	**June 30, 2018**
I.	Total OPEB Liability		
	A. Actives	56,700,098	N/A
	B. Retirees/Disabled	42,827,191	N/A
	C. Total	99,527,289	83,552,257
II.	Fiduciary Net Position [Plan Assets]	32,878,807	26,835,171
III.	Net OPEB Liability (Asset) [I. - II.]	66,648,482	56,717,086
IV.	Funded Ratio [II. / I.]	33.03%	32.12%
V.	Number of Eligible Participants		
	A. Actives*	1,271	828
	B. Vested terminated employees	0	17
	C. Retirees/Disabled	865	933
	D. Total	2,136	1,778
VI.	Service Cost	2,614,866	2,486,847
VII.	Financial Statement Expense	6,953,225	6,201,409
VIII.	Employer Share of Costs Excluding Implicit Cost	(3,280,000)	(3,958,395)
IX.	Additional Employer (Payments)/Withdrawals to/from OPEB Trust	(2,835,455)	(2,358,647)
X.	Total Employer Contribution excluding implicit cost [VIII. + IX.]	(6,115,455)	(6,317,042)
XI.	Discount Rate	7.00%	7.50%
XII.	20-year Municipal Bond Rate (SAPIHG)	2.98%	3.13%
XIII.	Expected Long Term Rate of Return	7.04%	7.50%
XIV.	Money Weighted Rate of Return	10.18%	14.25%

*For FY 18 only actives with medical coverage were included, for FY 19 all benefit eligible actives were included

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PRINCIPAL RESULTS OF THE VALUATION

Town of Needham
Plan Liabilities as of the June 30, 2018 Measurement Date
Assuming Funding - 7.00% discount rate

	Town Employees and Retirees	School Employees and Retirees	Police Employees and Retirees	Fire Employees and Retirees	RTS Enterprise Employees and Retirees	Sewer Enterprise Employees and Retirees	Water Enterprise Employees and Retirees	Total
I. Total OPEB Liability								
A. Actives	8,490,515	37,255,525	3,821,767	4,845,333	313,695	993,905	979,358	56,700,098
B. Retirees/Disabled	7,931,987	28,801,486	2,134,883	3,600,647	28,446	110,915	218,827	42,827,191
C. Total	16,422,502	66,057,011	5,956,650	8,445,980	342,141	1,104,820	1,198,185	99,527,289
II. Fiduciary Net Position [Plan Assets]	5,426,196	21,818,620	1,966,128	2,792,781	113,297	364,806	396,979	32,878,807
III. Net OPEB Liability (Asset) [I. - II.]	10,996,306	44,238,391	3,990,522	5,653,199	228,844	740,014	801,206	66,648,482
IV. Number of Eligible Participants								
A. Actives	206	907	54	66	10	11	17	1,271
B. Retirees/Disabled	191	585	35	46	1	4	3	865
C. Total	397	1,492	89	112	11	15	20	2,136
For the Reporting Date and Fiscal Year Ending June 30, 2019								
V. Service Cost	406,449	1,817,712	151,738	160,252	22,745	21,038	34,932	2,614,866
VI. Financial Statement Expense	367,344	5,326,839	458,728	592,848	40,022	73,378	94,066	6,953,225
VII. Employer Share of Costs Excluding Implicit Cost	(628,594)	(2,218,034)	(161,027)	(239,488)	(2,151)	(11,608)	(19,098)	(3,280,000)
VIII. Employer (Payments)/Withdrawals to/from OPEB Trust	(440,586)	(1,902,572)	(172,227)	(242,209)	(10,515)	(32,212)	(35,134)	(2,835,455)
IX. Total Employer Contribution [VII. + VIII.]	(1,069,180)	(4,120,606)	(333,254)	(481,697)	(12,666)	(43,820)	(54,232)	(6,115,455)
X. Implicit Cost	(133,286)	(470,310)	(34,144)	(50,781)	(456)	(2,461)	(4,050)	(695,488)
XI. Total Employer Payments Including Implicit Cost	(1,202,466)	(4,590,916)	(367,398)	(532,478)	(13,122)	(46,281)	(58,282)	(6,810,943)

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PRINCIPAL RESULTS OF THE VALUATION

Town of Needham
Assuming Funding - 7.00% discount rate
For the Period ending on the June 30, 2018 Measurement Date

	Actives			Retirees/Disabled			Grand Total
	Under Age 65	Age 65+	Actives Total	Under Age 65	Age 65 +	Retirees Total	
Present Value of Future Benefits							
A. Participants	22,839,803	28,739,940	51,579,743	3,488,958	36,363,201	39,852,159	91,431,902
B. Spouses	12,891,372	15,222,019	28,113,391	1,330,016	1,645,016	2,975,032	31,088,423
C. Total	35,731,175	43,961,959	79,693,134	4,818,974	38,008,217	42,827,191	122,520,325
Total OPEB Liability							
A. Participants	16,496,179	20,108,278	36,604,457	3,488,958	36,363,201	39,852,159	76,456,616
B. Spouses	9,485,047	10,610,594	20,095,641	1,330,016	1,645,016	2,975,032	23,070,673
C. Total	25,981,226	30,718,872	56,700,098	4,818,974	38,008,217	42,827,191	99,527,289
Service Cost							
A. Participants	688,348	1,010,546	1,698,894	0	0	0	1,698,894
B. Spouses	380,395	535,577	915,972	0	0	0	915,972
C. Total	1,068,743	1,546,123	2,614,866	0	0	0	2,614,866

EXHIBIT A

FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

The GASB Standards for accounting and financial reporting for postemployment benefits other than pensions require the following disclosures in the financial statements:

1. OPEB Expense Development

Components of the Town's OPEB Expenses for the Fiscal Year Ending June 30, 2019

Description	Amount
I. Service Cost	2,614,866
II. Interest on Total OPEB Liability (Asset), Service Cost, and Benefit Payments	5,894,910
III. Deferred (Inflows)/Outflows from Plan Design Changes*	0
IV. Deferred (Inflows)/Outflows from Plan Experience**	(1,375,418)
V. Deferred (Inflows)/Outflows from Changes of Assumptions**	2,400,330
VI. Projected earnings on OPEB plan investments	(2,088,812)
VII. Deferred (Inflows)/Outflows from Earnings on Plan Investments***	(492,651)
VIII. Financial statement expense [I. + II.+ III. + IV. + V. + VI. + VII.]	6,953,225

* Recognized Immediately

** Amortized over 5.99 years

*** Amortized over 5 years

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FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

2. Changes in Net OPEB Liability

Changes in Net OPEB Liability	Increase (Decrease)		
	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability
I. Balances at June 30, 2017	83,552,257	26,835,171	56,717,086
II. Prior period adjustment	0	0	0
III. Balances at June 30, 2017 with adjustment [I. + II.]	83,552,257	26,835,171	56,717,086
Changes for the year:			
IV. Service Cost	2,614,866	0	2,614,866
V. Interest on Total OPEB Liability, Service Cost, and Benefit Payments	5,894,910	0	5,894,910
VI. Changes in Benefit terms *	0	0	0
VII. Change in assumptions **	21,438,486	0	21,438,486
VIII. Differences between actual and expected experience **	(9,997,742)	0	(9,997,742)
IX. Net Investment Income	0	3,208,181	(3,208,181)
X. Employer Contributions to Trust	0	6,115,455	(6,115,455)
XI. Benefit Payments Withdrawn from Trust	0	(3,280,000)	3,280,000
XII. Benefit payments excluding Implicit Cost	(3,280,000)	0	(3,280,000)
XIII. Implicit Cost amount	(695,488)	0	(695,488)
XIV. Total Benefit payments including Implicit Cost [XII. + XIII.]	(3,975,488)	0	(3,975,488)
XV. Administrative expense	0	0	0
XVI. Other Charges	0	0	0
XVII. Net Changes [IV.+V.+VI.+VII.+VIII.+IX.+X.+XI.+XIV.+XV.+XVI.]	15,975,032	6,043,636	9,931,396
XVIII. Balances at June 30, 2018 [III.+XVII.]	99,527,289	32,878,807	66,648,482

* Recognized Immediately

** Amortized over 5.99 years

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FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

3. Changes in Net OPEB Expense

Deferred (Inflows)/Outflows in OPEB Expense arising from the recognition of the effects of differences between expected & actual experience

Fiscal	Differences between actual & expected experience	Recognition Period (years)	Remaining Balance	2017	2018	2019	2020	2021	2022
2017									
2018	1,468,270	5.00	880,962		293,654	293,654	293,654	293,654	293,654
2019	(9,997,742)	5.99	(8,328,670)			(1,669,072)	(1,669,072)	(1,669,072)	(1,669,072)
2020									
2021									
2022									
2023									
2024									
2025									
2026									
Total Remaining Balance			(7,447,708)						
Net increase (decrease) in OPEB expense				0	293,654	(1,375,418)	(1,375,418)	(1,375,418)	(1,375,418)

Deferred (Inflows)/Outflows in OPEB Expense arising from the recognition of the effects of Changes in Assumptions

Fiscal	Differences from changes in Actuarial Assumptions	Recognition Period (years)	Remaining Balance	2017	2018	2019	2020	2021	2022
2017									
2018	(5,893,578)	5.00	(3,536,146)		(1,178,716)	(1,178,716)	(1,178,716)	(1,178,716)	(1,178,714)
2019	21,438,486	5.99	17,859,440			3,579,046	3,579,046	3,579,046	3,579,046
2020									
2021									
2022									
2023									
2024									
2025									
2026									
Total Remaining Balance			14,323,295						
Net increase (decrease) in OPEB expense				0	(1,178,716)	2,400,330	2,400,330	2,400,330	2,400,333

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FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

3. Changes in Net OPEB Expense (Continued)

Statement of Outflows & Inflows Arising from Current & Prior Reporting Periods for the Measurement Period ending on June 30, 2018 to be reported for the fiscal year ending June 30, 2019

	Deferred Outflows of Resources	Deferred Inflows of Resources
I. Differences between actual & expected experience	880,962	(8,328,670)
II. Changes of assumptions	17,859,440	(3,536,146)
III. Net difference between projected & actual earnings on OPEB plan investments	0	(1,701,826)
IV. Total [I.+II.+III.]	18,740,402	(13,566,642)

Annual Amortization of Deferred (Inflows)/Outflows

The balance of deferred (inflows)/outflows as of June 30, 2018 will be recognized in future years as shown below.

Year ending June 30:	
2020	532,261
2021	532,261
2022	532,264
2023	1,686,100
2024	1,890,874
Thereafter	0

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FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

4. Funding Policy

During the year ending on June 30, 2018 (Fiscal Year 2018) the Town made a contribution to an OPEB Trust of $6,115,455 of which it withdrew $3,280,000 for a total net trust contribution of $2,835,455 to be reported for Fiscal Year 2019.

5. Investment Policy

The chart below shows how the long-term rate of return on assets is developed based on the Town's Investment Policy.

Investment Target Allocation & Expected Long-Term Real Rate of Return

Asset Class	Target Allocation	Asset Class	Long-Term Expected Real Rate of Return
Domestic Equity - Large Cap	14.50%	Domestic Equity - Large Cap	4.00%
Domestic Equity - Small/Mid Cap	3.50%	Domestic Equity - Small/Mid Cap	6.00%
International Equity - Developed Market	16.00%	International Equity - Developed Market	4.50%
International Equity-Emerging Market	6.00%	International Equity-Emerging Market	7.00%
Domestic Fixed Income	20.00%	Domestic Fixed Income	2.00%
International Fixed Income	3.00%	International Fixed Income	3.00%
Alternatives	23.00%	Alternatives	6.50%
Real Estate	14.00%	Real Estate	6.25%
Cash	0.00%	Cash	0.00%
Total	100.00%		
		I. Real Rate of Return*	4.79%
		II. Inflation Assumption	2.75%
		III. Total Nominal Return [I. + II.]	7.54%
		IV. Investment Expense	0.50%
		V. Net Investment Return* [III.-IV.]	7.04%

*Geometric Mean

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FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

6. Funded Status and Funding Progress

Fiscal Year	Measurement Date	Fiduciary Net Position	Total OPEB Liability	Net OPEB Liability	Funded Ratio	Covered Payroll	NOL as a % of Covered Payroll
2016	7/1/2015	$18,424,006	$80,807,629	$62,383,623	22.8%	$82,973,387	75.2%
2017	7/1/2016	$21,180,534	$86,719,838	$65,539,304	24.4%	N/A	N/A
2018	6/30/2017	$26,835,171	$83,552,257	$56,717,086	32.1%	$89,329,181	63.5%
2019	6/30/2018	$32,878,807	$99,527,289	$66,648,482	33.0%	$93,040,535	71.6%
2020	6/30/2019 (est.)	$39,229,574	$105,170,070	$65,940,496	37.3%	$96,762,156	68.2%
2021	6/30/2020 (est.)	$45,516,050	$110,868,908	$65,352,858	41.1%	$102,318,628	63.9%

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FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

7. Effect of 1% Change in Healthcare Trend

Impact of a 1% Change in the Healthcare Trend Rate as of the June 30, 2018 Measurement Date

	1% Decrease	Current Trend Rate	1% Increase
I. Total OPEB Liability	88,251,714	99,527,289	113,114,554
II. Fiduciary Net Position	32,878,807	32,878,807	32,878,807
III. Net OPEB Liability (Asset) [I.-II.]	55,372,907	66,648,482	80,235,747
IV. Service Cost	2,140,469	2,614,866	3,227,673

Impact of a 1% Change in the Healthcare Trend Rate as of the June 30, 2019 Measurement Date

	1% Decrease	Current Trend Rate	1% Increase
I. Total OPEB Liability	93,254,048	105,170,070	119,529,086
II. Fiduciary Net Position	39,229,574	39,229,574	39,229,574
III. Net OPEB Liability (Asset) [I.-II.]	54,024,474	65,940,496	80,299,512
IV. Service Cost	2,311,890	2,797,907	3,425,724

8. Effect of 1% Change in Discount Rates

Impact of a 1% Change in the Discount Rate as of the June 30, 2018 Measurement Date

	1% Decrease	Current Discount Rate	1% Increase
I. Total OPEB Liability	111,349,297	99,527,289	87,705,281
II. Fiduciary Net Position	32,878,807	32,878,807	32,878,807
III. Net OPEB Liability (Asset) [I.-II.]	78,470,490	66,648,482	54,826,474
IV. Service Cost	3,241,975	2,614,866	1,987,757

Impact of a 1% Change in the Discount Rate as of the June 30, 2019 Measurement Date

	1% Decrease	Current Discount Rate	1% Increase
I. Total OPEB Liability	117,662,336	105,170,070	92,677,804
II. Fiduciary Net Position	39,229,574	39,229,574	39,229,574
III. Net OPEB Liability (Asset) [I.-II.]	78,432,762	65,940,496	53,448,230
IV. Service Cost	3,468,914	2,797,907	2,126,900

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EXHIBIT A

FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

9. Money Weighted Rate of Return

	Plan Investments / Net External Cash Flows	Periods Invested	Period Weight
I. Beginning value - June 30, 2017	26,835,171	12	1.0000
Monthly net external cash flows:			
July	6,479,652	12	1.0000
August	(331,291)	11	0.9167
September	(331,291)	10	0.8333
October	(331,291)	9	0.7500
November	(331,291)	8	0.6667
December	(331,291)	7	0.5833
January	(331,291)	6	0.5000
February	(331,291)	5	0.4167
March	(331,291)	4	0.3333
April	(331,291)	3	0.2500
May	(331,291)	2	0.1667
June	(331,291)	1	0.0833
II. Total net external cash flow	2,835,455		
III. Earnings and increase in fair value	3,208,181		
IV. Ending value - June 30, 2018 [I.+II.+III.]	32,878,807		
Money Weighted Rate of Return	10.18%		
Asset Value - June 30, 2018	32,878,807		

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EXHIBIT A

FINANCIAL STATEMENT DISCLOSURES
(As of the June 30, 2018 Measurement Date)

10. OPEB Liability, OPEB Expense and ADC

Fiscal Year Ending June 30, 2019

	Town Employees and Retirees	School Employees and Retirees	Police Employees and Retirees	Fire Employees and Retirees	RTS Enterprise Employees and Retirees	Sewer Enterprise Employees and Retirees	Water Enterprise Employees and Retirees	Total
I. Total OPEB Liability as of June 30, 2018	16,422,502	66,057,011	5,956,650	8,445,980	342,141	1,104,820	1,198,185	99,527,289
II. Fiduciary Net Position as of June 30, 2018	5,426,196	21,818,620	1,966,128	2,792,781	113,297	364,806	396,979	32,878,807
III. Net OPEB Liability (Asset) as of June 30, 2018 [I. - II.]	10,996,306	44,238,391	3,990,522	5,653,199	228,844	740,014	801,206	66,648,482
IV. Service Cost	406,449	1,817,712	151,738	160,252	22,745	21,038	34,932	2,614,866
V. Interest on Total OPEB Liability (Asset), Service Cost, and Benefit Payments	238,832	4,526,061	398,083	563,652	22,057	69,039	77,186	5,894,910
VI. Projected Earnings on OPEB Plan Investments	(342,655)	(1,387,738)	(125,112)	(177,530)	(7,255)	(23,233)	(25,289)	(2,088,812)
VII. Net Recognition of Deferred (Inflows)/Outflows	64,718	370,804	34,019	46,474	2,475	6,534	7,237	532,261
VIII. Financial Statement Expense [IV. + V. + VI. + VII.]	367,344	5,326,839	458,728	592,848	40,022	73,378	94,066	6,953,225
IX. Benefit Payments Reimbursed from the Trust	(628,594)	(2,218,034)	(161,027)	(239,488)	(2,151)	(11,608)	(19,098)	(3,280,000)
X. Additional Employer (Payments) Withdrawals to/from OPEB Trust	(440,586)	(1,902,572)	(172,227)	(242,209)	(10,515)	(32,212)	(35,134)	(2,835,455)
XI. Total Employer Contribution [IX. + X.]	(1,069,180)	(4,120,606)	(333,254)	(481,697)	(12,666)	(43,820)	(54,232)	(6,115,455)
XII. Implicit Cost	(133,286)	(470,310)	(34,144)	(50,781)	(456)	(2,461)	(4,050)	(695,488)
XIII. Total Employer Payments Including Implicit Cost	(1,202,466)	(4,590,916)	(367,398)	(532,478)	(13,122)	(46,281)	(58,282)	(6,810,943)
XIV. Net OPEB Expense [VIII. + XIII.]	(835,122)	735,923	91,330	60,370	26,900	27,097	35,784	142,282
XV. Actuarial Determined Contribution (ADC)	1,069,180	4,120,606	333,254	481,697	12,666	43,820	54,232	6,115,455
XVI. Total Expected Contribution	1,069,180	4,120,606	333,254	481,697	12,666	43,820	54,232	6,115,455
XVII. Percentage of ADC Contributed [XVI. / XV.]	100%	100%	100%	100%	100%	100%	100%	100%

Fiscal Year Ending June 30, 2020

	Town Employees and Retirees	School Employees and Retirees	Police Employees and Retirees	Fire Employees and Retirees	RTS Enterprise Employees and Retirees	Sewer Enterprise Employees and Retirees	Water Enterprise Employees and Retirees	Total
I. Total OPEB Liability as of June 30, 2019	16,341,809	70,568,434	6,388,082	8,983,815	390,004	1,194,763	1,303,163	105,170,070
II. Fiduciary Net Position as of June 30, 2019	6,435,347	26,062,847	2,349,698	3,334,163	136,241	436,340	474,938	39,229,574
III. Net OPEB Liability (Asset) as of June 30, 2019 [I. - II.]	9,906,462	44,505,587	4,038,384	5,649,652	253,763	758,423	828,225	65,940,496
IV. Service Cost	434,900	1,944,952	162,360	171,470	24,337	22,511	37,377	2,797,907
V. Interest on Total OPEB Liability (Asset), Service Cost, and Benefit Payments	284,380	5,389,232	474,002	671,147	26,264	82,205	91,906	7,019,136
VI. Projected Earnings on OPEB plan investments	(423,251)	(1,714,148)	(154,539)	(219,287)	(8,961)	(28,698)	(31,237)	(2,580,121)
VII. Net Recognition of Deferred (Inflows)/Outflows	69,473	367,165	33,555	46,238	2,346	6,403	7,081	532,261
VIII. Financial Statement Expense [IV. + V. + VI. + VII.]	365,502	5,987,201	515,378	669,568	43,986	82,421	105,127	7,769,183
IX. Benefit Payments Reimbursed from the Trust	(601,007)	(2,120,697)	(153,961)	(228,978)	(2,057)	(11,099)	(18,260)	(3,136,059)
X. Additional Employer (Payments) Withdrawals to/from OPEB Trust	(585,900)	(2,530,079)	(229,031)	(322,095)	(13,983)	(42,836)	(46,722)	(3,770,646)
XI. Total Employer Contribution [IX. + X.]	(1,186,907)	(4,650,776)	(382,992)	(551,073)	(16,040)	(53,935)	(64,982)	(6,906,705)
XII. Implicit Cost	(198,966)	(702,064)	(50,969)	(75,804)	(681)	(3,674)	(6,045)	(1,038,203)
XIII. Total Employer Payments Including Implicit Cost	(1,385,873)	(5,352,840)	(433,961)	(626,877)	(16,721)	(57,609)	(71,027)	(7,944,908)
XIV. Net OPEB Expense [VIII. + XIII.]	(1,020,371)	634,361	81,417	42,691	27,265	24,812	34,100	(175,725)
XV. Actuarial Determined Contribution (ADC)	1,186,907	4,650,776	382,992	551,073	16,040	53,935	64,982	6,906,705
XVI. Total Expected Contribution	1,186,907	4,650,776	382,992	551,073	16,040	53,935	64,982	6,906,705
XVII. Percentage of ADC Contributed [XVI. / XV.]	100%	100%	100%	100%	100%	100%	100%	100%

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EXHIBIT A

FINANCIAL STATEMENT DISCLOSURES

(As of the June 30, 2018 Measurement Date)

11. OPEB Liability, OPEB Expense and Deferred Inflow/Outflow

Valuation Date	June 30, 2018	June 30, 2018
For the Measurement Period ending on the Measurement Date of:	June 30, 2018	June 30, 2019
For the Reporting Period & Fiscal Year ending on:	June 30, 2019	June 30, 2020
Source of Deferred Inflow/Outflow		
I. Deferred (Inflow)/Outflow from Actual vs. Expected Experience	(7,447,708)	(6,072,290)
II. Deferred (Inflow)/Outflow from Investment Experience	(1,701,826)	(1,209,175)
III. Deferred (Inflow)/Outflow from Changes in Benefit Terms	0	0
IV. Deferred (Inflow)/Outflow from Changes in Assumptions	14,323,295	11,922,965
Change in Deferred Inflow/Outflow		
I. Deferred Outflow at the beginning of the period	1,174,616	19,034,056
II. Deferred Outflow created during the period	21,438,486	0
III. Deferred Outflow recognized during the period	3,579,046	3,579,046
IV. Change in Deferred Outflow (II. - III.)	17,859,440	(3,579,046)
V. Deferred Outflow at end of the period (I. + IV.)	19,034,056	15,455,010
VI. Deferred Inflow at the beginning of the period	(5,789,970)	(13,860,296)
VII. Deferred Inflow created during the period	(11,117,111)	0
VIII. Deferred Inflow recognized during the period	(3,046,785)	(3,046,785)
IX. Change in Deferred Inflow (VII. - VIII.)	(8,070,326)	3,046,785
X. Deferred Inflow at end of the period (VI. + IX.)	(13,860,296)	(10,813,511)
Net OPEB Liability		
I. Net OPEB Liability at beginning of period	56,717,086	66,648,482
II. Service Cost	2,614,866	2,797,907
III. Interest on Total OPEB Liability, Service Cost, and Payments	5,894,910	7,019,136
IV. Projected Investment Income	(2,088,812)	(2,580,121)
V. Total Employer Contributions including implicit cost	(6,810,943)	(7,944,908)
VI. Net OPEB Expense - Before Recognition of Deferred (Inflow)/Outflow (II. + III. + IV. + V.)	(389,979)	(707,986)
VII. Deferred Outflow created during the period	21,438,486	0
VIII. Deferred Inflow created during the period	(11,117,111)	0
IX. Net OPEB Liability at end of period (I. + VI. + VII. + VIII.)	66,648,482	65,940,496
Net OPEB Expense		
I. Service Cost	2,614,866	2,797,907
II. Interest on Total OPEB Liability, Service Cost, and Payments	5,894,910	7,019,136
III. Projected Investment Income	(2,088,812)	(2,580,121)
IV. Recognition of Deferred (Inflow)/Outflow	532,261	532,261
V. Financial Statement Expense (I. + II. + III. + IV.)	6,953,225	7,769,183
VI. Benefit Payments Including implicit cost	(3,975,488)	(4,174,262)
VII. Contributions to Trust	(2,835,455)	(3,770,646)
VIII. Total Employer Contributions including implicit cost (VI. + VII.)	(6,810,943)	(7,944,908)
IX. Total Net OPEB Expense under GASB 75 (V. + VIII.)	142,282	(175,725)

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EXHIBIT B

REQUIRED SUPPLEMENTARY INFORMATION
(As of the June 30, 2018 Measurement Date)

The Town's Actuarially Determined Contribution (ADC) is an amount actuarially determined in accordance with the parameters of GASB Statement No. 74/75 which is composed of the service cost and an amortization. We have used the Town's expected trust contribution as dictated by the funding policy to calculate the ADC. The following table shows the components of the Town's annual ADC and the amount actually contributed to the plan:

Actuarially Determined Contribution - Deficiency / (Excess)		
	Contribution Made During Fiscal Year Ending:	
	June 30, 2018	June 30, 2017
	Reported for the Fiscal Year Ending:	
	June 30, 2019	June 30, 2018
I. Service Cost	2,614,866	2,486,847
II. Amortization	3,500,589	3,585,436*
III. Actuarial Determined Contribution [I. + II.]	6,115,455**	6,072,283
IV. Contributions in relation to the actuarially determined contribution	(6,115,455)	(6,317,042)
V. Contribution deficiency / (excess) [III. + IV.]	0	(244,759)
Covered employee payroll	93,040,535	89,329,181
Contributions as a % of covered employee payroll	6.57%	7.07%
Discount Rate	7.00%	7.50%
Money Weighted Rate of Return	10.18%	14.25%

*22 year amortization increasing at 4.25% for FY 18

**Equal to total trust contribution per the funding policy for FY 19

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EXHIBIT B

REQUIRED SUPPLEMENTARY INFORMATION

(As of the June 30, 2018 Measurement Date)

Notes to Required Supplementary Information (Continued):

Plan Membership

At June 30, 2018, OPEB plan membership consisted of the following:

Inactive employees or beneficiaries currently receiving benefits:	865
Active Employees:	1,271
Total:	2,136

Events Subsequent to the Measurement Date

To the best of our knowledge there were no material events subsequent to the Measurement Date that would impact the figures shown in this report.

Changes in Assumptions: From June 30, 2017 to June 30, 2018

- ✓ Discount rate is 7.00% previously 7.50%
- ✓ Based on recommendations by PERAC, the mortality table has been updated to RP-2000 Mortality Table projected generationally with scale BB and a base year 2009 for males and female
- ✓ The expected medical trend has been updated
- ✓ The percentage of employees assumed to elect coverage in retirement has been updated

Contributions:

The contribution requirements of plan members and the Town are established and may be amended through Town ordinances. The Town contributed $2,835,455 beyond the pay-as-you-go cost for the period ending on the June 30, 2018 Measurement Date. For the year ending on the June 30, 2018 Measurement Date total Town premiums plus implicit costs for the retiree medical program were $3,975,488 . $695,488 of the $3,975,488 represents implicit cost.

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APPENDIX I – LIABILITIES, ASSETS, & CASH FLOWS

CURRENT FUNDING POLICY (OPEN GROUP)

Funding - 7.00% discount rate

Reported for the Fiscal Year	Period Ending on the Measurement Date of:	I. Total OPEB Liability ("TOL") as of Measurement Date	II. Fiduciary Net Position as of Measurement Date with expected 7.04% return	III. Net OPEB Liability (Asset) [I. - II.]	IV. Funded Ratio [II. / I.]	V. Service Cost	VI. Employer Share of Premiums / Claims (With Implicit Cost)	VII. Benefit Payments Reimbursed from the Trust	VIII. Contributions to the Trust	IX. Contributions Made During the Fiscal Year
2019	June 30, 2018	99,527,289	32,878,807	66,648,482	33.03%	2,614,866	3,975,488	3,280,000	6,115,455	2018
2020	June 30, 2019	105,170,070	39,229,574	65,940,496	37.30%	2,797,907	4,174,262	3,136,059	6,906,705	2019
2021	June 30, 2020	110,868,908	45,516,050	65,352,858	41.05%	3,106,626	4,821,266	3,613,811	6,906,705	2020
2022	June 30, 2021	115,107,050	51,978,667	63,128,383	45.16%	3,278,442	5,336,328	4,008,908	7,052,898	2021
2023	June 30, 2022	120,347,148	58,628,466	61,718,682	48.72%	3,440,682	5,841,735	4,408,369	7,202,185	2022
2024	June 30, 2023	125,674,124	65,494,349	60,179,775	52.11%	3,614,794	6,317,022	4,796,300	7,354,632	2023
2025	June 30, 2024	130,956,834	72,528,364	58,428,470	55.38%	3,774,061	6,931,384	5,246,467	7,510,306	2024
2026	June 30, 2025	136,373,007	79,834,084	56,538,923	58.54%	3,954,662	7,361,123	5,614,227	7,669,275	2025
2027	June 30, 2026	141,872,838	87,400,751	54,472,087	61.60%	4,122,091	7,836,628	6,013,272	7,831,609	2026
2028	June 30, 2027	147,456,749	95,247,951	52,208,798	64.59%	4,307,173	8,334,366	6,414,618	7,997,379	2027
2029	June 30, 2028	153,220,179	103,468,568	49,751,611	67.53%	4,486,121	8,691,333	6,751,149	8,166,658	2028
2030	June 30, 2029	159,100,086	112,059,429	47,040,657	70.43%	4,681,266	9,142,269	7,118,786	8,339,520	2029
2031	June 30, 2030	165,148,547	121,063,385	44,085,162	73.31%	4,860,162	9,527,712	7,474,400	8,516,041	2030
2032	June 30, 2031	171,405,805	130,483,345	40,922,460	76.13%	5,063,371	9,974,028	7,858,202	8,696,298	2031
2033	June 30, 2032	177,496,474	140,308,791	37,187,683	79.05%	5,279,556	10,520,920	8,283,007	8,880,371	2032
2034	June 30, 2033	183,871,086	150,597,669	33,273,417	81.90%	5,490,510	10,967,537	8,684,241	9,068,340	2033
2035	June 30, 2034	190,375,562	161,334,814	29,040,748	84.75%	5,725,323	11,526,043	9,134,102	9,260,288	2034
2036	June 30, 2035	197,115,644	172,586,741	24,528,903	87.56%	5,957,571	11,985,855	9,555,368	9,456,299	2035
2037	June 30, 2036	204,081,751	184,361,456	19,720,295	90.34%	6,207,031	12,504,717	10,007,161	9,656,459	2036
2038	June 30, 2037	211,174,313	196,758,486	14,415,827	93.17%	6,469,186	12,927,711	10,404,592	9,860,855	2037
2039	June 30, 2038	218,882,639	209,828,587	9,054,052	95.86%	6,738,871	13,301,510	10,799,862	10,069,578	2038
2040	June 30, 2039	226,781,387	223,625,799	3,155,588	98.61%	7,036,086	13,707,884	11,193,332	10,282,719	2039
2041	June 30, 2040	235,092,345	238,144,988	(3,052,643)	101.30%	7,327,018	14,169,069	11,643,932	10,500,371	2040
2042	June 30, 2041	244,035,385	250,193,848	(6,158,463)	102.52%	7,653,177	14,546,219	12,059,518	7,653,177	2041
2043	June 30, 2042	253,232,211	262,900,581	(9,668,370)	103.82%	7,990,482	15,160,892	12,574,669	7,990,482	2042
2044	June 30, 2043	263,001,186	276,261,742	(13,260,556)	105.04%	8,352,473	15,889,183	13,160,993	8,352,473	2043
2045	June 30, 2044	273,241,658	290,435,239	(17,193,581)	106.29%	8,734,407	16,404,511	13,662,779	8,734,407	2044
2046	June 30, 2045	283,890,419	305,453,504	(21,563,085)	107.60%	9,136,126	16,990,329	14,207,479	9,136,126	2045
2047	June 30, 2046	295,120,445	321,369,278	(26,248,833)	108.89%	9,556,700	17,617,985	14,777,321	9,556,700	2046
2048	June 30, 2047	307,242,288	338,363,397	(31,121,109)	110.13%	10,004,033	18,071,567	15,264,009	10,004,033	2047
2049	June 30, 2048	319,904,575	356,543,478	(36,638,903)	111.45%	10,476,198	18,453,404	15,745,912	10,476,198	2048

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APPENDIX I – LIABILITIES, ASSETS, & CASH FLOWS

CURRENT FUNDING POLICY (OPEN GROUP)

Funding - 7.25% discount rate										
Reported for the Fiscal Year	Period Ending on the Measurement Date of:	I. Total OPEB Liability ("TOL") as of Measurement Date	II. Fiduciary Net Position as of Measurement Date with expected 7.04% return	III. Net OPEB Liability (Asset) [I. - II.]	IV. Funded Ratio [II. / I.]	V. Service Cost	VI. Employer Share of Premiums / Claims (With Implicit Cost)	VII. Benefit Payments Reimbursed from the Trust	VIII. Contributions to the Trust	IX. Contributions Made During the Fiscal Year
2019	June 30, 2018	96,571,787	32,878,807	63,692,980	34.05%	2,452,359	3,975,488	3,280,000	6,115,455	2018
2020	June 30, 2019	102,071,151	39,094,591	62,976,560	38.30%	2,630,155	4,174,262	3,136,059	6,906,705	2019
2021	June 30, 2020	107,610,421	45,253,683	62,356,738	42.05%	2,920,364	4,821,266	3,613,811	6,906,705	2020
2022	June 30, 2021	111,699,184	51,572,575	60,126,609	46.17%	3,081,878	5,336,328	4,008,908	7,037,159	2021
2023	June 30, 2022	116,784,216	58,060,551	58,723,665	49.72%	3,234,391	5,841,735	4,408,369	7,170,077	2022
2024	June 30, 2023	121,953,564	64,744,041	57,209,523	53.09%	3,398,064	6,317,022	4,796,300	7,305,505	2023
2025	June 30, 2024	127,079,781	71,575,066	55,504,715	56.32%	3,547,782	6,931,384	5,246,467	7,443,491	2024
2026	June 30, 2025	132,335,353	78,651,967	53,683,386	59.43%	3,717,555	7,361,123	5,614,227	7,584,084	2025
2027	June 30, 2026	137,671,996	85,962,434	51,709,562	62.44%	3,874,945	7,836,628	6,013,272	7,727,332	2026
2028	June 30, 2027	143,090,203	93,523,329	49,566,874	65.36%	4,048,931	8,334,366	6,414,618	7,873,286	2027
2029	June 30, 2028	148,682,620	101,422,192	47,260,428	68.21%	4,217,151	8,691,333	6,751,149	8,021,997	2028
2030	June 30, 2029	154,388,238	109,653,539	44,734,699	71.02%	4,400,594	9,142,269	7,118,786	8,173,516	2029
2031	June 30, 2030	160,257,535	118,256,177	42,001,358	73.79%	4,568,765	9,527,712	7,474,400	8,327,897	2030
2032	June 30, 2031	166,329,726	127,230,099	39,099,627	76.49%	4,759,791	9,974,028	7,858,202	8,485,194	2031
2033	June 30, 2032	172,240,635	136,562,094	35,678,541	79.29%	4,963,013	10,520,920	8,283,007	8,645,462	2032
2034	June 30, 2033	178,427,127	146,304,890	32,122,237	82.00%	5,161,319	10,967,537	8,684,241	8,808,757	2033
2035	June 30, 2034	184,739,577	156,440,289	28,299,288	84.68%	5,382,055	11,526,043	9,134,102	8,975,137	2034
2036	June 30, 2035	191,280,589	167,028,765	24,251,824	87.32%	5,600,378	11,985,855	9,555,368	9,144,659	2035
2037	June 30, 2036	198,040,757	178,073,945	19,966,812	89.92%	5,834,880	12,504,717	10,007,161	9,317,383	2036
2038	June 30, 2037	204,923,965	189,667,599	15,256,366	92.56%	6,081,317	12,927,711	10,404,592	9,493,370	2037
2039	June 30, 2038	212,404,478	201,854,015	10,550,463	95.03%	6,334,833	13,301,510	10,799,862	9,672,681	2038
2040	June 30, 2039	220,069,609	214,680,290	5,389,319	97.55%	6,614,229	13,707,884	11,193,332	9,855,379	2039
2041	June 30, 2040	228,134,374	228,135,932	(1,558)	100.00%	6,887,718	14,169,069	11,643,932	10,041,527	2040
2042	June 30, 2041	236,811,796	239,163,162	(2,351,366)	100.99%	7,194,321	14,546,219	12,059,518	7,194,321	2041
2043	June 30, 2042	245,734,961	250,761,786	(5,026,825)	102.05%	7,511,402	15,160,892	12,574,669	7,511,402	2042
2044	June 30, 2043	255,212,578	262,922,404	(7,709,826)	103.02%	7,851,690	15,889,183	13,160,993	7,851,690	2043
2045	June 30, 2044	265,147,826	275,791,439	(10,643,613)	104.01%	8,210,725	16,404,511	13,662,779	8,210,725	2044
2046	June 30, 2045	275,478,793	289,393,607	(13,914,814)	105.05%	8,588,359	16,990,329	14,207,479	8,588,359	2045
2047	June 30, 2046	286,373,601	303,772,845	(17,399,244)	106.08%	8,983,716	17,617,985	14,777,321	8,983,716	2046
2048	June 30, 2047	298,134,359	319,095,917	(20,961,558)	107.03%	9,404,229	18,071,567	15,264,009	9,404,229	2047
2049	June 30, 2048	310,420,050	335,458,369	(25,038,319)	108.07%	9,848,084	18,453,404	15,745,912	9,848,084	2048

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APPENDIX I – LIABILITIES, ASSETS, & CASH FLOWS

CONTRIBUTION PROJECTION DISCLOSURES

Projection of Contributions using a June 30, 2018 Valuation Date

For the Period Ending on the Measurement Date	I. Payroll for current employees	II. Payroll for future employees	III. Total employee payroll [I.+II.]	IV. Contributions from current employees	V. Employer Payments Including Implicit Cost for current plan members	VI. Employer Payments for future employees	VII. Total Payments [IV.+V.+VI.]
June 30, 2018	93,040,535	0	93,040,535	0	3,975,488	0	3,975,488
June 30, 2019	90,867,393	5,894,763	96,762,156	0	4,254,142	0	4,254,142
June 30, 2020	91,433,855	10,884,773	102,318,628	0	4,821,266	0	4,821,266
June 30, 2021	90,763,980	15,647,393	106,411,373	0	5,335,746	582	5,336,328
June 30, 2022	90,728,013	19,939,815	110,667,828	0	5,840,102	1,633	5,841,735
June 30, 2023	90,389,038	24,705,503	115,094,541	0	6,313,895	3,127	6,317,022
June 30, 2024	90,512,201	29,186,122	119,698,323	0	6,926,314	5,070	6,931,384
June 30, 2025	90,439,126	34,047,130	124,486,256	0	7,353,665	7,458	7,361,123
June 30, 2026	90,512,629	38,953,077	129,465,706	0	7,826,319	10,309	7,836,628
June 30, 2027	90,265,454	44,378,880	134,644,334	0	8,320,747	13,619	8,334,366
June 30, 2028	90,055,699	49,974,408	140,030,107	0	8,673,927	17,406	8,691,333
June 30, 2029	89,490,092	56,141,219	145,631,311	0	9,120,593	21,676	9,142,269
June 30, 2030	88,914,305	62,542,258	151,456,563	0	9,429,315	98,397	9,527,712
June 30, 2031	88,389,646	69,125,180	157,514,826	0	9,750,820	223,208	9,974,028
June 30, 2032	87,530,922	76,284,497	163,815,419	0	10,119,898	401,022	10,520,920
June 30, 2033	86,922,316	83,445,720	170,368,036	0	10,328,158	639,379	10,967,537
June 30, 2034	85,841,890	91,340,867	177,182,757	0	10,598,977	927,066	11,526,043
June 30, 2035	84,781,701	99,488,366	184,270,067	0	10,848,661	1,137,194	11,985,855
June 30, 2036	83,551,378	108,089,492	191,640,870	0	11,123,413	1,381,304	12,504,717
June 30, 2037	81,578,811	117,727,694	199,306,505	0	11,271,730	1,655,981	12,927,711
June 30, 2038	79,821,446	127,457,319	207,278,765	0	11,436,752	1,864,758	13,301,510
June 30, 2039	77,726,746	137,843,170	215,569,916	0	11,609,185	2,098,699	13,707,884
June 30, 2040	75,503,181	148,689,532	224,192,713	0	11,743,091	2,425,978	14,169,069
June 30, 2041	72,725,883	160,434,539	233,160,422	0	11,669,511	2,876,708	14,546,219
June 30, 2042	70,135,154	172,351,685	242,486,839	0	11,718,762	3,442,130	15,160,892
June 30, 2043	67,151,313	185,035,000	252,186,313	0	11,754,238	4,134,945	15,889,183
June 30, 2044	63,785,902	198,487,864	262,273,766	0	11,465,703	4,938,808	16,404,511
June 30, 2045	60,058,913	212,705,804	272,764,717	0	11,409,913	5,580,416	16,990,329
June 30, 2046	56,671,212	227,004,094	283,675,306	0	11,315,396	6,302,589	17,617,985
June 30, 2047	53,473,643	241,548,675	295,022,318	0	10,977,567	7,094,000	18,071,567
June 30, 2048	49,283,821	257,539,390	306,823,211	0	10,681,402	7,772,002	18,453,404
June 30, 2049	45,746,458	273,349,681	319,096,139	0	10,540,113	8,508,709	19,048,822
June 30, 2050	41,559,155	290,300,830	331,859,985	0	10,418,195	9,334,928	19,753,123
June 30, 2051	36,956,560	308,177,824	345,134,384	0	10,214,209	10,248,464	20,462,673
June 30, 2052	32,958,984	325,980,775	358,939,759	0	9,895,724	11,240,314	21,136,038
June 30, 2053	29,375,818	343,921,531	373,297,349	0	9,682,977	12,324,212	22,007,189
June 30, 2054	25,506,971	362,722,272	388,229,243	0	9,373,633	13,502,613	22,876,246
June 30, 2055	21,523,581	382,234,832	403,758,413	0	9,129,610	14,657,371	23,786,981
June 30, 2056	17,305,607	402,603,143	419,908,750	0	8,924,146	15,884,903	24,809,049
June 30, 2057	13,980,598	422,724,502	436,705,100	0	8,532,687	17,184,704	25,717,391

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APPENDIX I – LIABILITIES, ASSETS, & CASH FLOWS

CONTRIBUTION PROJECTION DISCLOSURES (CONTINUED)

Projection of Contributions using a June 30, 2018 Valuation Date

For the Period Ending on the Measurement Date	I. Payroll for current employees	II. Payroll for future employees	III. Total employee payroll [I.+II.]	IV. Contributions from current employees	V. Employer Payments Including Implicit Cost for current plan	VI. Employer Payments for future employees	VII. Total Payments [IV.+V.+VI.]
June 30, 2058	10,704,415	443,468,889	454,173,304	0	8,258,670	18,510,166	26,768,836
June 30, 2059	8,011,713	464,328,523	472,340,236	0	8,041,942	19,895,423	27,937,365
June 30, 2060	6,044,805	485,189,040	491,233,845	0	7,799,563	21,368,581	29,168,144
June 30, 2061	4,056,217	506,826,982	510,883,199	0	7,543,895	22,930,443	30,474,338
June 30, 2062	2,528,558	528,789,969	531,318,527	0	7,282,300	24,584,431	31,866,731
June 30, 2063	1,478,658	551,092,610	552,571,268	0	7,042,708	26,342,061	33,384,769
June 30, 2064	830,753	573,843,366	574,674,119	0	6,800,918	28,199,255	35,000,173
June 30, 2065	378,980	597,282,104	597,661,084	0	6,549,149	30,112,272	36,661,421
June 30, 2066	132,952	621,434,575	621,567,527	0	6,294,794	32,113,913	38,408,707
June 30, 2067	41,667	646,388,561	646,430,228	0	6,036,528	34,209,645	40,246,173
June 30, 2068	0	672,287,437	672,287,437	0	5,770,171	36,364,670	42,134,841
June 30, 2069	0	699,178,934	699,178,934	0	5,498,144	38,605,301	44,103,445
June 30, 2070	0	727,146,091	727,146,091	0	5,220,830	40,939,088	46,159,918
June 30, 2071	0	756,231,935	756,231,935	0	4,940,530	43,365,456	48,305,986
June 30, 2072	0	786,481,212	786,481,212	0	4,657,163	45,892,951	50,550,114
June 30, 2073	0	817,940,460	817,940,460	0	4,372,164	48,527,460	52,899,624
June 30, 2074	0	850,658,078	850,658,078	0	4,085,954	51,276,076	55,362,030
June 30, 2075	0	884,684,401	884,684,401	0	3,801,066	54,140,177	57,941,243
June 30, 2076	0	920,071,777	920,071,777	0	3,544,493	57,117,082	60,661,575
June 30, 2077	0	956,874,648	956,874,648	0	3,305,520	60,218,119	63,523,639
June 30, 2078	0	995,149,634	995,149,634	0	3,066,270	63,445,159	66,511,429
June 30, 2079	0	1,034,955,619	1,034,955,619	0	2,826,063	66,805,605	69,631,668
June 30, 2080	0	1,076,353,844	1,076,353,844	0	2,587,640	70,307,230	72,894,870
June 30, 2081	0	1,119,407,998	1,119,407,998	0	2,352,602	73,957,262	76,309,864
June 30, 2082	0	1,164,184,318	1,164,184,318	0	2,123,423	77,766,355	79,889,778
June 30, 2083	0	1,210,751,691	1,210,751,691	0	1,900,960	81,741,899	83,642,859
June 30, 2084	0	1,259,181,759	1,259,181,759	0	1,687,420	85,897,313	87,584,733
June 30, 2085	0	1,309,549,029	1,309,549,029	0	1,483,796	90,238,731	91,722,527
June 30, 2086	0	1,361,930,990	1,361,930,990	0	1,292,740	94,768,762	96,061,502
June 30, 2087	0	1,416,408,230	1,416,408,230	0	1,114,751	99,505,390	100,620,141
June 30, 2088	0	1,473,064,559	1,473,064,559	0	952,215	104,453,674	105,405,889
June 30, 2089	0	1,531,987,141	1,531,987,141	0	804,263	109,623,156	110,427,419
June 30, 2090	0	1,593,266,627	1,593,266,627	0	672,093	115,027,820	115,699,913
June 30, 2091	0	1,656,997,292	1,656,997,292	0	554,821	120,676,126	121,230,947
June 30, 2092	0	1,723,277,184	1,723,277,184	0	452,615	126,582,961	127,035,576
June 30, 2093	0	1,792,208,271	1,792,208,271	0	364,363	132,760,247	133,124,610
June 30, 2094	0	1,863,896,602	1,863,896,602	0	289,553	139,222,311	139,511,864
June 30, 2095	0	1,938,452,466	1,938,452,466	0	227,047	145,981,035	146,208,082
June 30, 2096	0	2,015,990,565	2,015,990,565	0	175,515	153,048,249	153,223,764
June 30, 2097	0	2,096,630,188	2,096,630,188	0	133,728	160,441,793	160,575,521

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APPENDIX I – LIABILITIES, ASSETS, & CASH FLOWS

FIDUCIARY POSITION PROJECTION DISCLOSURES (CONTINUED)

Projection of OPEB Plan's Fiduciary Net Position using a June 30, 2018 Valuation Date

For the Period Ending on the Measurement Date	I. Beginning Fiduciary Net Position for Current Plan Members	II. Portion of Employer Contributions Including Implicit Cost for Current Plan Members	Benefit Payments Including Implicit Cost	IV. Administrative Expense	V. Net Contributions to Trust	VI. Net Contributions to Trust for Current Plan Members	VII. Investment Earnings	VIII. Ending Fiduciary Net Position for Current Plan Members
June 30, 2058	414,034,696	8,258,670	26,768,836	0	1,035,900	24,415	29,149,761	406,463,057
June 30, 2059	406,463,057	8,041,942	27,937,365	0	1,035,900	17,571	28,616,236	398,906,496
June 30, 2060	398,906,496	7,799,563	29,168,144	0	1,035,900	12,747	28,083,915	391,452,516
June 30, 2061	391,452,516	7,543,895	30,474,338	0	1,035,900	8,225	27,558,836	384,127,427
June 30, 2062	384,127,427	7,282,300	31,866,731	0	1,035,900	4,930	27,042,918	376,973,825
June 30, 2063	376,973,825	7,042,708	33,384,769	0	1,035,900	2,772	26,539,152	370,002,135
June 30, 2064	370,002,135	6,800,918	35,000,173	0	1,035,900	1,498	26,048,256	363,238,872
June 30, 2065	363,238,872	6,549,149	36,661,421	0	1,035,900	657	25,572,063	356,705,939
June 30, 2066	356,705,939	6,294,794	38,408,707	0	1,035,900	222	25,112,114	350,416,516
June 30, 2067	350,416,516	6,036,528	40,246,173	0	1,035,900	67	24,669,327	344,381,578
June 30, 2068	344,381,578	5,770,171	42,134,841	0	1,035,900	0	24,244,463	338,611,407
June 30, 2069	338,611,407	5,498,144	44,103,445	0	1,035,900	0	23,838,243	333,113,263
June 30, 2070	333,113,263	5,220,830	46,159,918	0	1,035,900	0	23,451,174	327,892,433
June 30, 2071	327,892,433	4,940,530	48,305,986	0	1,035,900	0	23,083,627	322,951,903
June 30, 2072	322,951,903	4,657,163	50,550,114	0	1,035,900	0	22,735,814	318,294,740
June 30, 2073	318,294,740	4,372,164	52,899,624	0	1,035,900	0	22,407,950	313,922,576
June 30, 2074	313,922,576	4,085,954	55,362,030	0	1,035,900	0	22,100,149	309,836,622
June 30, 2075	309,836,622	3,801,066	57,941,243	0	1,035,900	0	21,812,498	306,035,556
June 30, 2076	306,035,556	3,544,493	60,661,575	0	1,035,900	0	21,544,903	302,491,063
June 30, 2077	302,491,063	3,305,520	63,523,639	0	1,035,900	0	21,295,371	299,185,543
June 30, 2078	299,185,543	3,066,270	66,511,429	0	1,035,900	0	21,062,662	296,119,273
June 30, 2079	296,119,273	2,826,063	69,631,668	0	1,035,900	0	20,846,797	293,293,210
June 30, 2080	293,293,210	2,587,640	72,894,870	0	1,035,900	0	20,647,842	290,705,570
June 30, 2081	290,705,570	2,352,602	76,309,864	0	1,035,900	0	20,465,672	288,352,968
June 30, 2082	288,352,968	2,123,423	79,889,778	0	1,035,900	0	20,300,049	286,229,545
June 30, 2083	286,229,545	1,900,960	83,642,859	0	1,035,900	0	20,150,560	284,328,585
June 30, 2084	284,328,585	1,687,420	87,584,733	0	1,035,900	0	20,016,732	282,641,165
June 30, 2085	282,641,165	1,483,796	91,722,527	0	1,035,900	0	19,897,938	281,157,369
June 30, 2086	281,157,369	1,292,740	96,061,502	0	1,035,900	0	19,793,479	279,864,629
June 30, 2087	279,864,629	1,114,751	100,620,141	0	1,035,900	0	19,702,470	278,749,878
June 30, 2088	278,749,878	952,215	105,405,889	0	1,035,900	0	19,623,991	277,797,663
June 30, 2089	277,797,663	804,263	110,427,419	0	1,035,900	0	19,556,955	276,993,400
June 30, 2090	276,993,400	672,093	115,699,913	0	1,035,900	0	19,500,335	276,321,307
June 30, 2091	276,321,307	554,821	121,230,947	0	1,035,900	0	19,453,020	275,766,486
June 30, 2092	275,766,486	452,615	127,035,576	0	1,035,900	0	19,413,961	275,313,871
June 30, 2093	275,313,871	364,363	133,124,610	0	1,035,900	0	19,382,097	274,949,508
June 30, 2094	274,949,508	289,553	139,511,864	0	1,035,900	0	19,356,445	274,659,955
June 30, 2095	274,659,955	227,047	146,208,082	0	1,035,900	0	19,336,061	274,432,908
June 30, 2096	274,432,908	175,515	153,223,764	0	1,035,900	0	19,320,077	274,257,393
June 30, 2097	274,257,393	133,728	160,575,521	0	1,035,900	0	19,307,720	274,123,665

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APPENDIX I – LIABILITIES, ASSETS, & CASH FLOWS

BENEFIT PAYMENT PROJECTION DISCLOSURES

Actuarial Present Values of Projected Benefit Payments using a June 30, 2018 Valuation Date

For the Period Ending on the Measurement Date	I. Beginning Fiduciary Net Position for Current Plan Members	II. Benefit Payments Including Implicit Cost	III. Funded Portion of Benefit Payments	IV. Unfunded Portion of Benefit Payments	V. Present Value of Funded Benefit Payments	VI. Present Value of Unfunded Benefit Payments	VII. Present Value of Benefit Payments using Single Equivalent Discount Rate
June 30, 2018	26,835,171	3,975,488	3,975,488	0	3,975,488	0	3,975,488
June 30, 2019	32,878,807	4,254,142	4,254,142	0	3,974,348	0	3,974,348
June 30, 2020	38,842,685	4,821,266	4,821,266	0	4,207,934	0	4,207,934
June 30, 2021	44,726,961	5,335,746	5,335,746	0	4,350,677	0	4,350,677
June 30, 2022	50,520,851	5,840,102	5,840,102	0	4,448,730	0	4,448,730
June 30, 2023	56,268,272	6,313,895	6,313,895	0	4,493,315	0	4,493,315
June 30, 2024	62,000,510	6,926,314	6,926,314	0	4,604,957	0	4,604,957
June 30, 2025	67,704,079	7,353,665	7,353,665	0	4,567,527	0	4,567,527
June 30, 2026	73,468,077	7,826,319	7,826,319	0	4,541,389	0	4,541,389
June 30, 2027	79,298,515	8,320,747	8,320,747	0	4,510,736	0	4,510,736
June 30, 2028	85,884,338	8,673,927	8,673,927	0	4,392,935	0	4,392,935
June 30, 2029	92,771,084	9,120,593	9,120,593	0	4,315,349	0	4,315,349
June 30, 2030	99,961,864	9,429,315	9,429,315	0	4,167,993	0	4,167,993
June 30, 2031	107,551,732	9,750,820	9,750,820	0	4,026,631	0	4,026,631
June 30, 2032	115,522,386	10,119,898	10,119,898	0	3,904,188	0	3,904,188
June 30, 2033	123,846,616	10,328,158	10,328,158	0	3,722,471	0	3,722,471
June 30, 2034	132,491,766	10,598,977	10,598,977	0	3,568,834	0	3,568,834
June 30, 2035	141,429,327	10,848,661	10,848,661	0	3,412,655	0	3,412,655
June 30, 2036	150,758,923	11,123,413	11,123,413	0	3,268,950	0	3,268,950
June 30, 2037	160,474,473	11,271,730	11,271,730	0	3,094,672	0	3,094,672
June 30, 2038	170,569,753	11,436,752	11,436,752	0	2,933,464	0	2,933,464
June 30, 2039	181,140,106	11,609,185	11,609,185	0	2,781,849	0	2,781,849
June 30, 2040	192,193,473	11,743,091	11,743,091	0	2,628,865	0	2,628,865
June 30, 2041	203,671,344	11,669,511	11,669,511	0	2,440,576	0	2,440,576
June 30, 2042	215,478,957	11,718,762	11,718,762	0	2,289,683	0	2,289,683
June 30, 2043	227,527,255	11,754,238	11,754,238	0	2,145,566	0	2,145,566
June 30, 2044	239,705,484	11,465,703	11,465,703	0	1,955,249	0	1,955,249
June 30, 2045	251,911,613	11,409,913	11,409,913	0	1,817,765	0	1,817,765
June 30, 2046	264,309,922	11,315,396	11,315,396	0	1,684,143	0	1,684,143
June 30, 2047	276,836,268	10,977,567	10,977,567	0	1,526,403	0	1,526,403
June 30, 2048	289,432,520	10,681,402	10,681,402	0	1,387,539	0	1,387,539
June 30, 2049	302,214,674	10,540,113	10,540,113	0	1,279,134	0	1,279,134
June 30, 2050	315,140,842	10,418,195	10,418,195	0	1,181,183	0	1,181,183
June 30, 2051	328,130,689	10,214,209	10,214,209	0	1,081,891	0	1,081,891
June 30, 2052	341,101,357	9,895,724	9,895,724	0	979,220	0	979,220
June 30, 2053	353,976,395	9,682,977	9,682,977	0	895,149	0	895,149
June 30, 2054	366,659,378	9,373,633	9,373,633	0	809,559	0	809,559
June 30, 2055	379,042,436	9,129,610	9,129,610	0	736,625	0	736,625
June 30, 2056	391,128,762	8,924,146	8,924,146	0	672,690	0	672,690
June 30, 2057	402,825,021	8,532,687	8,532,687	0	600,880	0	600,880

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APPENDIX I – LIABILITIES, ASSETS, & CASH FLOWS

BENEFIT PAYMENT PROJECTION DISCLOSURES (CONTINUED)

Actuarial Present Values of Projected Benefit Payments using a June 30, 2018 Valuation Date

For the Period Ending on the Measurement Date	I. Beginning Fiduciary Net Position for Current Plan Members	II. Benefit Payments Including Implicit Cost	III. Funded Portion of Benefit Payments	IV. Unfunded Portion of Benefit Payments	V. Present Value of Funded Benefit Payments	VI. Present Value of Unfunded Benefit Payments	VII. Present Value of Benefit Payments using Single Equivalent Discount Rate
June 30, 2058	414,034,696	8,258,670	8,258,670	0	543,333	0	543,333
June 30, 2059	406,463,057	8,041,942	8,041,942	0	494,277	0	494,277
June 30, 2060	398,906,496	7,799,563	7,799,563	0	447,852	0	447,852
June 30, 2061	391,452,516	7,543,895	7,543,895	0	404,681	0	404,681
June 30, 2062	384,127,427	7,282,300	7,282,300	0	364,956	0	364,956
June 30, 2063	376,973,825	7,042,708	7,042,708	0	329,735	0	329,735
June 30, 2064	370,002,135	6,800,918	6,800,918	0	297,473	0	297,473
June 30, 2065	363,238,872	6,549,149	6,549,149	0	267,620	0	267,620
June 30, 2066	356,705,939	6,294,794	6,294,794	0	240,308	0	240,308
June 30, 2067	350,416,516	6,036,528	6,036,528	0	215,292	0	215,292
June 30, 2068	344,381,578	5,770,171	5,770,171	0	192,258	0	192,258
June 30, 2069	338,611,407	5,498,144	5,498,144	0	171,145	0	171,145
June 30, 2070	333,113,263	5,220,830	5,220,830	0	151,825	0	151,825
June 30, 2071	327,892,433	4,940,530	4,940,530	0	134,224	0	134,224
June 30, 2072	322,951,903	4,657,163	4,657,163	0	118,204	0	118,204
June 30, 2073	318,294,740	4,372,164	4,372,164	0	103,672	0	103,672
June 30, 2074	313,922,576	4,085,954	4,085,954	0	90,513	0	90,513
June 30, 2075	309,836,622	3,801,066	3,801,066	0	78,664	0	78,664
June 30, 2076	306,035,556	3,544,493	3,544,493	0	68,530	0	68,530
June 30, 2077	302,491,063	3,305,520	3,305,520	0	59,706	0	59,706
June 30, 2078	299,185,543	3,066,270	3,066,270	0	51,742	0	51,742
June 30, 2079	296,119,273	2,826,063	2,826,063	0	44,552	0	44,552
June 30, 2080	293,293,210	2,587,640	2,587,640	0	38,111	0	38,111
June 30, 2081	290,705,570	2,352,602	2,352,602	0	32,370	0	32,370
June 30, 2082	288,352,968	2,123,423	2,123,423	0	27,295	0	27,295
June 30, 2083	286,229,545	1,900,960	1,900,960	0	22,828	0	22,828
June 30, 2084	284,328,585	1,687,420	1,687,420	0	18,931	0	18,931
June 30, 2085	282,641,165	1,483,796	1,483,796	0	15,552	0	15,552
June 30, 2086	281,157,369	1,292,740	1,292,740	0	12,658	0	12,658
June 30, 2087	279,864,629	1,114,751	1,114,751	0	10,198	0	10,198
June 30, 2088	278,749,878	952,215	952,215	0	8,138	0	8,138
June 30, 2089	277,797,663	804,263	804,263	0	6,421	0	6,421
June 30, 2090	276,993,400	672,093	672,093	0	5,013	0	5,013
June 30, 2091	276,321,307	554,821	554,821	0	3,866	0	3,866
June 30, 2092	275,766,486	452,615	452,615	0	2,947	0	2,947
June 30, 2093	275,313,871	364,363	364,363	0	2,216	0	2,216
June 30, 2094	274,949,508	289,553	289,553	0	1,645	0	1,645
June 30, 2095	274,659,955	227,047	227,047	0	1,205	0	1,205
June 30, 2096	274,432,908	175,515	175,515	0	870	0	870
June 30, 2097	274,257,393	133,728	133,728	0	620	0	620

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APPENDIX II – PLAN PROVISIONS

Effective Date	GASB 45 was adopted July 1, 2008 GASB 74 was adopted for the fiscal year ending June 30, 2017 GASB 75 was adopted for the fiscal year ending June 30, 2018
Plan Year	July 1 through June 30.
Premium Effective Date	**Medicare Supplement Plans:** effective January 1, 2019 **Non-Medicare Plans:** effective July 1, 2018 **Dental Plans:** effective July 1, 2018
Creditable Service	Elapsed time from date of hire to termination of service date.
Benefits Offered	Comprehensive Medical, Dental & Life Insurance offered through Blue Cross Blue shield of Massachusetts, Fallon Health Group, Health New England and Tufts Health Plan.
Excise Tax	Under the Patient Protection and Affordable Care Act ("PPACA"), a 40% tax will be imposed on the cost of medical benefits in excess of a specified threshold.
Medicare Part B	The Town does not reimburse Medicare Part B. The Town does not reimburse Medicare Part B Penalties.
Surviving Spouse Coverage	Surviving spouses pay 100% of premiums.

APPENDIX II – PLAN PROVISIONS

Eligibility

Hire Date	Eligibility
Before April 2, 2012	• Age 55 with 10 years of creditable service • 20 years of service regardless of age
On or after April 2, 2012	• Age 60 with 10 years of creditable service

Participant Contributions

Group	Individual	Family
Medical	Varies by plan elected and coverage level.	Varies by plan elected and coverage level
Dental	100%	100%
Life	50%	N/A

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APPENDIX III – ACTUARIAL METHODS & ASSUMPTIONS

Pre-Retirement Mortality	RP-2000 Employees Mortality Table projected generationally with scale BB and a base year 2009 for males and females
Post-Retirement Mortality	RP-2000 Mortality Table projected generationally with scale BB and a base year 2009 for males and females
Disabled Mortality	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB and a base year 2012 for males and females
Mortality Experience Study	The mortality assumptions reflect recent experience analysis published in 2014 (based on the years 2006-2011), updated to reflect data through January 1, 2015 for post-retirement mortality, and professional judgement. As such, mortality assumptions reflect observed current mortality as well as expected mortality improvements.
Discount Rate	7.00% per annum (previously 7.50%)
Long Term Rate of Return	7.04% (based on investment policy)
Municipal Bond Rate	2.98% as of June 30, 2018 (source: S&P Municipal Bond 20-Year High Grade Index – SAPIHG)
Actuarial Cost Method	Individual Entry Age Normal
Asset-Valuation Method	Market Value of Assets as of the Measurement Date, June 30, 2018.

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APPENDIX III – ACTUARIAL METHODS & ASSUMPTIONS

Excise Tax

The PPACA Excise tax is expected to take effect for tax years beginning after December 31, 2021. The projected 2022 threshold amounts are $12,511 for single coverage and $32,676 for family coverage. For qualified retirees and those engaged in high risk professions, a "kicker" amount of $1,650 for single coverage and $3,450 for family coverage is expected to be added to the above thresholds.

Employee Termination

It was assumed that employees would terminate employment in accordance with the sample rates shown in the following table:

Non-Public Safety Employees						
Age	0-4 Years of Service (Males)	0-4 Years of Service (Females)	5-9 Years of Service (Males)	5-9 Years of Service (Females)	10+ Years of Service (Males)	10+ Years of Service (Females)
20	27.00%	27.00%	12.00%	12.00%	6.00%	6.00%
30	23.00%	23.00%	10.00%	10.00%	5.50%	5.50%
40	16.00%	16.00%	8.00%	8.00%	3.50%	3.50%
50	18.00%	18.00%	6.00%	6.00%	3.00%	3.00%
60	18.00%	18.00%	5.00%	5.00%	3.50%	3.50%

Public Safety Employees		
Service	Public Safety Male	Public Safety Female
0	9.00%	9.00%
5	6.00%	6.00%
10	3.50%	3.50%
15	2.00%	2.00%
20	1.50%	1.50%
25	1.50%	1.50%
30	1.50%	1.50%

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APPENDIX III – ACTUARIAL METHODS & ASSUMPTIONS

Retirement Rates for Eligible Employees

Age	Standard Male	Standard Female	Male Teachers	Female Teachers	Public Safety
45 - 49	0.00%	0.00%	0.00%	0.00%	1.00%
50 - 51	1.00%	1.50%	2.00%	1.50%	2.00%
52	1.00%	2.50%	2.00%	1.50%	2.00%
53	1.00%	2.50%	2.00%	1.50%	5.00%
54	2.00%	2.50%	2.00%	2.00%	7.50%
55	2.00%	5.50%	6.00%	5.00%	15.00%
56	2.50%	6.50%	20.00%	15.00%	10.00%
57	2.50%	6.50%	40.00%	35.00%	10.00%
58	5.00%	6.50%	50.00%	35.00%	10.00%
59	6.50%	6.50%	50.00%	35.00%	15.00%
60	12.00%	5.00%	40.00%	35.00%	20.00%
61	20.00%	13.00%	40.00%	35.00%	20.00%
62	30.00%	15.00%	35.00%	35.00%	25.00%
63	25.00%	12.50%	35.00%	35.00%	25.00%
64	22.00%	18.00%	35.00%	35.00%	30.00%
65	40.00%	15.00%	35.00%	35.00%	100.00%
66	25.00%	20.00%	40.00%	35.00%	100.00%
67	25.00%	20.00%	40.00%	30.00%	100.00%
68	30.00%	25.00%	40.00%	30.00%	100.00%
69	30.00%	20.00%	40.00%	30.00%	100.00%
70	100.00%	100.00%	100.00%	100.00%	100.00%
71	100.00%	100.00%	100.00%	100.00%	100.00%
72	100.00%	100.00%	100.00%	100.00%	100.00%

In the absence of census data specifying which employees are teachers it was assumed that two thirds of school employees are teachers. If available, actual census data was used.

Permanent Disability Rates

Age	Standard	Teachers	Public Safety
20	0.01%	0.05%	0.20%
30	0.01%	0.07%	0.21%
40	0.07%	0.21%	0.71%
50	0.13%	0.42%	1.10%
60	0.12%	0.50%	0.80%

APPENDIX III – ACTUARIAL METHODS & ASSUMPTIONS

Trend Rate	**Medicare Supplement Plans:** Initial trend of 9.00% for 2019 grading down 0.50% per year for an ultimate trend rate of 4.50%. **Non-Medicare Plans:** Initial trend of 9.00% for 2019 grading down 0.50% per year for an ultimate trend rate of 4.50%. **Dental Plans:** Initial trend of 9.00% for 2019 grading down 0.50% per year for an ultimate trend rate of 4.50%.
Participation Rate	It was assumed that 80% of employees eligible to receive retirement benefits would enroll in the retiree medical plans upon retirement. For life insurance plans, it was assumed that 80% of eligible employees would elect coverage upon retirement.
Spouse Participation Rate	It was assumed that 80% of male employees and 70% of female employees who elect retiree healthcare coverage for themselves would also elect coverage for a spouse upon retirement.
Spouse Demographics	It was assumed that a male spouse is three years older than a female spouse and same sex spouses were assumed to be the same age. For current retirees, the actual census information was used, if available.
Compensation Increases	4.00% per year.
Inflation Rate	2.75% per year.

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APPENDIX III – ACTUARIAL METHODS & ASSUMPTIONS

Implicit Subsidy

The implicit subsidy arises because retirees who are not eligible for Medicare are charged the same premium as active employees, even though their actual medical costs are higher on average. Consequently, a portion of the premiums being paid for active employees are being used to "subsidize" the premiums of retirees. Actuarial Standards of Practice and GASB standards require the liability associated with this implicit subsidy to be valued. The chart below shows a breakdown of how implicit cost impacts reported liabilities. Actuarial Standard of Practice No. 6 ("ASOP 6") requires us to recognize this implicit subsidy while the plan sponsor may only pay the premiums billed by an insurance provider.

Impact of Implicit Subsidy

	As of the Measurement Date	
Impact on Liability	**June 30, 2018**	**June 30, 2017**
I. Actuarial Accrued Liability	99,527,289	83,552,257
II. Actuarial Accrued Liability (Excluding Implicit Subsidy)	81,161,402	N/A
III. Liability from Implicit Subsidy [I. - II.]	18,365,887	N/A

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APPENDIX III – ACTUARIAL METHODS & ASSUMPTIONS

Pre-65 and post-65 per capita costs were developed using fully insured premium rates.

ANNUAL PER CAPITA CLAIMS*

ACTIVE EMPLOYEES		
Age Bracket	Female	Male
24 & Under	4,119	2,596
25 to 29	6,077	2,702
30 to 34	7,679	3,391
35 to 39	7,910	4,258
40 to 44	8,096	5,305
45 to 49	8,893	6,698
50 to 54	10,461	8,821
55 to 59	12,093	11,469
60 to 64	14,391	14,717
65 to 69	17,251	18,357
70 & Over	20,343	21,999

RETIREE - NOT MEDICARE ELIGIBLE		
Age Bracket	Female	Male
44 & Under	8,096	5,305
45 to 49	8,893	6,698
50 to 54	10,461	8,821
55 to 59	12,093	11,469
60 to 64	14,391	14,717
65 to 69	17,251	18,357
70 to 74	20,343	21,999
75 to 79	23,625	25,982
80 to 84	27,087	29,865
85 to 89	30,920	34,184
90 & Over	30,920	34,184

RETIREE - MEDICARE ELIGIBLE		
Age Bracket	Female	Male
65 to 69	4,445	4,445
70 to 74	4,445	4,445
75 to 79	4,445	4,445
80 to 84	4,445	4,445
85 to 89	4,445	4,445
90 & Over	4,445	4,445

*Based on SOA 'Health Care Costs--From Birth to Death' study published in 2013

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APPENDIX III – ACTUARIAL METHODS & ASSUMPTIONS

Open Group Forecast

For the projection of plan liabilities in future years, it was assumed that the number of active employees will remain constant and those who terminate employment or retire will be replaced with new employees with the demographics below:

Open Group Forecast Population Demographics

Age	Male	Female
20	8.0%	5.0%
30	7.0%	14.0%
40	20.0%	19.0%
50	10.0%	10.0%
60	3.0%	4.0%
Total	48.0%	52.0%

Additional Comments

The liabilities being reported as of the Measurement Date of June 30, 2018 reflect a closed group and do not reflect any new entrants after the valuation date.

To the best of our knowledge all employees who are eligible on the valuation date are included in the actuarial valuation.

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APPENDIX IV – PLAN DEMOGRAPHICS

Active Employees

Valuation Date	June 30, 2018	June 30, 2017
A. Average Age at Hire	35.37	35.00
B. Average Service	9.92	11.20
C. Average Current Age	45.29	46.20

Retired Employees & Spouses

Valuation Date	June 30, 2018	June 30, 2017
A. Under Age 65	98	N/A
B. Age 65 & Over	767	N/A
C. Total	865	933

Service Experience

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0-24	45									45
25-29	102	14								116
30-34	76	53	6							135
35-39	63	36	55	5						159
40-44	55	24	49	29	3					160
45-49	47	43	23	42	27	1				183
50-54	39	33	22	28	13	13	4			152
55-59	32	30	40	24	24	13	5	1	2	171
60-64	8	22	22	25	9	6	7	3	1	103
65-69	3	6	4	5	4	2	1		1	26
70+	2	3	3	2	5		2	2	2	21
Total	472	264	224	160	85	35	19	6	6	1,271

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APPENDIX IV – PLAN DEMOGRAPHICS

Plan Offerings	Number of Contracts			
	Single	Two-Person	Family	Total
Fallon Select HDHP	23		27	50
Fallon Direct HDHP	12		15	27
Harvard Pilgirm HDHP	149		245	394
BCBS Network Blue HDHP	13		22	35
Tufts HDHP	23		31	54
Fallon Select Benchmark	10		11	21
Fallon Direct Benchmark	6			6
Harvard Pilgirm Benchmark	116		117	233
BCBS Network Blue Benchmark	29		20	49
Tufts Navigator Benchmark	45		16	61
Harvard Pilgirm PPO	2			2
BCBS Managed Blue	101			101
BCBS Medex Enhanced	158			158
Harvard Pilgirm Medicare Enhanced	21			21
Tufts Medicare Preferred	43			43
Tufts Medicare Plus	391			391
Total	1,142	0	504	1,646

	Per Contract Costs (monthly)		
	Single	Two-Person	Family
Fallon Select HDHP	596.00		1,608.00
Fallon Direct HDHP	556.00		1,498.00
Harvard Pilgirm HDHP	698.00		1,820.00
BCBS Network Blue HDHP	807.00		2,166.00
Tufts HDHP	745.00		1,952.00
Fallon Select Benchmark	695.00		1,873.00
Fallon Direct Benchmark	647.00		1,742.00
Harvard Pilgirm Benchmark	885.00		2,305.00
BCBS Network Blue Benchmark	980.00		2,628.00
Tufts Navigator Benchmark	945.00		2,474.00
Harvard Pilgirm PPO	2,612.00		5,800.00
BCBS Managed Blue	365.00	730.00	
BCBS Medex Enhanced	392.00	784.00	
Harvard Pilgirm Medicare Enhanced	370.00	740.00	
Tufts Medicare Preferred	317.00	634.00	
Tufts Medicare Plus	369.00	738.00	
Dental Premier	32.00		79.00
Dental Premier Enhanced	39.00		97.00

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APPENDIX IV – OVERVIEW OF GASB 74 & 75

Before Statements 74 and 75, GASB statement 45 established the reporting standards for Other Postemployment Benefit ("OPEB") plans. It was designed to recognize the Other Postemployment Benefits earned by employees throughout their working career vs. when they are paid in retirement – accrual accounting vs. "pay-as-you-go" accounting. Additionally, each eligible active employee earns benefits each year representing benefits to be paid in retirement or a "Service Cost". These amounts are reflected in your financial statement each year so that OPEB benefits for an eligible employee shall be fully charged to the financial statement when that eligible employee terminates employment.

In 2012 GASB issued GASB Statements 67 and 68 to update and standardize the financial reporting of pension liabilities. This increased the transparency of pension liabilities by moving them to the balance sheet and made financial statement disclosures of pension liabilities more comparable between municipal entities. GASB Statements 74 and 75 are designed to have the same effect on OPEB plans.

GASB 74 and 75 require retiree medical plans to disclose information about asset and liability levels and show historical contribution information. GASB 74 only applies in situations where a separate trust is established to prefund these benefits. GASB 75 requires employers to perform periodic actuarial valuations to determine annual accounting costs and to keep a running tally of the extent to which these amounts are over or under funded.

GASB 74 and 75 apply to those benefits provided after retirement, except for pension benefits, such as medical, dental and life insurance. The philosophy behind the accounting standard is that these postemployment benefits are part of the compensation earned by employees in return for their services, and the cost of these benefits should be recognized while employees are providing those services, rather than after they have retired. This philosophy has already been applied for years to defined benefit pensions; GASB 74 and 75 extend this practice to all other postemployment benefits.

APPENDIX IV – OVERVIEW OF GASB 74 & 75

The process of determining the liability for OPEB benefits is based on many assumptions about future events. The key actuarial assumptions are:

Turnover and retirement rates – How likely is it that an employee will qualify for postemployment benefits and when will they start?

Medical inflation and claims cost assumptions – When an employee starts receiving postemployment benefits many years from now, how much will be paid each year for the benefits and how rapidly will the costs grow?

Mortality assumption – How long is a retiree likely to receive benefits?

Discount rate assumption – What is the present value of those future benefit payments in terms of today's dollars?

Since the liability is being recognized over the employee's whole career with the Town, the present value is divided into three pieces: the part that is attributed to past years (the "Total OPEB Liability" or "Past Service Liability"), the part that is being earned this year (the "Service Cost"), and the part that will be earned in future years (the "Future Service Liability").

Once the Accrued Liability and the Service Cost have been calculated, the next step is to determine an actuarially determined contribution. This is an amount that if paid annually would fully prefund the benefits for current active and retired employees. This consists of two pieces:

- ✓ Service Cost – because the benefits earned by active employees each year should be paid for each year
- ✓ Past Service Cost – a catch-up payment to fund the Accrued Liability over a period of time determined by an actuary

The final step is to keep track going forward of how much of the contribution is actually paid. There is no requirement to actually fund these benefits, but the cumulative deficiency must be disclosed on the Town's financial statements as the Net OPEB Liability (NOL). If you decide to fully fund the NOL this will appear in the financial statement as a Net OPEB Asset. In addition, the Discount Rate used to calculate the liabilities must reflect the expected investment income of whatever funds are set aside to prefund the benefits; if there is no prefunding then the Discount Rate will be much lower and the liabilities significantly higher than if the benefits are prefunded.

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GLOSSARY

Accrual Accounting – A system of accounting in which revenues are recorded when earned and outlays are recorded when goods are received or services performed, even though the actual receipt of revenues and payment for goods or services may occur, in whole or in part, at a different time.

Actuarially Determined Contribution – Amount of funding required annually to fully fund plan benefits. Determined by the actuary using a consistent methodology.

Amortization – Allows the recognition of liability over a fixed period of time.

Cash Basis Accounting – A system of accounting in which revenues are recorded when received and outlays are recorded when payment is made.

Deferred Inflows/Outflows of Resources – Amounts arising from experience gains and losses that have not been recognized into the OPEB Expense but will be recognized in the future.

Discount Rate – The interest rate used to calculate the present value of future cash flows. Under GASB 75, the rate should be the expected long-term rate of return on investments for a plan that is being fully funded, the 20 year municipal bond index for a pay-as-you-go plan, and a blend of the two rates for a plan that is being partially funded.

Entry Age Normal – Under this method, the annual service cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement. The annual service cost for each active member is a level percent of payroll. The total OPEB liability is the actuarial present value of the projected benefit times the ratio of past service to expected total service at retirement/termination.

Fiduciary Net Position – The value of cash, investments, other assets and property belonging to an OPEB trust.

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GLOSSARY

Government Accounting Standards Board (GASB) – "The Governmental Accounting Standards Board (GASB) was organized in 1984 by the Financial Accounting Foundation (FAF) to establish standards of financial accounting and reporting for state and local governmental entities. Its standards guide the preparation of external financial reports of those entities."

Implicit Subsidy – The liability that arises because retirees who are not eligible for Medicare are charged the same premium as active employees even though their actual medical costs are higher on average.

Irrevocable Contribution – The transfer of assets to a qualified trust in which assets may only be withdrawn for the purpose of providing retiree other postemployment benefits.

Net OPEB Liability (NOL) – Total OPEB Liability less the Fiduciary Net Position.

Other Postemployment Benefits (OPEB) – Benefits that an employee will begin to receive at the start of retirement. This does not include pension benefits paid to the retired employee.

OPEB Trust – An entity which holds assets for the sole purpose of funding OPEB. All contributions and earning within this entity must be irrevocable and protected from creditors.

Pay-as-you-go funding – Paying benefits (such as pensions or OPEB) on a cash basis, with no money set aside for future liabilities which are already incurred.

Service Cost – The actuarially determined present value contribution needed to fund benefits which are earned for employee service rendered during the current year. Service cost depends on many factors, including the interest rate used to discount future cashflows, and expected inflation.

Total OPEB Liability (TOL) – That portion, as determined by the Individual Entry Age Normal Actuarial Cost Method, of the Actuarial Present Value of benefits and expenses which are not provided for by future Service Costs.