

**Town of Essex Other
Postemployment Benefits Plan**

GASB 74/75 Actuarial Valuation

as of June 30, 2016

For reporting dates

June 30, 2017

June 30, 2018

Delivered March 2017

TABLE OF CONTENTS

LETTER

SECTION

PAGE

I	PRINCIPAL RESULTS OF THE VALUATION	1
II	SUMMARY OF PLAN PROVISIONS	9
III	ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS	10

EXHIBITS

A	FINANCIAL STATEMENT DISCLOSURES	21
B	REQUIRED SUPPLEMENTARY INFORMATION	47
C	RECONCILIATION OF PLAN PARTICIPANTS	54
D	PROJECTED CASH FLOWS (OPEN GROUP)	55
E	GLOSSARY OF TERMS	57

March 21, 2017

Personal and Confidential

Ms. Roxanne Tieri
Town Accountant
Town of Essex
30 Martin Street
Essex, MA 01929

Dear Ms. Tieri:

We have performed an actuarial valuation of the Town of Essex Other Postemployment Benefits Plan for the fiscal year ending June 30, 2017 with a measurement date of June 30, 2016 and a valuation date of June 30, 2016. The figures presented in this report reflect the adoption, by the Town of Essex, of Statement Nos. 74 and 75 of the Governmental Accounting Standards Board ("GASB 75") effective .

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 refer you to Section I of this report for a detailed summary and commentary on the results of the valuation and a comparison with the prior valuation. Section II is a summary of the plan provisions, and Section III describes the actuarial cost method and assumptions. Details for cost calculations, supporting data, and disclosures are provided in Exhibits A through C.

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

March 21, 2017

ACTUARIAL CERTIFICATION

This is to certify that Odyssey Advisors has conducted an actuarial valuation of certain benefit obligations of the Town of Essex other postemployment benefit programs with a valuation date of June 30, 2016 for the fiscal year ending June 30, 2017 in accordance with generally accepted actuarial principles and practices. 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

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

Town of Essex

Assuming Partial funding - 6.50% discount rate Comparison of Plan Liabilities to Prior Valuation

	<u>June 30, 2016</u>	<u>July 1, 2013</u>
I. Present Value of Future Benefits		
A. Actives	2,126,542	3,877,476
B. Retirees/Disabled	<u>1,500,726</u>	<u>1,205,617</u>
C. Total	3,627,268	5,083,093
II. Present Value of Future Normal Cost	548,911	1,987,639
III. Total OPEB Liability (Individual Entry Age Normal)		
A. Actives	1,577,631	1,889,837
B. Retirees/Disabled	<u>1,500,726</u>	<u>1,205,617</u>
C. Total	3,078,357	3,095,454
IV. Fiduciary Net Position	296,302	15,610
V. Net OPEB Liability (Asset) [III. - IV.]	2,782,055	3,079,844
VI. Funded Ratio [IV. / III.]	9.63%	0.50%
VII. Annual Covered Payroll	2,779,588	N/A
VIII. Net OPEB Liability (Asset) as % of Covered Payroll	100.1%	N/A
IX. Number of Eligible Participants		
A. Actives	29	32
B. Retirees/Disabled	<u>26</u>	<u>23</u>
C. Total	55	55
For Fiscal Year Ending June 30, 2017	<u>June 30, 2017</u>	<u>June 30, 2014</u>
X. Service Cost	71,580	156,517
XI. Interest on Net OPEB Liability (Asset) and Service Cost	185,487	N/A
XII. Deferred (Inflows)/Outflows from Plan Design Changes	0	N/A
XIII. Deferred (Inflows)/Outflows from Expected & Actual Experience	47,619	N/A
XIV. Deferred (Inflows)/Outflows from Changes in Assumptions	0	N/A
XV. Projected Earning on OPEB plan investments	(20,830)	N/A
XVI. Deferred (Inflows)/Outflows from Earnings on Investments	0	N/A
XVII. Employer Share of Costs	(127,579)	(103,187)
XVIII. Employer (Payments)/Withdrawals to/from OPEB Trust	(50,000)	(15,000)
XIX. Total Employer Contribution [XVII. + XVIII.]	(177,579)	(118,187)
XX. Other Changes	0	N/A
XXI. Net OPEB Expense [X.+XI.+XII.+XIII.+XIV.+XVI.+XIX.+XX.]	106,277	N/A
XXII. Discount Rate	6.50%	4.00%

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

(continued)

Town of Essex

Assuming Partial funding - 6.50% discount rate

Plan Liabilities as of June 30, 2016

	<u>Medical</u>	<u>Dental</u>	<u>Life</u>	<u>Excise Tax</u>	<u>Total</u>
I. Present Value of Future Benefits					
A. Actives	2,068,967	0	3,385	54,190	2,126,542
B. Retirees/Disabled	<u>1,484,416</u>	<u>0</u>	<u>8,641</u>	<u>7,669</u>	<u>1,500,726</u>
C. Total	3,553,383	0	12,026	61,859	3,627,268
II. Present Value of Future Normal Cost	528,047	0	636	20,228	548,911
III. Total OPEB Liability					
A. Actives	1,540,920	0	2,749	33,962	1,577,631
B. Retirees/Disabled	<u>1,484,416</u>	<u>0</u>	<u>8,641</u>	<u>7,669</u>	<u>1,500,726</u>
C. Total	3,025,336	0	11,390	41,631	3,078,357
IV. Fiduciary Net Position	291,218	0	1,094	3,990	296,302
V. Net OPEB Liability (Asset) [III. - IV.]	2,734,118	0	10,296	37,641	2,782,055
VI. Annual Covered Payroll	2,779,588	2,779,588	2,779,588	2,779,588	2,779,588
VII. Net OPEB Liability (Asset) as % of Covered Payroll	98.4%	0.0%	0.4%	1.4%	100.1%
VIII. Number of Eligible Participants					
IX. A. Actives	29	29	29	29	
B. Retirees/Disabled	<u>26</u>	<u>0</u>	<u>16</u>	<u>24</u>	
C. Total	55	29	45	53	

For Fiscal Year Ending June 30, 2017

X. Service Cost	69,656	0	133	1,791	71,580
XI. Interest on Net OPEB Liability (Asset) and Service Cost	182,246	0	679	2,562	185,487
XII. Deferred (Inflows)/Outflows from Plan Design Changes	0	0	0	0	0
XIII. Deferred (Inflows)/Outflows from Expected & Actual Experience	46,799	0	176	644	47,619
XIV. Deferred (Inflows)/Outflows from Changes in Assumptions	0	0	0	0	0
XV. Projected Earning on OPEB plan investments	(20,471)	0	(77)	(282)	(20,830)
XVI. Deferred (Inflows)/Outflows from Earnings on Investments	0	0	0	0	0
XVII. Employer Share of Costs	(126,533)	0	(1,046)	0	(127,579)
XVIII. Employer (Payments)/Withdrawals to/from OPEB Trust	(49,142)	0	(181)	(677)	(50,000)
XIX. Total Employer Contribution [XVII. + XVIII.]	(175,675)	0	(1,227)	(677)	(177,579)
XX. Other Changes	0	0	0	0	0
XXI. Net OPEB Expense [X.+XI.+XII.+XIII.+XIV.+XV.+XVI.+XIX.+XX.]	102,556	0	(317)	4,038	106,277

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

(continued)

Town of Essex
Plan Liabilities as of June 30, 2016
Assuming Partial funding

	General Government Employees and Retirees	School Employees and Retirees	Public Safety Employees and Retirees	Culture & Recreation Employees and Retirees	Health & Human Services Employees and Retirees	Sewer Enterprise Employees and Retirees	Water Enterprise Employees and Retirees	Government Activities	Business-Type Activities	Total
I. Present Value of Future Benefits										
A. Actives	324,858	0	973,527	58,612	55,943	574,617	138,985	1,412,940	713,602	2,126,542
B. Retirees/Disabled	0	215,939	176,935	36,827	119,627	536,383	415,015	549,328	951,398	1,500,726
C. Total	324,858	215,939	1,150,462	95,439	175,570	1,111,000	554,000	1,962,268	1,665,000	3,627,268
II. Present Value of Future Normal Cost	70,886	0	251,258	14,590	13,630	146,061	52,486	350,364	198,547	548,911
III. Total OPEB Liability										
A. Actives	253,972	0	722,269	44,022	42,313	428,556	86,499	1,062,576	515,055	1,577,631
B. Retirees/Disabled	0	215,939	176,935	36,827	119,627	536,383	415,015	549,328	951,398	1,500,726
C. Total	253,972	215,939	899,204	80,849	161,940	964,939	501,514	1,611,904	1,466,453	3,078,357
IV. Fiduciary Net Position	24,413	20,638	86,047	7,906	15,820	92,491	48,987	154,824	141,478	296,302
V. Net OPEB Liability (Asset) [III. - IV.]	229,559	195,301	813,157	72,943	146,120	872,448	452,527	1,457,080	1,324,975	2,782,055
VI. Annual Covered Payroll	644,179	N/A	1,442,180	90,627	168,985	132,307	301,310	#NAME?	433,617	2,779,588
VII. Net OPEB Liability (Asset) as % of Covered Payroll	35.6%	N/A	56.4%	80.5%	86.5%	659.4%	150.2%	#NAME?	305.6%	100.1%
VIII. Number of Eligible Participants										
A. Actives	6	0	11	1	1	7	3	19	10	29
B. Retirees/Disabled	0	10	6	1	1	3	5	18	8	26
C. Total	6	10	17	2	2	10	8	37	18	55
For Fiscal Year Ending June 30, 2017										
IX. Service Cost	13,259	0	27,018	2,920	2,916	14,509	10,958	46,113	25,467	71,580
X. Interest on Net OPEB Liability (Asset) and Service Cost	15,783	12,695	54,611	4,932	9,688	57,652	30,126	97,709	87,778	185,487
XI. Deferred (Inflows)/Outflows from Plan Design Changes	0	0	0	0	0	0	0	0	0	0
XII. Deferred (Inflows)/Outflows from Expected & Actual Experience	3,929	3,341	13,910	1,251	2,505	14,926	7,757	24,936	22,683	47,619
XIII. Deferred (Inflows)/Outflows from Changes in Assumptions	0	0	0	0	0	0	0	0	0	0
XIV. Projected Earning on OPEB plan investments	(1,715)	(1,451)	(6,049)	(556)	(1,112)	(6,502)	(3,445)	(10,883)	(9,947)	(20,830)
XV. Deferred (Inflows)/Outflows from Earnings on Investments	0	0	0	0	0	0	0	0	0	0
XVI. Employer Share of Costs	(4,527)	(25,740)	(17,166)	(2,184)	(12,895)	(33,314)	(31,753)	(62,512)	(65,067)	(127,579)
XVII. Employer (Payments)/Withdrawals to/from OPEB Trust	(4,126)	(3,507)	(14,605)	(1,313)	(2,630)	(15,673)	(8,146)	(26,181)	(23,819)	(50,000)
XVIII. Total Employer Contribution [XVI. + XVII.]	(8,653)	(29,247)	(31,771)	(3,497)	(15,525)	(48,987)	(39,899)	(88,693)	(88,886)	(177,579)
XIX. Other Changes	0	0	0	0	0	0	0	0	0	0
XX. Net OPEB Expense [IX.+X.+XI.+XII.+XIII.+XIV.+XV.+XVIII.+XIX.]	22,603	(14,662)	57,719	5,050	(1,528)	31,598	5,497	69,182	37,095	106,277

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

(continued)

Town of Essex

Detail of Plan Liabilities by Group and Dependency Status

Assuming Partial funding - 6.50% discount rate

Plan Liabilities as of June 30, 2016

	<u>Present Value of Future Benefits</u>	<u>Total OPEB Liability (Individual Entry Age Normal)</u>	<u>Service Cost</u>
Actives			
Under Age 65			
A. Participants	486,973	357,126	13,539
B. Spouses	<u>470,601</u>	<u>340,697</u>	<u>13,873</u>
C. Total	957,574	697,823	27,412
Age 65 and Over			
A. Participants	678,759	511,489	25,639
B. Spouses	<u>490,209</u>	<u>368,319</u>	<u>18,529</u>
C. Total	1,168,968	879,808	44,168
Actives Total			
A. Participants	1,165,732	868,615	39,178
B. Spouses	<u>960,810</u>	<u>709,016</u>	<u>32,402</u>
C. Total	2,126,542	1,577,631	71,580
Retirees/Disabled			
Under Age 65			
A. Participants	268,878	268,878	0
B. Spouses	<u>186,662</u>	<u>186,662</u>	<u>0</u>
C. Total	455,540	455,540	0
Age 65 and Over			
A. Participants	925,333	925,333	0
B. Spouses	<u>119,853</u>	<u>119,853</u>	<u>0</u>
C. Total	1,045,186	1,045,186	0
Retirees/Disabled Total			
A. Participants	1,194,211	1,194,211	0
B. Spouses	<u>306,515</u>	<u>306,515</u>	<u>0</u>
C. Total	1,500,726	1,500,726	0
Total Population			
A. Participants	2,359,943	2,062,826	39,178
B. Spouses	<u>1,267,325</u>	<u>1,015,531</u>	<u>32,402</u>
C. Total	3,627,268	3,078,357	71,580

Overview of GASB 74 and 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 post-employment 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 post-employment benefits.

Overview of GASB 74 and 75

(continued)

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 post-employment benefits and when will they start?

Medical inflation and claims cost assumptions: When an employee starts receiving post-employment 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.

Commentary on Plan Experience and Contribution Amounts

1. **GASB 74/75 – How we got here:**

GASB 74 and 75 were designed to recognize the Other Postemployment Benefits ("OPEB") earned by employees throughout their working career vs. when they are paid in retirement – accrual accounting vs. "pay-as-you-go" accounting while increasing disclosures to better reflect the plan's liabilities and future funding requirements. 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. Additionally, GASB 74 and 75 require increased disclosures comparable to those required under GASB 67 and 68 and interest rates used in the valuation are more closely tied to the plan's underlying investment and funding policy.

2. **GASB 74 and 75 Impact**

The Town has adopted GASB 74 and 75 for its Fiscal Year ending June 30, 2017. The adoption of GASB 74/75 introduces a new actuarial cost method and discount rate as well as new disclosures and methodologies for reporting plan liabilities and OPEB expenses. Significant changes have been made to the recognition of OPEB expenses, making the comparison of Net OPEB Expense in the current valuation to the expenses reported under GASB 45 misleading. The liability reported on the Town's balance sheet will increase dramatically as GASB 74/75 require the recognition of liabilities immediately rather than recognizing liabilities (Net OPEB Obligation) over a 30 year period as GASB 45 allowed. Please keep these changes in mind when considering any comparison to previously reported liabilities and expenses.

3. **Summary of Results:**

Plan experience was less favorable than expected - for the year ending on the reporting date June 30, 2017, the Plan saw an experience loss of \$217,621 or 8.49%. This was mainly due to new actuarial standards ("ASOP 6") which require implicit cost to be reflected for Medicare Integrated plans. This was somewhat offset by premiums for Medicare Integrated plans decreasing rather than the expected 16% increase. The actuarial experience loss is amortized into the net OPEB expense over time until fully recognized.

Commentary on Plan Experience and Contribution Amounts
(continued)

4. **Balance Sheet Items**

	June 30, 2016	June 30, 2014
Total OPEB Liability	\$3,078,357	\$3,095,454
Fiduciary Net Position	\$296,302	\$15,610
Net OPEB Liability	\$2,782,055	\$3,079,844
Funded Ratio	9.63%	0.50%

5. **Income Statement Items**

	June 30, 2017	June 30, 2015
Service Cost	\$71,580	\$156,517
Interest Expense	\$185,487	N/A
(Inflow)/Outflow from Plan Design Changes	\$0	N/A
(Inflow)/Outflow from Plan Experience	\$47,619	N/A
(Inflow)/Outflow from Changes in Assumptions	\$0	N/A
Projected Investment Earnings	\$(20,830)	N/A
(Inflow)/Outflow from Earnings on Investments	\$0	N/A
Employer Share of Costs	\$(127,579)	\$(103,187)
Employer Payments (Withdrawals) to/from Trust	\$(50,000)	\$(15,000)
Total Employer Payments	\$(177,579)	\$(118,187)
Other Changes	\$0	N/A
Net OPEB Expense	\$106,277	N/A
Interest Rate	6.50%	4.00%

SECTION II

SUMMARY OF PLAN PROVISIONS

<u>Effective Date</u>	GASB 45: July 1, 2007; GASB 45 is adopted. GASB 74/75: June 30, 2016; GASB 74/75 is adopted
<u>Plan Year</u>	July 1 through June 30.
<u>Eligibility</u>	An employee hired before April 2, 2012 shall become eligible to retire under this plan upon attainment of age 55 as an active member and completion of 10 years of service or an employee shall be able to retire with 20 years of service regardless of age. Those hired on or after April 2, 2012 shall be eligible to retire upon attainment of age 60 with 10 years of creditable service.
<u>Creditable Service</u>	Elapsed time from date of hire to termination of service date.
<u>Participant Contributions</u>	Retirees will pay 25% of premiums in retirement for HMO coverage and 40% for PPO/Indemnity Coverage. Retirees will pay 50% of premiums for Life Insurance and 100% for Dental Insurance.
<u>Benefits Offered</u>	Comprehensive Medical Insurance offered through Blue Cross of Massachusetts and group term Life Insurance.
<u>Normal Retirement Date</u>	The normal retirement date is the first day of the month following a participant's 65th birthday.
<u>Early Retirement</u>	Early retirement is available for any participant who has attained benefit eligibility.

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

A. ACTUARIAL COST METHOD

The actuarial cost method used to calculate the costs and liabilities of the plan is the Individual Entry Age Normal Actuarial Cost Method. Under this method, the annual normal 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 normal cost for each active member is a level percent of payroll. The actuarial accrued liability is the actuarial present value of the projected benefit times the ratio of past service to expected total service at retirement/termination.

Actuarial gains and losses are calculated each year and amortized into the OPEB expense. Gains and losses arising from plan design changes are recognized immediately. Gains and losses arising from differences between expected and actual investment returns are amortized over a five (5) year period. Gain and losses arising from differences between expected and actual plan experience and changes in actuarial assumptions are amortized over the remaining lifetime of all active and retired plan participants (4.57 years for the Town for the 2017 fiscal year).

All employees who are plan participants on a valuation date are included in the actuarial valuation.

B. ASSET VALUATION METHOD

The actuarial value of assets is equal to the Market Value of the Plan's assets as of the valuation date.

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

C. ACTUARIAL ASSUMPTIONS

We used the following assumptions in this year's actuarial valuation:

Pre-Retirement Mortality

It is assumed that pre-retirement mortality is represented by the RP-2000 Employees Mortality Table projected generationally with scale BB and a base year 2009 for males and females.

Post-Retirement Mortality

It is assumed that post-retirement mortality is represented by the RP-2000 Healthy Annuitant Mortality Table projected generationally with scale BB and a base year 2009 for males and females.

Disabled Mortality

It is assumed that disabled mortality is represented by the RP-2000 Healthy Annuitant Table projected generationally with Scale BB and a base year 2012 for males and females.

Discount Rate

6.50% per annum (previously 4.00%)

Long Term Rate of Return

7.03% (based on investment policy)

Municipal Bond Rate

2.71% as of June 30, 2016 (source: S&P Municipal Bond 20-Year High Grade Index - SAPIHG)

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS (continued)

C. ACTUARIAL ASSUMPTIONS (continued)

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						
<u>Age</u>	<u>0-4 Years of Service (Males)</u>	<u>0-4 Years of Service (Females)</u>	<u>5-9 Years of Service (Males)</u>	<u>5-9 Years of Service (Females)</u>	<u>10+ Years of Service (Males)</u>	<u>10+ Years of Service (Females)</u>
20	27.00%	27.00%	0.00%	0.00%	0.00%	0.00%
30	23.00%	23.00%	10.00%	10.00%	5.60%	5.60%
40	16.00%	16.00%	8.00%	8.00%	4.00%	4.00%
50	18.00%	18.00%	6.00%	6.00%	3.60%	3.60%
60	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Public Safety Employees		
<u>Service</u>	<u>Public Safety Male</u>	<u>Public Safety Female</u>
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%

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS (continued)

C. ACTUARIAL ASSUMPTIONS (continued)

Retirement Rates

It was assumed that the following percentage of eligible employees would retire each year:

<u>Age</u>	<u>Non Public Safety Male</u>	<u>Non Public Safety Female</u>	<u>Public Safety</u>
45	0.00%	0.00%	1.00%
46	0.00%	0.00%	1.00%
47	0.00%	0.00%	1.00%
48	0.00%	0.00%	1.00%
49	0.00%	0.00%	1.00%
50	1.00%	1.50%	2.00%
51	1.00%	1.50%	2.00%
52	1.00%	2.50%	2.00%
53	1.00%	2.50%	5.00%
54	2.00%	2.50%	7.50%
55	2.00%	5.50%	15.00%
56	2.50%	6.50%	10.00%
57	2.50%	6.50%	10.00%
58	5.00%	6.50%	10.00%
59	6.50%	6.50%	15.00%
60	12.00%	5.00%	20.00%
61	20.00%	13.00%	20.00%
62	30.00%	15.00%	25.00%
63	25.00%	12.50%	25.00%
64	22.00%	18.00%	30.00%
65	40.00%	15.00%	100.00%
66	25.00%	20.00%	100.00%
67	25.00%	20.00%	100.00%
68	30.00%	25.00%	100.00%
69	30.00%	20.00%	100.00%
70	100.00%	100.00%	100.00%
71	100.00%	100.00%	100.00%
72	100.00%	100.00%	100.00%

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

Disability rates

It was assumed that the following percentage of eligible employees would become permanently disabled each year:

<u>Age</u>	<u>Non Public Safety</u>	<u>Public Safety</u>
20	0.01%	0.20%
25	0.01%	0.21%
30	0.01%	0.21%
35	0.04%	0.46%
40	0.07%	0.71%
45	0.10%	0.91%
50	0.13%	1.10%
55	0.13%	0.95%
60	0.12%	0.80%

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS (continued)

C. ACTUARIAL ASSUMPTIONS (continued)

Healthcare Trend

It was assumed that healthcare costs would increase in accordance with the trend rates in the following table:

<u>Year</u>	<u>Medical</u>	<u>Dental</u>
FY 2013	6.0%	5.5%
FY 2014	5.0%	5.0%
FY 2015	5.0%	5.0%
FY 2016	5.0%	5.0%
FY 2017	5.0%	5.0%
FY 2018	5.0%	5.0%
FY 2019	5.0%	5.0%
FY 2020+	5.0%	5.0%

Participation Rate

It was assumed that 80% of employees eligible to receive retirement benefits would enroll in the retiree medical and dental plans upon retirement. For life insurance plans, it was assumed that 80% of eligible employees would elect coverage upon retirement.

Percent Married

It was assumed that 80% of male participants and 70% of female participants who elect retiree healthcare coverage for themselves would also elect coverage for a spouse upon retirement. It was further assumed that a male spouse is three years older than a female spouse and same sex spouses are assumed to be the same age. For current retirees, the actual census information was used.

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

C. ACTUARIAL ASSUMPTIONS (continued)

Compensation Increases

3.00% per year.

Open Group Forecast

It was assumed for projecting plan liabilities in future years that the active population would remain unchanged and that those who terminate employment or retire will be replaced with new employees with the demographics below:

Open Group Forecast Population Demographics

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

Additional Comments

The values in this report reflect a closed group and do not reflect any new entrants after the valuation date.

For purposes of this valuation, retiree contributions were assumed to increase with the same trend rate as health care claims.

Medicare Part B Penalties are not reflected

Medicare Part B Reimbursement is not reflected

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

As part of the Other Post-Employment Benefits Program, there are situations where the cost is borne partly or entirely on the retirees. In most cases, the premium that is used to split the cost is lower than the true cost of providing the medical benefits, for two reasons:

- ✓ The cost sharing program is usually a fixed amount such as a COBRA premium that does not take into account the age of the retiree and his/her dependents. Since medical costs generally increase with age, the cost sharing premium is often lower than the true cost of the medical benefits:
- ✓ The cost sharing premium is usually a blended rate that takes into account the cost of medical benefits for active employees as well as retirees. Medical costs are generally higher for retirees than for active employees of the same age. This means that, again, the cost sharing premium is often lower than the true cost of the medical benefits.

Because of these two factors, a retiree who is paying 100% of the cost sharing premium is most likely not paying 100% of the true cost of the medical benefits. This situation is known as an “implicit subsidy”. GASB 74 and 75 require the plan sponsor to measure the liability for this subsidy; that is, the difference between the true cost of the medical benefits and the cost sharing premiums paid by the retiree. 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. To do this, our valuation consists of several steps:

First, we calculate the liability for the true cost of medical benefits expected to be received by retirees and their dependents. This liability is based on factors developed by actuaries that reflect how the cost of medical benefits varies by age and gender, as well as the other assumptions discussed on the prior page.

Next, we calculate the liability for the future premiums expected to be paid by the retiree for their own and their dependents’ coverage. This liability is based on the current premium rates without adjustment for age or gender. It also is based on the terms of the retiree medical program – different retirees pay different percentages based on their union, date of retirement, age at retirement, and other factors.

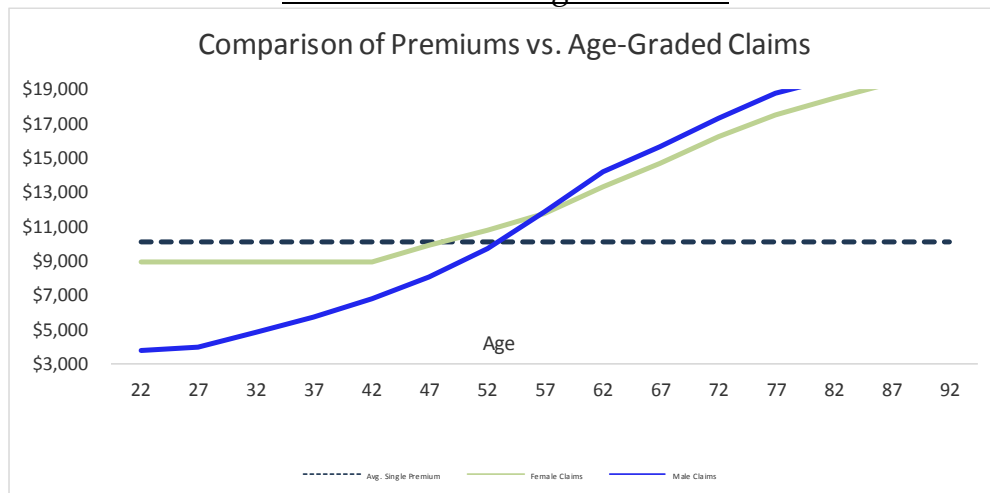
SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS (continued)

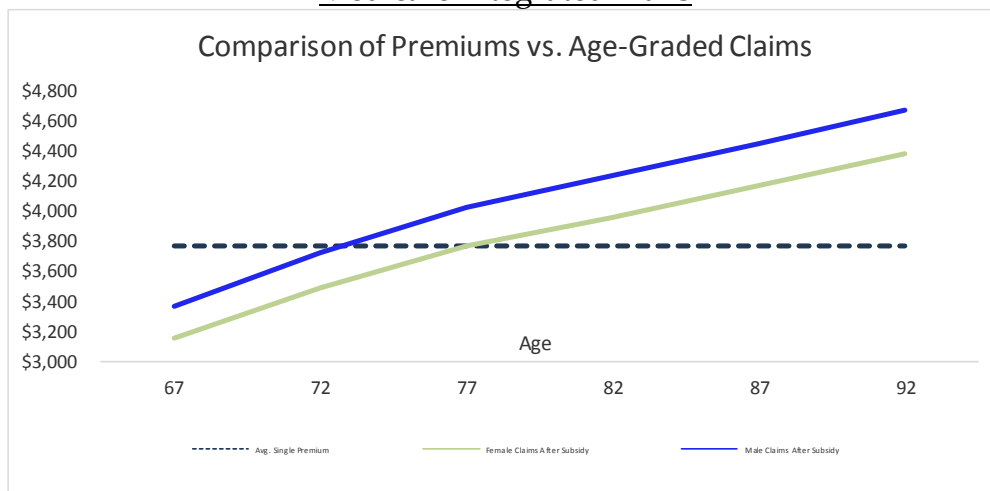
D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

For illustrative purposes, the charts below show the impact of the implicit cost described previously. You can see that individuals are expected to utilize more medical services with age while the underlying premiums are flat. As such, you will see that the age adjusted claims intersect the premium rates at approximately age 50 for females and age 55 for males on the Non-Medicare Integrated Plans and age 75 for females & age 75 for males on the Medicare Integrated Plans.

Non-Medicare Integrated Plans



Medicare Integrated Plans



SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS (continued)

D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

I. CLAIMS COSTS DEVELOPMENT - Based on Active & Retiree Incurred Claims & Premiums

	Number of Participants			
	<u>Single</u>	<u>Two-Person</u>	<u>Family</u>	<u>Total</u>
HMO Blue	20		16	36
Blue Care Elect				0
Managed Blue for Seniors	7			7
Medex II	10			10
Total	37	0	16	53

	Per Contract Costs (monthly) - FY 2017		
	<u>Single</u>	<u>Two-Person</u>	<u>Family</u>
HMO Blue	839.53	0.00	2,266.74
Blue Care Elect	1,039.82	0.00	2,807.56
Managed Blue for Seniors	274.70	549.40	
Medex II	341.31	682.62	

Gross Expected FY 2017 Incurred Premiums	700,733
Adjustment to reflect children's claims	(112,835)
Total Expected FY 2017 Incurred Premiums (adults only)	587,899

II. PRE-65 AND POST-65 PER CAPITA RETIREE ANNUAL CLAIM COSTS

	Employer <u>Primary</u>	Medicare <u>Primary</u>
Age 65	14,018	3,010
Average Age	12,358	3,767

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS (continued)

D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

III. BREAKDOWN OF CLAIM COSTS

ALL ACTIVE EMPLOYEES AND SPOUSES

Age Bracket	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
24 & Under	1.312	0.549	8,893	3,721	1,079,516
25 to 29	1.312	0.591	8,893	4,006	5,798,035
30 to 34	1.312	0.712	8,893	4,826	7,105,310
35 to 39	1.312	0.850	8,893	5,761	6,928,485
40 to 44	1.312	1.000	8,893	6,778	8,608,808
45 to 49	1.456	1.193	9,869	8,086	10,354,811
50 to 54	1.599	1.441	10,838	9,767	11,537,601
55 to 59	1.740	1.753	11,794	11,882	12,368,642
60 to 64	1.968	2.102	13,339	14,247	10,783,056
65 to 69	2.168	2.316	14,695	15,698	3,891,657
70 & Over	2.396	2.557	16,240	17,331	<u>1,550,812</u>
Total					80,006,733

ALL RETIREES AND SPOUSES - NOT MEDICARE ELIGIBLE

Age Bracket	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
44 & Under	1.312	1.000	8,893	6,778	346,877
45 to 49	1.456	1.193	9,869	8,086	449,704
50 to 54	1.599	1.441	10,838	9,767	1,191,749
55 to 59	1.740	1.753	11,794	11,882	3,134,914
60 to 64	1.968	2.102	13,339	14,247	9,654,884
65 to 69	2.168	2.316	14,695	15,698	2,100,126
70 to 74	2.396	2.557	16,240	17,331	1,699,154
75 to 79	2.593	2.769	17,575	18,768	597,870
80 to 84	2.724	2.910	18,463	19,724	487,604
85 to 89	2.864	3.059	19,412	20,734	297,790
90 & Over	3.010	3.215	20,402	21,791	<u>146,981</u>
Total					20,107,653

ALL RETIREES AND SPOUSES - MEDICARE ELIGIBLE

Age Bracket	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
65 to 69	2.168	2.316	3,155	3,370	2,897,960
70 to 74	2.396	2.557	3,487	3,721	2,965,975
75 to 79	2.593	2.769	3,773	4,030	2,073,285
80 to 84	2.724	2.910	3,964	4,235	1,845,115
85 to 89	2.864	3.059	4,168	4,452	1,480,752
90 & Over	3.010	3.215	4,380	4,679	<u>1,180,151</u>
Total					12,443,238

Grand Totals 112,557,624

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

E. DEVELOPMENT OF REPRESENTATIVE DENTAL PER CAPITA CLAIMS COSTS

I. CLAIMS COSTS DEVELOPMENT - with Active & Retiree Incurred Premiums

	Per Contract Costs (monthly) - FY 2017		
	<u>Single</u>	<u>Two-Person</u>	<u>Family</u>
Dental Plan	N/A		N/A

FY 2017 Expected Per Person Rate

N/A

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

The GASB Standards for accounting and financial reporting for postemployment benefits other than pensions require the following disclosures in the financial statements related to the retiree medical, dental and life insurance benefits;

1. A DESCRIPTION OF THE RETIREE MEDICAL INSURANCE PROGRAM:

- a. Plan Type: Comprehensive Medical Insurance offered through Blue Cross of Massachusetts.
- b. Administrator: Town of Essex
- c. Eligibility: An employee hired before April 2, 2012 shall become eligible to retire under this plan upon attainment of age 55 as an active member and completion of 10 years of service or an employee shall be able to retire with 20 years of service regardless of age. Those hired on or after April 2, 2012 shall be eligible to retire upon attainment of age 60 with 10 years of creditable service.
- d. Cost Sharing: Retirees will pay 25% of premiums in retirement for HMO coverage and 40% for PPO/Indemnity Coverage.

2. A DESCRIPTION OF THE DENTAL INSURANCE PROGRAM:

- a. Plan Type: Comprehensive Dental Insurance
- b. Administrator: Town of Essex
- c. Eligibility: Same as above
- d. Cost sharing: Retirees will pay 100% of premiums.

3. A DESCRIPTION OF THE RETIREE LIFE INSURANCE PROGRAM:

- a. Plan Type: Group Term Life Insurance - \$2,000
- b. Administrator: Town of Essex
- c. Eligibility: Same as above
- d. Cost sharing: Employees will pay 50% of premiums in retirement.

EXHIBIT AFinancial Statement Disclosure

(As of June 30, 2016)

(continued)

4. RETIREE MEDICAL AND LIFE INSURANCE CONTRIBUTIONS:

Group	Individual	Family
Medical	25%-40%	25%-40%
Dental	100%	100%
Life	50%	N/A

5. FUNDING POLICY

The contribution requirements of plan members and the Town are established and may be amended through Town ordinances. For the 2017 fiscal year, total Town premiums plus implicit costs for the retiree medical program are \$127,579. The Town is also projected to make a contribution to an OPEB Trust of \$50,000 for the 2017 fiscal year for a total contribution of \$177,579.

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

6. INVESTMENT POLICY

The Town has not established a formal Investment Policy. The chart below shows the development of a long-term rate of return on assets that could be used for funded periods if the Investment Policy below were adopted.

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	25.00%	Domestic Equity - Large Cap	5.50%
Domestic Equity - Small/Mid Cap	0.00%	Domestic Equity - Small/Mid Cap	6.00%
International Equity - Developed Market	10.00%	International Equity - Developed Market	6.00%
International Equity-Emerging Market	0.00%	International Equity-Emerging Market	7.00%
Domestic Fixed Income	35.00%	Domestic Fixed Income	2.00%
International Fixed Income	10.00%	International Fixed Income	3.00%
Alternatives	20.00%	Alternatives	6.50%
Real Estate	0.00%	Real Estate	6.25%
Cash	0.00%	Cash	0.00%
Total	100.00%		
		Real Rate of Return	4.28%
		Inflation Assumption	2.75%
		Total Nominal Return	7.03%

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

7. ACTUARIALLY DETERMINED CONTRIBUTION (ADC)

The Town's Actuarially Determined Contribution (ADC) is an amount actuarially determined in accordance with the parameters of GASB Statement No. 74/75 which represents a level of funding that, if paid on an ongoing basis, is projected to cover the service cost each year and amortize any unfunded actuarial liabilities (or funding excess). The following table shows the components of the Town's annual ADC for the fiscal year and the amount actually contributed to the plan:

Actuarially Determined Contribution - Deficiency / (Excess)	
	<u>June 30, 2017</u>
I. Service Cost	71,580
II. 30 year amortization of NOL at 6.50%	<u>200,040</u>
III. Actuarial Determined Contribution [I. + II.]	271,620
IV. Contributions in relation to the actuarially determined contribution	<u>(177,579)</u>
V. Contribution deficiency / (excess) [III. + IV.]	<u>94,041</u>
Covered employee payroll	2,779,588
Contributions as a % of covered employee payroll	6.39%

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

8. FUNDED STATUS AND FUNDING PROGRESS

As of June 30, 2016, the most recent valuation date, the plan was 9.63% funded. The Total OPEB Liability (TOL) for benefits was \$3,078,357, and the Fiduciary Net Position was \$296,302, resulting in a Net OPEB Liability (NOL) of \$2,782,055. The covered payroll (annual payroll of active employees covered by the plan) was \$ 2,779,588 and the ratio of the NOL to the covered payroll was 100.1%.

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and the healthcare cost trend. Amounts determined regarding the funded status of the plan and the actuarially determined contribution of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future. The schedule of funding progress, presented in the required supplementary information following the financial statements, presents multiyear trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the Total OPEB Liabilities for benefits.

Actuarial Valuation Date	Fiduciary Net Position	Total OPEB Liability	Net OPEB Liability	Funded Ratio	Covered Payroll	NOL as a % of Covered Payroll
06/30/2018 (est.)	\$446,519	\$3,357,487	\$2,910,968	13.3%	\$2,948,865	98.7%
06/30/2017 (est.)	\$368,860	\$3,248,195	\$2,879,335	11.4%	\$2,862,976	100.6%
06/30/2016	\$296,302	\$3,078,357	\$2,782,055	9.6%	\$2,779,588	100.1%
06/30/2015	\$32,483	\$3,471,115	\$3,438,632	0.9%	\$2,231,674	154.1%
06/30/2014	\$31,234	\$3,278,856	\$3,247,622	1.0%	\$2,146,984	151.3%
06/30/2013	\$15,610	\$3,095,454	\$3,079,844	0.5%	N/A	N/A

EXHIBIT A

Financial Statement Disclosure (As of June 30, 2016) (continued)

9. FIDUCIARY NET POSITION

Statement of Fiduciary Net Position June 30, 2016 and June 30, 2017		
	<u>June 30, 2017 (Projected)</u>	<u>June 30, 2016</u>
Assets		
I. Cash and cash equivalents	0	0
<u>Receivables & Prepaid expenses:</u>		
II. Contributions	0	0
III. Investment Income	0	0
IV. Receivables from brokers for unsettled trades	0	0
V. Prepaid expenses	0	0
VI. Total Receivables [II.+III.+IV.+V.]	0	0
<u>OPEB Trust Investments:</u>		
VII. Fixed Income	165,987	133,336
VIII. Stocks	129,101	103,706
IX. Cash and cash equivalents	0	0
X. Real estate	0	0
XI. Alternative investments	73,772	59,260
XII. Total Investments [VII.+VIII.+IX.+X.+XI.]	368,860	296,302
Invested securities lending cash collateral	0	0
Capital assets, net of accumulated depreciation	0	0
Total Assets	368,860	296,302
Liabilities		
XIII. Accrued expenses and benefits payable	0	0
XIV. Securities lending cash collateral	0	0
XV. Payable to brokers for unsettled trades	0	0
XVI. Total liabilities [XIII.+XIV.+XV.]	0	0
XVII. Net Position restricted for OPEB [XII.-XVI.]	368,860	296,302

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

9. FIDUCIARY NET POSITION (CONTINUED)

Statement of Changes in Fiduciary Net Position for the Year ended June 30, 2017 (Projected)	
	<u>June 30, 2016</u>
Additions	
<u>Contributions</u>	
Employer Contributions to OPEB Trust	<u>50,000</u>
Total Contributions	50,000
<u>Investment Income / (loss)</u>	
Interest	10,334
Dividends	2,074
Equity fund income, net	0
Net increase in fair value of investments	10,150
Securities lending income	0
Less investment expenses:	
Direct investment expense	0
Securities lending management fees	0
Securities lending borrower rebates	<u>0</u>
Net investment income	22,558
Other income	<u>0</u>
Total Additions	<u>72,558</u>
Deductions	
Service benefits	0
Disability benefits	0
Death benefits	0
Refunds	0
Administrative expenses	<u>0</u>
Total deductions	<u>0</u>
Net increase (decrease)	72,558
Net Position restricted for OPEB	
Beginning of year	<u>296,302</u>
End of year	368,860

EXHIBIT A

Financial Statement Disclosure (As of June 30, 2016) (continued)

10. OPEB LIABILITY, OPEB EXPENSE AND ADC

Fiscal Year Ending June 30, 2017										
	General Government Employees and Retirees	School Employees and Retirees	Public Safety Employees and Retirees	Culture & Recreation Employees and Retirees	Health & Human Services Employees and Retirees	Sewer Enterprise Employees and Retirees	Water Enterprise Employees and Retirees	Government Activities	Business-Type Activities	Total
I. Total OPEB Liability	253,972	215,939	899,204	80,849	161,940	964,939	501,514	1,611,904	1,466,453	3,078,357
II. Fiduciary Net Position as of June 30, 2016	24,413	20,638	86,047	7,906	15,820	92,491	48,987	154,824	141,478	296,302
III. Net OPEB Liability (Asset) [I.-II.]	229,559	195,301	813,157	72,943	146,120	872,448	452,527	1,457,080	1,324,975	2,782,055
IV. Service Cost	13,259	-	27,018	2,920	2,916	14,509	10,958	46,113	25,467	71,580
V. Interest on Net OPEB Liability (Asset) and Service Cost	15,783	12,695	54,611	4,932	9,688	57,652	30,126	97,709	87,778	185,487
VI. Deferred (Inflows)/Outflows from Plan Design Changes	-	-	-	-	-	-	-	-	-	-
VII. Deferred (Inflows)/Outflows from Plan Experience	3,929	3,341	13,910	1,251	2,505	14,926	7,757	24,936	22,683	47,619
VIII. Deferred (Inflows)/Outflows from Changes in Assumptions	-	-	-	-	-	-	-	-	-	-
IX. Projected Earnings on OPEB plan investments	(1,715)	(1,451)	(6,049)	(556)	(1,112)	(6,502)	(3,445)	(10,883)	(9,947)	(20,830)
X. Deferred (Inflows)/Outflows from Earnings on Investments	-	-	-	-	-	-	-	-	-	-
XI. Employer Share of Costs	(4,527)	(25,740)	(17,166)	(2,184)	(12,895)	(33,314)	(31,753)	(62,512)	(65,067)	(127,579)
XII. Employer Payments (Withdrawals) to/from OPEB Trust	(4,126)	(3,507)	(14,605)	(1,313)	(2,630)	(15,673)	(8,146)	(26,181)	(23,819)	(50,000)
XIII. Total Employer Contribution [X.+XI.]	(8,653)	(29,247)	(31,771)	(3,497)	(15,525)	(48,987)	(39,899)	(88,693)	(88,886)	(177,579)
XIV. Net OPEB Expense [IV.+V.+VI.+VII.+VIII.+IX.+X.+XIII.]	22,603	(14,662)	57,719	5,050	(1,528)	31,598	5,497	69,182	37,095	106,277
XV. Actuarial Determined Contribution (ADC)	22,409	19,053	79,342	7,134	14,289	85,142	44,251	142,227	129,393	271,620
XVI. Total Expected Contribution	8,653	29,247	31,771	3,497	15,525	48,987	39,899	88,693	88,886	177,579
XVII. Percentage of ADC Contributed [XVI./XV.]	39%	154%	40%	49%	109%	58%	90%	62%	69%	65%

Fiscal Year Ending June 30, 2018										
	General Government Employees and Retirees	School Employees and Retirees	Public Safety Employees and Retirees	Culture & Recreation Employees and Retirees	Health & Human Services Employees and Retirees	Sewer Enterprise Employees and Retirees	Water Enterprise Employees and Retirees	Government Activities	Business-Type Activities	Total
I. Total OPEB Liability	267,984	227,853	948,815	85,310	170,874	1,018,176	529,183	1,700,836	1,547,359	3,248,195
II. Fiduciary Net Position as of June 30, 2017	30,398	25,717	107,206	9,820	19,653	115,208	60,858	192,794	176,066	368,860
III. Net OPEB Liability (Asset) [I.-II.]	237,586	202,136	841,609	75,490	151,221	902,968	468,325	1,508,042	1,371,293	2,879,335
IV. Service Cost	13,952	-	28,432	3,073	3,069	15,268	11,531	48,526	26,799	75,325
V. Interest on Net OPEB Liability (Asset) and Service Cost	16,179	13,014	55,982	5,056	9,931	59,099	30,882	100,162	89,981	190,143
VI. Deferred (Inflows)/Outflows from Plan Design Changes	-	-	-	-	-	-	-	-	-	-
VII. Deferred (Inflows)/Outflows from Plan Experience	3,929	3,341	13,910	1,251	2,505	14,926	7,757	24,936	22,683	47,619
VIII. Deferred (Inflows)/Outflows from Changes in Assumptions	-	-	-	-	-	-	-	-	-	-
IX. Projected Earnings on OPEB plan investments	(2,137)	(1,806)	(7,530)	(692)	(1,385)	(8,094)	(4,287)	(13,550)	(12,381)	(25,931)
X. Deferred (Inflows)/Outflows from Earnings on Investments	-	-	-	-	-	-	-	-	-	-
XI. Employer Share of Costs	(5,022)	(28,562)	(19,048)	(2,423)	(14,309)	(36,966)	(35,234)	(69,364)	(72,200)	(141,564)
XII. Employer Payments (Withdrawals) to/from OPEB Trust	(4,126)	(3,507)	(14,605)	(1,313)	(2,630)	(15,673)	(8,146)	(26,181)	(23,819)	(50,000)
XIII. Total Employer Contribution [X.+XI.]	(9,148)	(32,069)	(33,653)	(3,736)	(16,939)	(52,639)	(43,380)	(95,545)	(96,019)	(191,564)
XIV. Net OPEB Expense [IV.+V.+VI.+VII.+VIII.+IX.+X.+XIII.]	22,775	(17,520)	57,141	4,952	(2,819)	28,560	2,503	64,529	31,063	95,592
XV. Actuarial Determined Contribution (ADC)	22,409	19,053	79,342	7,134	14,289	85,142	44,251	142,227	129,393	271,620
XVI. Total Expected Contribution	9,148	32,069	33,653	3,736	16,939	52,639	43,380	95,545	96,019	191,564
XVII. Percentage of ADC Contributed [XVI./XV.]	41%	168%	42%	52%	119%	62%	98%	67%	74%	71%

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

11. EFFECT OF 1% CHANGE IN HEALTHCARE TREND

In the event that healthcare trend rates were 1% higher than forecast and employee contributions were to increase at the forecast rates, the Total OPEB Liability would increase to \$3,799,324 or by 23.4% and the corresponding Service Cost would increase to \$99,031 or by 38.4%. If such healthcare trend rates were 1% less than forecast and employee contributions were to increase at the forecast rate, the Total OPEB Liability would decrease to \$2,516,044 or by 18.3% and the corresponding Service Cost would decrease to \$51,909 or by 27.5%.

Impact of a 1% Change in the Healthcare Trend Rate as of June 30, 2017

	<u>1% Decrease (4.00%)</u>	<u>Current Trend Rate (5.00%)</u>	<u>1% Increase (6.00%)</u>
Total OPEB Liability	2,653,645	3,248,195	4,007,107
Service Cost	54,585	75,325	104,136

12. EFFECT OF 1% CHANGE IN DISCOUNT RATES

If the discount rate were 1% higher than what was used in this valuation, the Total OPEB Liability would decrease to \$2,708,131 or by 12.0%. If the discount rate were 1% lower than was used in this valuation, the Total OPEB Liability would increase to \$3,547,134 or by 15.2%.

Impact of a 1% Change in the Discount Rate as of June 30, 2017

	<u>1% Decrease (5.50%)</u>	<u>Current Discount Rate (6.50%)</u>	<u>1% Increase (7.50%)</u>
Total OPEB Liability	3,741,125	3,248,195	2,856,237
Service Cost	93,444	75,325	61,791

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

13. ACTUARIAL METHODS AND ASSUMPTIONS

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employer and plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing of benefit costs between the employer and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce the effects of short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations.

Actuarial Cost Method:	Individual Entry Age Normal
Investment Rate of Return:	6.50% per annum (previously 4.00%)
Healthcare Trend Rates	

<u>Year</u>	<u>Medical</u>	<u>Dental</u>
FY 2013	6.0%	5.5%
FY 2014	5.0%	5.0%
FY 2015	5.0%	5.0%
FY 2016	5.0%	5.0%
FY 2017	5.0%	5.0%
FY 2018	5.0%	5.0%
FY 2019	5.0%	5.0%
FY 2020+	5.0%	5.0%

General Inflation Assumption:	2.75% per annum
Annual Compensation Increases:	3.00% per annum
Actuarial Value of Assets:	Market Value

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

14. GAIN/LOSS CALCULATION

Gains and losses arise from experience and contribution deficiencies and excess contributions in relation to each year's ADC under GASB 74/75.

Changes in Net OPEB Liability (Asset) Since Prior Valuation
--

Expected Net OPEB Liability

1. Total OPEB Liability at prior valuation date	3,095,454
2. Fiduciary Net Position at prior valuation date	<u>15,610</u>
3. Net OPEB Liability at prior valuation date [1. - 2.]	3,079,844
4. Service Cost for prior periods	469,551
5. Employer Contributions for prior periods	(550,546)
6. Interest to current valuation date	390,858
7. Changes in Assumptions	<u>(825,273)</u>
8. Expected Net OPEB Liability [3. + 4. + 5. + 6. + 7.]	2,564,434

Actual Net OPEB Liability

9. Total OPEB Liability at current valuation date	3,078,357
10. Fiduciary Net Position at current valuation date	<u>296,302</u>
11. Net OPEB Liability at current valuation date [9. - 10.]	2,782,055

(Gain)/Loss to be Recognized Immediately

(Gain)/Loss Arising from Plan Design Changes	0
--	-------------------------------------

(Gain)/Loss to be Recognized Over Average Remaining Lifetime (4.57 years)

Differences Between Expected and Actual Experience	217,621
(Gain)/Loss from Actuarial Assumption Changes	0

(Gain)/Loss to be Recognized Over Five Years

(Gain)/Loss from Expected vs. Actual Investment Returns	0
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Total Actuarial (Gain) / Loss [11. - 8.]	217,621
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EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

15. RECOGNITION OF OPEB TRUST ASSETS

The State of Massachusetts has passed legislation allowing municipal entities to establish a Trust for Other Postemployment Benefits ("OPEB") under M.G.L. Chapter 32B, Section 20 for purposes of accumulating assets to pre-fund the liabilities under GASB 75. This legislation was amended effective November 9, 2016 to clarify who may adopt such a Trust and provide guidance on the ongoing operation of such a Trust. To the best of our knowledge, the Town of Essex has established an irrevocable trust for the purposes of prefunding liabilities under GASB 74/75.

16. OPEB EXPENSE DEVELOPMENT

Components of the Town's OPEB Expenses for the Fiscal Year Ending June 30, 2017	
Description	Amount
I. Service Cost	71,580
II. Interest on Net OPEB Liability	185,487
III. Deferred (Inflows)/Outflows from Plan Design Changes*	0
IV. Deferred (Inflows)/Outflows from Plan Experience**	47,619
V. Deferred (Inflows)/Outflows from Changes of Assumptions**	0
VI. Projected earnings on OPEB plan investments	(20,830)
VII. Deferred (Inflows)/Outflows from Earnings on Plan Investments***	0
VIII. Total Employer Contributions	(177,579)
IX. OPEB Plan administrative expense	0
X. Other changes in fiduciary net position	0
XI. Net OPEB expense [I.+II.+III.+IV.+V.+VI.+VII.+VIII.+IX.+ X.]	106,277

* Recognized Immediately

** Amortized over 4.57 years

*** Amortized over 5 years

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

17. 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, 2015 GASB 45	3,471,115	32,483	3,438,632
II. Change in Assumptions for GASB 75	(825,273)	0	(825,273)
III. Balances at June 30, 2015 GASB 75 [I. + II.]	2,645,842	32,483	2,613,359
Changes for the year:			
IV. Service Cost	100,683	0	100,683
V. Interest on Net OPEB Liability and Service Cost	176,097	2,111	173,986
VI. Changes in Benefit terms *	0	0	0
VII. Change in assumptions **	0	0	0
VIII. Differences between actual and expected experience **	231,598	0	231,598
IX. Net Investment Income	0	11,708	(11,708)
X. Employer Contributions (Withdrawals) to/from Trust	0	250,000	(250,000)
XI. Employee Contributions to Trust	0	0	0
XII. Benefit payments, including refunds of member contributions	(75,863)	0	(75,863)
XIII. Administrative expense	0	0	0
XIV. Other Charges	0	0	0
XV. Net Changes [IV.+V.+VI.+VII.+VIII.+IX.+X.+XI.+ XII.+XIII+XIV.]	432,515	263,819	168,696
XIV. Balances at June 30, 2016 [I.+XIII.]	3,078,357	296,302	2,782,055

* Recognized Immediately

** Amortized over 4.57 years

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

18. MONEY WEIGHTED RATE OF RETURN

Determination of Beginning & Ending Balances of OPEB Plan Investments for Purposes of Calculating the Annual Money-Weighted Rate of Return		
	Ending OPEB Plan Investments *	Beginning OPEB Plan Investments **
Assets		
Cash and cash equivalents	0	0
Receivables:		
Investment income	0	0
Receivables from brokers for unsettled trades	0	0
Investments		
Fixed income	165,987	133,336
Stocks	129,101	103,706
Cash and cash equivalents	0	0
Real estate	0	0
Alternative investments	73,772	59,260
Invested securities lending cash collateral	0	0
Liabilities		
Securities lending cash collateral	0	0
Payable to brokers for unsettled trades	0	0
Total OPEB plan investments	368,860	296,302
* From balances at June 30, 2017 (Projected)		
** From balances at June 30, 2016		

EXHIBIT A

Financial Statement Disclosure (As of June 30, 2016) (continued)

18. MONEY WEIGHTED RATE OF RETURN (CONTINUED)

	Plan Investments / Net External	Periods Invested	Period Weight
Beginning value - July 1, 2015	32,483	12	1.0000
Monthly net external cash flows:			
July	0	11	0.9167
August	0	10	0.8333
September	0	9	0.7500
October	0	8	0.6667
November	0	7	0.5833
December	250,000	6	0.5000
January	0	5	0.4167
February	0	4	0.3333
March	0	3	0.2500
April	0	2	0.1667
May	0	1	0.0833
June	0	0	0.0000
Ending value - June 30, 2016	296,302		
Money Weighted Rate of Return	8.93%		
Asset Value - June 30, 2016	296,302		

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

19. PLAN CASH FLOWS

Aggregate External (Noninvestment Cash Flows)	
	<u>June 30, 2017</u>
Additions	
<u>Contributions</u>	
Member contributions	0
Employer contributions	50,000
Other income	0
Deductions	
Service benefits	0
Disability benefits	0
Death benefits	0
Refunds	0
Administrative expenses	0
Beginning balances of noninvestment-related assets and liabilities *	
Contribution receivable	0
Prepaid expenses	0
Accrued expenses & benefits payable	0
Ending balances of noninvestment-related assets and liabilities **	
Contribution receivable	0
Prepaid expenses	0
Accrued expenses & benefits payable	0
Change in capital assets - depreciation	0
Aggregate external cash flows	50,000
* From balances at June 30, 2017 (Projected)	
** From balances at June 30, 2016	

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

19. PLAN CASH FLOWS (CONTINUED)

Reconciliation of Beginning & Ending Balances of OPEB Plan Investments, Aggregate External Cash Flows, and Net Investment Income	
	<u>June 30, 2017 (Projected)</u>
I. Total OPEB plan investments, beginning of year	296,302
II. Aggregate external cash flows	50,000
III. Net investment income	<u>22,558</u>
IV. Total OPEB plan investments, end of year [I.+II.+III.]	<u><u>368,860</u></u>

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

20. PLAN PROJECTION DISCLOSURES

Projection of Contributions as of June 30, 2016
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Fiscal Year	I. Payroll for current employees	II. Payroll for future employees	III. Total employee payroll [I.+II.]	IV. Contributions from current employees	V. Employer Payments for current plan members	VI. Employer Payments for future employees	VII. Total Payments [IV.+V.+VI.]
2017	2,779,588	0	2,779,588	0	127,579	0	127,579
2018	2,625,177	237,799	2,862,976	0	141,564	0	141,564
2019	2,452,760	496,105	2,948,865	0	150,435	0	150,435
2020	2,296,588	740,743	3,037,331	0	154,671	0	154,671
2021	2,248,316	880,135	3,128,451	0	174,987	0	174,987
2022	2,171,239	1,051,066	3,222,305	0	187,533	0	187,533
2023	2,086,668	1,232,306	3,318,974	0	203,678	0	203,678
2024	1,833,643	1,584,900	3,418,543	0	230,705	0	230,705
2025	1,703,321	1,817,778	3,521,099	0	259,997	0	259,997
2026	1,589,379	2,037,353	3,626,732	0	262,165	0	262,165
2027	1,492,278	2,243,256	3,735,534	0	262,089	0	262,089
2028	1,369,997	2,477,603	3,847,600	0	284,219	1,709	285,928
2029	1,275,203	2,687,825	3,963,028	0	276,006	4,326	280,332
2030	1,174,839	2,907,080	4,081,919	0	258,074	7,958	266,032
2031	1,062,122	3,142,255	4,204,377	0	270,698	12,772	283,470
2032	943,135	3,387,373	4,330,508	0	272,281	18,245	290,526
2033	872,636	3,587,787	4,460,423	0	275,320	22,078	297,398
2034	818,671	3,775,565	4,594,236	0	234,030	26,848	260,878
2035	759,373	3,972,690	4,732,063	0	230,781	32,675	263,456
2036	728,921	4,145,104	4,874,025	0	242,425	37,259	279,684
2037	706,499	4,313,747	5,020,246	0	217,933	42,903	260,836
2038	691,335	4,479,518	5,170,853	0	226,680	50,636	277,316
2039	646,645	4,679,334	5,325,979	0	239,411	60,553	299,964
2040	645,657	4,840,101	5,485,758	0	254,043	72,642	326,685
2041	635,486	5,014,845	5,650,331	0	261,991	88,139	350,130
2042	620,486	5,199,355	5,819,841	0	275,879	105,697	381,576
2043	604,303	5,390,133	5,994,436	0	291,540	118,843	410,383
2044	574,809	5,599,460	6,174,269	0	298,420	133,911	432,331
2045	535,091	5,824,406	6,359,497	0	323,066	150,713	473,779
2046	476,123	6,074,159	6,550,282	0	346,876	164,907	511,783
2047	403,833	6,342,957	6,746,790	0	365,423	181,040	546,463
2048	333,108	6,616,086	6,949,194	0	368,872	199,520	568,392

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

20. PLAN PROJECTION DISCLOSURES (CONTINUED)

Projection of OPEB Plan's Fiduciary Net Position as of June 30, 2016
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Fiscal Year	I. Projected Beginning Fiduciary Net Position	II. Portion of Employer Contributions for Current Plan Members	III. Total Projected Benefit Payments	IV. Projected Administrative Expense	V. Total Contributions to Trust	VI. Contributions to Trust for Current Plan Members	VII. Projected Investment Earnings	VIII. Projected Ending Fiduciary Net Position [I. + II. - III. - IV. + VI. + VII.]
2017	296,302	127,579	127,579	0	50,000	50,000	22,558	368,860
2018	368,860	141,564	141,564	0	50,000	45,847	27,659	442,366
2019	442,366	150,435	150,435	0	50,000	41,588	32,826	516,780
2020	516,780	154,671	154,671	0	50,000	37,806	38,057	592,643
2021	592,643	174,987	174,987	0	50,000	35,933	43,390	671,966
2022	671,966	187,533	187,533	0	50,000	33,691	48,967	754,624
2023	754,624	203,678	203,678	0	50,000	31,435	54,778	840,837
2024	840,837	230,705	230,705	0	50,000	26,819	60,838	928,494
2025	928,494	259,997	259,997	0	50,000	24,187	67,001	1,019,682
2026	1,019,682	262,165	262,165	0	50,000	21,912	73,411	1,115,005
2027	1,115,005	262,089	262,089	0	50,000	19,974	80,113	1,215,092
2028	1,215,092	284,219	285,928	0	50,000	17,803	87,149	1,318,335
2029	1,318,335	276,006	280,332	0	50,000	16,089	94,407	1,424,505
2030	1,424,505	258,074	266,032	0	50,000	14,391	101,870	1,532,808
2031	1,532,808	270,698	283,470	0	50,000	12,631	109,484	1,642,151
2032	1,642,151	272,281	290,526	0	50,000	10,889	117,171	1,751,966
2033	1,751,966	275,320	297,398	0	50,000	9,782	124,891	1,864,561
2034	1,864,561	234,030	260,878	0	50,000	8,910	132,806	1,979,429
2035	1,979,429	230,781	263,456	0	50,000	8,024	140,882	2,095,660
2036	2,095,660	242,425	279,684	0	50,000	7,478	149,053	2,214,932
2037	2,214,932	217,933	260,836	0	50,000	7,036	157,437	2,336,502
2038	2,336,502	226,680	277,316	0	50,000	6,685	165,984	2,458,535
2039	2,458,535	239,411	299,964	0	50,000	6,071	174,563	2,578,616
2040	2,578,616	254,043	326,685	0	50,000	5,885	183,004	2,694,863
2041	2,694,863	261,991	350,130	0	50,000	5,623	191,177	2,803,524
2042	2,803,524	275,879	381,576	0	50,000	5,331	198,815	2,901,973
2043	2,901,973	291,540	410,383	0	50,000	5,041	205,736	2,993,907
2044	2,993,907	298,420	432,331	0	50,000	4,655	212,199	3,076,850
2045	3,076,850	323,066	473,779	0	50,000	4,207	218,030	3,148,374
2046	3,148,374	346,876	511,783	0	50,000	3,634	223,058	3,210,159
2047	3,210,159	365,423	546,463	0	50,000	2,993	227,402	3,259,514
2048	3,259,514	368,872	568,392	0	50,000	2,397	230,871	3,293,262

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

20. PLAN PROJECTION DISCLOSURES (CONTINUED)

Actuarial Present Values of Projected Benefit Payments as of June 30, 2016

Fiscal Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments	Present Value of Unfunded Benefit Payments	Present Value of Benefit Payments using Single Discount Rate
2017	296,302	127,579	127,579	0	127,579	0	127,579
2018	368,860	141,564	141,564	0	132,266	0	133,258
2019	442,366	150,435	150,435	0	131,322	0	133,300
2020	516,780	154,671	154,671	0	126,151	0	129,012
2021	592,643	174,987	174,987	0	133,347	0	137,393
2022	671,966	187,533	187,533	0	133,521	0	138,605
2023	754,624	203,678	203,678	0	135,491	0	141,705
2024	840,837	230,705	230,705	0	143,390	0	151,091
2025	928,494	259,997	259,997	0	150,982	0	160,284
2026	1,019,682	262,165	262,165	0	142,241	0	152,137
2027	1,115,005	262,089	262,089	0	132,860	0	143,169
2028	1,215,092	284,219	284,219	0	134,615	0	146,148
2029	1,318,335	276,006	276,006	0	122,138	0	133,598
2030	1,424,505	258,074	258,074	0	106,702	0	117,589
2031	1,532,808	270,698	270,698	0	104,570	0	116,104
2032	1,642,151	272,281	272,281	0	98,273	0	109,931
2033	1,751,966	275,320	275,320	0	92,843	0	104,636
2034	1,864,561	234,030	234,030	0	73,736	0	83,725
2035	1,979,429	230,781	230,781	0	67,936	0	77,718
2036	2,095,660	242,425	242,425	0	66,676	0	76,849
2037	2,214,932	217,933	217,933	0	56,003	0	65,032
2038	2,336,502	226,680	226,680	0	54,425	0	63,673
2039	2,458,535	239,411	239,411	0	53,706	0	63,303
2040	2,578,616	254,043	254,043	0	53,245	0	63,231
2041	2,694,863	261,991	261,991	0	51,304	0	61,383
2042	2,803,524	275,879	275,879	0	50,475	0	60,844
2043	2,901,973	291,540	291,540	0	49,837	0	60,526
2044	2,993,907	298,420	298,420	0	47,663	0	58,319
2045	3,076,850	323,066	323,066	0	48,210	0	59,431
2046	3,148,374	346,876	346,876	0	48,363	0	60,067
2047	3,210,159	365,423	365,423	0	47,603	0	59,566
2048	3,259,514	368,872	368,872	0	44,896	0	56,600

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

21. CHANGES TO NET OPEB EXPENSE

Deferred (Inflows)/Outflows in OPEB Expense arising from the recognition of the effects of differences between expected & actual experience								
Year	Differences between actual & expected experience	Recognition Period (years)	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
2008								
2009								
2010								
2011								
2012								
2013								
2014								
2015								
2016								
2017	217,621	4.57	<u>47,619</u>	<u>47,619</u>	<u>47,619</u>	<u>47,619</u>	<u>27,145</u>	<u>0</u>
Net increase (decrease) in OPEB expense			47,619	47,619	47,619	47,619	27,145	0

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

21. CHANGES TO NET OPEB EXPENSE (CONTINUED)

Deferred (Inflows)/Outflows in OPEB Expense arising from the recognition of the effects of Changes in Assumptions								
Year	Differenced from changes in Actuarial Assumptions	Recognition Period (years)	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
2008								
2009								
2010								
2011								
2012								
2013								
2014								
2015								
2016								
2017	0	4.57	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in OPEB expense			0	0	0	0	0	0

EXHIBIT A

Financial Statement Disclosure

(As of June 30, 2016)

(continued)

21. CHANGES TO NET OPEB EXPENSE (CONTINUED)

Deferred (Inflows)/Outflows in OPEB Expense arising from the recognition of differences between Projected & Actual Earnings on OPEB Plan Investments								
Year	Differences between actual & expected experience	Recognition Period (years)	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
2008								
2009								
2010								
2011								
2012								
2013								
2014								
2015								
2016								
2017	0	5.00	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in OPEB expense			0	0	0	0	0	0

EXHIBIT AFinancial Statement Disclosure

(As of June 30, 2016)

(continued)

22. Impact of Patient Protection and Affordable Care Act ("PPACA") Excise Tax

Under the Patient Protection and Affordable Care Act ("PPACA"), an excise tax will be imposed for tax years beginning after December 31, 2019 (formerly December 31, 2017, but amended by Consolidated Appropriations Act) for high cost employer sponsored health coverage. The law specifies a 40% excise tax, to be paid by the provider of such coverage, of the excess value beyond a basic dollar amount plus an additional "kicker" for qualified retirees or those engaged in a high risk profession. The threshold amounts for 2020 are estimated at \$11,850 for single coverage and \$30,950 for family coverage with a "kicker" amount of \$1,650 for single coverage and \$3,450 for family coverage, but the actual thresholds have not yet been released. The estimated 2020 thresholds are based on the threshold amounts for 2018 (original legislation) of \$10,200 for single coverage and \$27,500 for family coverage, which have been increased by general CPI.

For purposes of the fiscal year ending June 30, 2017, the TOL for the excise tax is \$41,631 and the increase in OPEB Expense is \$4,038. Given your premiums through the 2017 fiscal year and the excise tax threshold, your average single premiums are \$3,024 below the excise tax threshold and your average family premiums are \$299 below the excise tax threshold. As more regulatory guidance becomes available, the calculation of the excise tax liability will evolve.

EXHIBIT AFinancial Statement Disclosure

(As of June 30, 2016)

(continued)

23. Impact of Section 9A 1/2 of M.G.L. Chapter 32B

For employees who retire on or after January 1, 2011 whenever a retired employee or beneficiary receives a healthcare premium contribution from a governmental unit in a case where a portion of the retiree's creditable service is attributable to service in 1 or more other governmental units, the first governmental unit shall be reimbursed in full, in accordance with this paragraph, by the other governmental units for the portion of the premium contributions that corresponds to the percentage of the retiree's creditable service that is attributable to each governmental unit. The other governmental units shall be charged based on their own contribution rate or the contribution rate of the first employer, whichever is lower.

For purposes of the valuation we have not attempted to value the impact of prior governmental service at other entities in the State of Massachusetts for current employees of the Town of Essex nor have we attempted to value the impact of prior Town of Essex employees currently working at other governmental entities in the State of Massachusetts.

EXHIBIT BRequired Supplementary Information
(As of June 30, 2016)Notes to Required Supplementary Information:

Valuation Date:	Actuarially Determined Contribution was calculated as of June 30, 2016.
Actuarial Cost Method:	Individual Entry Age Normal
Asset-Valuation Method:	Market Value of Assets as of the Measurement Date, June 30, 2016.
<u>Actuarial Assumptions:</u>	
Investment Rate of Return:	7.03% percent, net of OPEB plan investment expense, including inflation.
Single Equivalent Discount Rate:	6.50% percent, net of OPEB plan investment expense, including inflation.
Inflation:	2.75% percent as of June 30, 2016 and for future periods
Salary Increases:	3.00% percent annually as of June 30, 2016 and for future periods
Cost of Living Adjustment:	Not Applicable
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 Healthy Annuitant Mortality Table projected generationally with scale BB and a base year 2009 for males and females.
Disabled Mortality:	RP-2000 Healthy Annuitant Table projected generationally with Scale BB and a base year 2012 for males and females.

EXHIBIT BRequired Supplementary Information

(As of June 30, 2016)

(continued)

Notes to Required Supplementary Information (Continued):Plan Membership

Plan Membership: At June 30, 2016, OPEB plan membership consisted of the following

Inactive employees or beneficiaries currently receiving benefits:	26
Active Employees:	<u>29</u>
Total:	55

Changes in Assumptions:

Effective June 30, 2016

- Discount rate is 6.50% previously 4.00%
- The assumed pre-retirement mortality table is the RP-2000 Employees Mortality Table projected generationally with scale BB and a base year 2009 for males and females.- previously RP-2000 Mortality Table projected to 2017
- The assumed post-retirement mortality table is the RP-2000 Healthy Annuitant Mortality Table projected generationally with scale BB and a base year 2009 for males and females.- previously RP-2000 Mortality Table projected to 2017
- The actuarial cost method is Individual Entry Age Normal- previously Individual Entry Age Normal

EXHIBIT B

Required Supplementary Information (As of June 30, 2016) (continued)

Notes to Required Supplementary Information (Continued):

Deferred Outflows of Resources and Deferred Inflows of Resources Arising between Expected & Actual Experience					
				Balances at June 30, 2017	
Year	Experience Losses	Experience Gains	Amounts recognized in OPEB Expense through June 30, 2017	Deferred Outflows of Resources	Deferred Inflows of Resources
2008				0	0
2009				0	0
2010				0	0
2011				0	0
2012				0	0
2013				0	0
2014				0	0
2015				0	0
2016				0	0
2017	217,621	0	47,619	170,002	0
Total				170,002	0

EXHIBIT B

Required Supplementary Information (As of June 30, 2016) (continued)

Notes to Required Supplementary Information (Continued):

Deferred Outflows of Resources and Deferred Inflows of Resources Arising from Changes of Assumptions					
Year	Increase in the Total OPEB Liability	Decrease in the Total OPEB Liability	Amounts recognized in OPEB Expense through June 30, 2017	Balances at June 30, 2017	
				Deferred Outflows of Resources	Deferred Inflows of Resources
2008				0	0
2009				0	0
2010				0	0
2011				0	0
2012				0	0
2013				0	0
2014				0	0
2015				0	0
2016				0	0
2017	0	0	0	0	0
Total				0	0

EXHIBIT B

Required Supplementary Information (As of June 30, 2016) (continued)

Notes to Required Supplementary Information (Continued):

Deferred Outflows of Resources and Deferred Inflows of Resources between Projected & Actual Earnings on OPEB Plan Investments					
				Balances at June 30, 2017	
Year	Increase in the Total OPEB Liability	Decrease in the Total OPEB Liability	Amounts recognized in OPEB Expense through June 30, 2017	Deferred Outflows of Resources	Deferred Inflows of Resources
2008				0	0
2009				0	0
2010				0	0
2011				0	0
2012				0	0
2013				0	0
2014				0	0
2015				0	0
2016				0	0
2017	0	0	0	0	0
Total				0	0

EXHIBIT B

Required Supplementary Information (As of June 30, 2016) (continued)

Notes to Required Supplementary Information (Continued):

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources related to OPEB as of June 30, 2017		
	Deferred Outflows of Resources	Deferred Inflows of Resources
I. Differences between actual & expected experience	170,002	0
II. Changes of assumptions	0	0
III. Net difference between projected & actual earnings on OPEB plan investments	<u>0</u>	<u>0</u>
IV. Total [I.+II.+III.]	170,002	0
Year ended June 30:		
	2018	47,619
	2019	47,619
	2020	47,619
	2021	27,145
	2022	0
	Thereafter	0

EXHIBIT BRequired Supplementary Information

(As of June 30, 2016)

(continued)

Notes to Required Supplementary Information (Continued):Contributions:

The contribution requirements of plan members and the Town are established and may be amended through Town ordinances. The Town expects to contribute \$50,000 beyond the pay-as-you-go cost for the 2017 fiscal year. Total Town premiums plus implicit costs for the retiree medical program are \$127,579 for the 2017 fiscal year.

EXHIBIT C

Reconciliation of Plan Participation (As of June 30, 2016)

ACTIVE EMPLOYEES

	<u>June 30, 2016</u>	<u>July 1, 2013</u>
A. Average Age at Hire	38.07	38.16
B. Average Service	<u>12.82</u>	<u>11.40</u>
C. Average Current Age	50.89	49.56

RETIRED EMPLOYEES & DEPENDENTS

	<u>June 30, 2016</u>	<u>July 1, 2013</u>
I. Retirees		
A. Under Age 65	4	2
B. Age 65 & Over	<u>19</u>	<u>20</u>
C. Total Retirees	23	22
II. Dependents of Retirees		
A. Under Age 65	2	1
B. Age 65 & Over	<u>1</u>	<u>0</u>
C. Total Retirees	3	1
III. Retirees & Dependents		
A. Under Age 65	6	3
B. Age 65 & Over	<u>20</u>	<u>20</u>
C. Total Retirees	26	23

EXHIBIT D

Projected Cash Flows (Open Group) – Partial funding Approach

Total Medical, Dental & Life Insurance - Partial funding - 6.50% discount rate

Valuation Date	I. Total OPEB Liability as of Valuation Date	II. Fiduciary Net Position as of Valuation Date	III. Net OPEB Liability (Asset) [I. - II.]	IV. Funded Ratio [II. / I.]	V. Service Cost	VI. Employer Share of Premiums / Claims	VII. Excess Employer Payments (beyond claims)	VIII. Total Employer Payments [VI. + VII.]
June 30, 2016	3,078,357	296,302	2,782,055	9.63%	71,580	127,579	50,000	177,579
June 30, 2017	3,248,195	368,860	2,879,335	11.36%	75,325	141,564	50,000	191,564
June 30, 2018	3,357,487	446,519	2,910,968	13.30%	80,978	150,435	50,000	200,435
June 30, 2019	3,501,751	529,637	2,972,114	15.12%	81,954	154,671	50,000	204,671
June 30, 2020	3,651,921	618,598	3,033,323	16.94%	88,434	174,987	50,000	224,987
June 30, 2021	3,797,118	713,813	3,083,305	18.80%	91,735	187,533	50,000	237,533
June 30, 2022	3,941,905	815,722	3,126,183	20.69%	95,388	203,678	50,000	253,678
June 30, 2023	4,082,800	924,795	3,158,005	22.65%	94,757	230,705	50,000	280,705
June 30, 2024	4,203,398	1,041,536	3,161,862	24.78%	101,625	259,997	50,000	309,997
June 30, 2025	4,307,951	1,166,484	3,141,467	27.08%	106,712	262,165	50,000	312,165
June 30, 2026	4,422,410	1,300,215	3,122,195	29.40%	113,103	262,089	50,000	312,089
June 30, 2027	4,551,196	1,443,348	3,107,848	31.71%	117,106	285,928	50,000	335,928
June 30, 2028	4,667,228	1,596,543	3,070,685	34.21%	123,595	280,332	50,000	330,332
June 30, 2029	4,803,673	1,760,508	3,043,165	36.65%	129,810	266,032	50,000	316,032
June 30, 2030	4,964,641	1,935,999	3,028,642	39.00%	136,315	283,470	50,000	333,470
June 30, 2031	5,110,980	2,123,827	2,987,153	41.55%	143,430	290,526	50,000	340,526
June 30, 2032	5,286,537	2,324,860	2,961,677	43.98%	150,795	297,398	50,000	347,398
June 30, 2033	5,474,030	2,540,025	2,934,005	46.40%	157,288	260,878	50,000	310,878
June 30, 2034	5,708,173	2,770,316	2,937,857	48.53%	164,150	263,456	50,000	313,456
June 30, 2035	5,973,442	3,016,797	2,956,645	50.50%	171,663	279,684	50,000	329,684
June 30, 2036	6,231,766	3,280,605	2,951,161	52.64%	178,973	260,836	50,000	310,836
June 30, 2037	6,549,646	3,562,959	2,986,687	54.40%	186,579	277,316	50,000	327,316
June 30, 2038	6,878,738	3,865,163	3,013,575	56.19%	193,715	299,964	50,000	349,964
June 30, 2039	7,212,704	4,188,612	3,024,092	58.07%	203,146	326,685	50,000	376,685
June 30, 2040	7,549,959	4,534,799	3,015,160	60.06%	211,899	350,130	50,000	400,130
June 30, 2041	7,893,490	4,905,323	2,988,167	62.14%	221,298	381,576	50,000	431,576
June 30, 2042	8,235,871	5,301,895	2,933,976	64.38%	231,545	410,383	50,000	460,383
June 30, 2043	8,580,740	5,726,346	2,854,394	66.73%	242,780	432,331	50,000	482,331
June 30, 2044	8,936,616	6,180,636	2,755,980	69.16%	254,660	473,779	50,000	523,779
June 30, 2045	9,284,134	6,666,862	2,617,272	71.81%	268,042	511,783	50,000	561,783
June 30, 2046	9,628,019	7,187,270	2,440,749	74.65%	282,705	546,463	50,000	596,463
June 30, 2047	9,972,937	7,744,263	2,228,674	77.65%	298,023	568,392	50,000	618,392

EXHIBIT D

Projected Cash Flows (Open Group) – Partial funding Approach

Total Medical & Life Insurance - Partial funding					
Fiscal Year	Number of Retirees, Spouses & Surviving Spouses	Total OPEB Liability	Present Value at 2.75% of Total OPEB Liability	Employer Share of Premiums / Claims including "implicit cost"	Present Value at 2.75% of Employer Share of Premiums / Claims including "implicit cost"
2017	26	3,078,357	3,078,357	127,579	127,579
2018	28	3,248,195	3,161,260	141,564	137,775
2019	29	3,357,487	3,180,173	150,435	142,490
2020	29	3,501,751	3,228,046	154,671	142,582
2021	30	3,651,921	3,276,378	174,987	156,992
2022	30	3,797,118	3,315,469	187,533	163,745
2023	31	3,941,905	3,349,771	203,678	173,082
2024	31	4,082,800	3,376,644	230,705	190,803
2025	33	4,203,398	3,383,342	259,997	209,273
2026	33	4,307,951	3,374,693	262,165	205,371
2027	33	4,422,410	3,371,636	262,089	199,816
2028	33	4,551,196	3,376,956	285,928	212,157
2029	33	4,667,228	3,370,366	280,332	202,437
2030	33	4,803,673	3,376,056	266,032	186,969
2031	34	4,964,641	3,395,801	283,470	193,893
2032	34	5,110,980	3,402,332	290,526	193,400
2033	34	5,286,537	3,425,011	297,398	192,677
2034	34	5,474,030	3,451,565	260,878	164,493
2035	33	5,708,173	3,502,871	263,456	161,672
2036	33	5,973,442	3,567,548	279,684	167,037
2037	33	6,231,766	3,622,218	260,836	151,611
2038	32	6,549,646	3,705,095	277,316	156,876
2039	32	6,878,738	3,787,115	299,964	165,146
2040	32	7,212,704	3,864,702	326,685	175,044
2041	32	7,549,959	3,937,138	350,130	182,585
2042	32	7,893,490	4,006,114	381,576	193,658
2043	32	8,235,871	4,068,009	410,383	202,704
2044	32	8,580,740	4,124,918	432,331	207,829
2045	32	8,936,616	4,181,016	473,779	221,659
2046	32	9,284,134	4,227,351	511,783	233,031
2047	32	9,628,019	4,266,601	546,463	242,162
2048	32	9,972,937	4,301,167	568,392	245,138
2049	32	10,333,234	4,337,282	590,259	247,756
2050	32	10,710,823	4,375,447	570,591	233,090
2051	32	11,152,771	4,434,050	583,370	231,933
2052	32	11,629,112	4,499,689	603,430	233,487
2053	32	12,127,250	4,566,847	579,051	218,057
2054	32	12,712,739	4,659,201	609,704	223,456
2055	31	13,299,511	4,743,797	635,273	226,595
2056	31	13,945,908	4,841,227	646,608	224,466

EXHIBIT E**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.

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 present value of a series of future cash flows. Under GASB 45, the rate should be “long term expected yield on the investments that are expected to be used to pay benefits as they come due. These would be plan investments for a funded plan, the employer’s investments for a pay as you go plan [e.g. short term county investment pool], or a weighted average of expected plan and employer investments for a plan that is partially funded”.

FASB – Financial Accounting Standards Board. “Since 1973, the Financial Accounting Standards Board (FASB) has been the designated organization in the private sector for establishing standards of financial accounting and reporting”.

EXHIBIT E**GLOSSARY***(continued)*

Fiduciary Net Position – The value of cash, investments, other assets and property belonging to an OPEB trust, pension fund or similar entity, as used by the actuary to perform an actuarial valuation.

GASB - Government Accounting Standards Board. “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.”

GFOA – Government Finance Officers Association. “GFOA is the professional association of state/provincial and local finance officers in the United States and Canada, and has served the public finance profession since 1906. Approximately 16,000 GFOA members are dedicated to the sound management of government financial resources.”

Implicit Subsidy – “The difference between a premium rate charged to retirees for a particular benefit and the estimated rate that would have been applicable to those retirees if that benefit was acquired for them as a separate group.”

Irrevocable Contribution – “Irrevocably transferred assets to a qualifying trust, or equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employer(s) or plan administrator. The preceding criteria preclude counting as [irrevocable] contributions (a) designations of net assets of a governmental or proprietary fund to be used for OPEB or (b) internal transfers of assets to a separate governmental or proprietary fund for the same purpose. Rather, such actions should be regarded as earmarking of employer assets.”

Level Dollar Amortization – Funding a shortfall in OPEB assets with equal dollar payments over a designated number of years (no more than 30 years). The present value of the level payments equals the present value of unfunded liabilities, the NOL.

EXHIBIT E**GLOSSARY***(continued)*

Level Percent of Payroll Amortization – Funding a shortfall in OPEB assets as a level percent of payroll over a designated number of years (no more than 30 years). The present value of the payments equals the present value of unfunded liabilities, the NOL. Level percent of payroll typically has lower payments in the early years than level dollar amortization. When using level payroll amortization, employee count is assumed to be constant, and the payroll differences arise from overall wage trends.

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

OPEB – Other Post Employment Benefits

OPEB Trust – An entity other than a pension or retirement system which manages OPEB assets. In many respects it is similar to a pension fund for OPEB. For reasons detailed in GASB 45, contributions to an OPEB trust should be irrevocable in order to obtain the most favorable accounting treatment.

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.

Pension Obligation Bond (POB) – Generally yielding taxable interest, POBs are issued to help fund a previously unfunded or underfunded pension liability.

Service Cost (Formerly Normal 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 pension plan benefits and expenses which is not provided for by future Service Costs.