CITY OF NEWTON

ACTUARIAL VALUATION OF
OTHER THAN PENSION POST-EMPLOYMENT BENEFITS
(OPEB)
FOR FISCAL YEAR ENDING JUNE 30, 2016

AUGUST 11, 2016

FINANCIAL RISK ANALYSTS, LLC
Actuaries • Insurance Consultants

August 11, 2016 **Sent Via Email**

Mr. David C. Wilkinson
Comptroller
City of Newton
Commonwealth Avenue and Walnut St.
Newton Centre, MA 02159

Dear David:

Enclosed please find our report regarding indicated other than pension post-employment benefit (OPEB) liabilities for the City of Newton's fiscal year ending June 30, 2016. The valuation is in accordance with Governmental Accounting Standards Board Statement 45 (GASB-45).

It has been a pleasure being of service to you again on this project. If after reviewing this report you have any questions please do not hesitate to call.

Sincerely,

Robert W. Van Epps, FCAS, MAAA
Managing Principal

John D. Stiefel, FSA, MAAA
Associated Consultant

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INTRODUCTION

Financial Risk Analysts, LLC has been retained by the City of Newton (the City) to provide an actuarial valuation of the City's retiree medical and life insurance post-retirement benefits program for the fiscal year ending June 30, 2016. The City initially complied with GASB-45 for the fiscal year July 1, 2007 to June 30, 2008, so this is the ninth year of GASB-45 compliance.

Medical and life insurance are the two most common types of other (than pension) post-retirement employee benefits (OPEB) provided by an employer to retirees and their beneficiaries.

The City presently provides life and health insurance benefits for active and retired employees and their covered dependents. The City has reported to us 2,442 active employees, 341 pre-Medicare retirees, 2,258 Medicare retirees and 192 over age 65 non-Medicare retirees who have elected health insurance.

Harvard Pilgrim, Tufts EPO, Tufts POS and Tufts Medicare Complement Plan are self insured. Both the Legacy and Advantage plans are self insured. Tufts Medicare Preferred and Medicare HMO Blue are fully insured.

Life insurance benefits provided by the City are fully insured. For health insurance, actives have a choice among the Harvard, Tufts-EPO and Tufts-POS Preferred Advantage plans while retirees not on Medicare can access these 3 “Legacy” plans as well as the “Advantage” plans. Most retirees on Medicare are in the Tufts Medicare Complement Plan. For life insurance, the only option is a flat $5,000 benefit which does not reduce at retirement. Per City policy, retirees not on Medicare have the same benefit options as active employees.

A detailed description of the City's census, benefit, and premium information is presented on Exhibits 7, 8, and 9.

CONDITIONS & LIMITATIONS

DATA

Within this report we used data and other information provided to us by the City. This data consisted of the following:

- Census Information - the demographics of the active, pre-Medicare retiree and Medicare retiree population covered for medical and life insurance benefits as of the date of the most recent pension valuation. For active employees, date of hire was also included.
- Benefit Information - a description of the different health and life insurance plans available to participants.
- Funding Information – a description of how the life and health insurance plans are funded including the contributions required from employees and retirees.
- Premium Rates – the premium rates for the various plans and the percentage of each premium rate that the City pays.
- Life Insurance In-Force Information – a summary of the life insurance schedules for actives and retirees and the participant contributions required.
- Requirements for Retirement – the age/service requirements for retirement with an unreduced pension benefit and the amount of benefit reduction for early retirement.
- Probabilities of Retirement – the probability that a general or uniformed employee eligible to retire will actually retire.
- Retirement Election Rates - The percentage of active participants who opt to continue their life and health insurance benefits (and pay the associated premiums) at retirement.

Although the data supplied were reviewed for purposes of reasonability, we have not independently audited or verified this information and we assume it to be accurate and complete. The results of our analysis will be contingent upon the reliability of the information supplied to us and such reliability is the responsibility of the City. Should the City become aware of any significant discrepancies in the data reported to us, we should be notified of such discrepancies and this report will be amended, if necessary.

UNCERTAINTY

Actuarial projections, by their nature, are estimates of future contingent events, which cannot be known with certainty. The City's ultimate liability for medical and life insurance benefits will be subject to events that have yet to occur such as the future employee attrition rate, retirements, and particularly interest rates and medical cost inflation.

While we believe the results presented in this report are reasonable and reflect the use of accepted actuarial principles and standards of practice, it is possible that the actual future OPEB liability of the City will differ, perhaps materially, from what we have projected herein. Nothing in this report should be construed as a warranty or guarantee as to the adequacy of the liability estimates contained herein.

DISTRIBUTION & USE

This report is provided solely for the use of the City of Newton in evaluating its OPEB liability for its fiscal year ending June 30, 2016. A copy of this report may also be provided to the Town's auditors with the proviso that the report is copied in its entirety and that each party receiving a copy of this report agrees to not distribute the report to any other third party.

This report is neither intended nor necessarily appropriate for any other purpose. However, as a public entity, we understand that the City's documents are available to the public. We request that the distribution of this report to any third party be done under the following conditions:

- this report is distributed unaltered and in its entirety; and
- each receiving party agrees not to discuss, reference or distribute this report to any other party.

Each and every party receiving a copy of this report should understand that the receipt of this report should not serve as a substitute for their own due diligence regarding this project. Each party further agrees that no reliance should be placed on this report or the data contained within this report that would create any duty or liability by Financial Risk Analysts, LLC to the party.

THE RECEIVING PARTY IS DEEMED TO HAVE ACCEPTED ALL AFOREMENTIONED TERMS AND CONDITIONS BY ACCEPTING AND RETAINING A COPY OF THIS REPORT.

REQUIRED DISCLOSURES

Required Information for the Fiscal Year ending June 30, 2016 and prior two years.

City of Newton
GASB-45 Required Disclosures

	FY 2013-14	FY 2014-15	FY 2015-16
A. Discount Rate	2.04%	2.05%	2.06%
B. Expected Post Retirement Benefit Obligation	$863,092,820	$1,112,597,505	$1,017,932,877
1. Impact of a 1% Change in Interest Assumption	20%	20%	18%
C. Funded Status			
1. Actuarial Accrued Liability (AAL)			
Active Employees	$233,385,414	$284,421,167	$320,733,846
Retirees	$321,991,803	$419,209,310	$402,028,486
Total	$555,377,217	$703,630,477	$722,762,332
2. Actuarial Value of Assets	$1,119,811	$2,118,738	$3,569,734
3. Unfunded Actuarial Accrued Liability (1) - (2)	$554,257,406	$701,511,739	$719,192,598
4. Funded Ratio (2) / (1)	0.20%	0.30%	0.50%
5. Annual Covered Payroll	$191,588,714	$200,956,483	$210,597,461
6. Ratio of Unfunded AAL to Covered Payroll (3)/(5)	290%	349%	342%
D. Annual Required Contribution (ARC)			
1. Normal Cost (Service Cost)	$18,908,754	$23,974,728	$22,811,368
2. Amortization of Unfunded Accrued Liability	$28,848,638	$30,865,329	$31,819,033
3. Annual Required Contribution (ARC) (1) + (2)	$47,757,392	$54,840,057	$54,630,401
E. Annual OPEB Cost			
1. ARC	$47,757,392	$54,840,057	$54,630,401
2. Interest on Net OPEB Obligation	$3,624,258	$4,208,726	$4,786,620
3. Adjustment to ARC	$9,247,041	$10,978,148	$10,249,513
4. Annual OPEB Cost (1) + (2) - (3)	$42,134,609	$48,070,635	$49,167,507
F. Net OPEB Obligation Estimates			
1. Net OPEB Obligation - beginning of year	$177,540,524	$202,591,741	$232,360,183
2. Annual OPEB Cost	$42,134,609	$48,070,635	$49,167,507
3. Total Contributions Made	$17,083,392	$18,302,193	$19,764,155
4. Net OPEB Obligation - end of year (1)+(2)-(3)	$202,591,741	$232,360,183	$261,763,536

City of Newton GASB-45 Required Disclosures			
	FY 2013-14	FY 2014-15	FY 2015-16
A. Discount Rate	2.04%	2.05%	3.79%
B. Expected Post Retirement Benefit Obligation	$863,092,820	$1,112,597,505	$803,573,730
1. Impact of a 1% Change in Interest Assumption	20%	20%	18%
C. Funded Status			
1. Actuarial Accrued Liability (AAL)			
Active Employees	$233,385,414	$284,421,167	$250,064,493
Retirees	$321,991,803	$419,209,310	$342,826,319
Total	$555,377,217	$703,630,477	$592,890,813
2. Actuarial Value of Assets	$1,119,811	$2,118,738	$3,569,734
3. Unfunded Actuarial Accrued Liability (1) - (2)	$554,257,406	$701,511,739	$589,321,079
4. Funded Ratio (2) / (1)	0.20%	0.30%	0.60%
5. Annual Covered Payroll	$191,588,714	$200,956,483	$210,597,461
6. Ratio of Unfunded AAL to Covered Payroll (3)/(5)	290%	349%	280%
D. Annual Required Contribution (ARC)			
1. Normal Cost (Service Cost)	$18,908,754	$23,974,728	$17,246,030
2. Amortization of Unfunded Accrued Liability	$28,848,638	$30,865,329	$29,747,066
3. Annual Required Contribution (ARC) (1) + (2)	$47,757,392	$54,840,057	$46,993,096
E. Annual OPEB Cost			
1. ARC	$47,757,392	$54,840,057	$46,993,096
2. Interest on Net OPEB Obligation	$3,624,258	$4,208,726	$8,806,451
3. Adjustment to ARC	$9,247,041	$10,978,148	$12,618,659
4. Annual OPEB Cost (1) + (2) - (3)	$42,134,609	$48,070,635	$43,180,889
F. Net OPEB Obligation Estimates			
1. Net OPEB Obligation - beginning of year	$177,540,524	$202,591,741	$232,360,183
2. Annual OPEB Cost	$42,134,609	$48,070,635	$43,180,889
3. Total Contributions Made	$17,083,392	$18,302,193	$19,764,155
4. Net OPEB Obligation - end of year (1)+(2)-(3)	$202,591,741	$232,360,183	$255,776,917

As displayed on Exhibit 1, the above tables present a summary of the results of our analysis. We present the 2014 and 2015 results alongside of the 2016 results as required by GASB-45.

The 2.06% discount rate presented in the first table is a rate for a partially-funded plan that reflects the City's current funding level. It is based on discount rates of 2.00% for an unfunded plan and

7.25% for a fully-funded plan. We believe these are reasonable discount rates for unfunded and funded plans based on currently available yields and the investment options under the each situation. Since this table presents a discount rate that reflects the City's current funding level, we believe the 2.06% table disclosures are appropriate for the City.

We have also presented the disclosure items at 3.79%, in the second table, at the request of the City, so the City can view the impact of a higher discount rate. We have kept the prior years' discount rates at the lower level to reflect actual funding during those years.

The data on page 6 is that required for disclosure in the City's audited financial statements per GASB-45 while the data on page 7 is presented solely to demonstrate the impact of different discount rates (funded vs. unfunded plans).

The following table shows the sources of the 3% increase in the Actuarial Accrued Liability (AAL).

Item	Impact on AAL
Medical Inflation (Trend) Assumption	0%
Cadillac Tax Assumption	-1%
Population Change	7%
Savings From Advantage Plans	-3%
Total Change to AAL	3%

Attached to this report are exhibits showing summarized details of our calculations. We have presented exhibits only for the 2.06% calculations.

The following is an explanation of the terms used in the table above:

Expected Post-Retirement Benefit Obligation (EPBO) – This is the present value of the future post-retirement life and health insurance benefits for all currently retired employees and active employees eligible for those benefits. For active employees, the EPBO includes the full present value of benefits even though some employees have not yet fully earned or vested in those benefits. The government needs to be aware of this liability but does not need to disclose or recognize it on any of its financial statements.

Actuarial Accrued Liability (AAL) – This is also known as the Accumulated Post-Retirement Benefit Obligation (APBO). This is that portion of the EPBO that has been accrued to date. For existing retirees and active employees who have fully earned their benefit, the AAL equals the EPBO. The AAL is the current liability that must be recognized on the government's balance sheet if the government chooses immediate recognition. Alternatively, the government can choose to amortize the current APBO.

Actuarial Value of Plan Assets – The amount of assets held in trust to fund the plan (if the plan is being funded).

Unfunded Actuarial Accrued Liability – The excess of the AAL over the plan assets.

Normal Cost – Also known as the Service Cost, this is the portion of the EPBO for active employees attributable to employee service during the year.

Amortization of Unfunded Accrued Liability – This is the annual amortization of the AAL if the Government chooses to amortize the AAL. Under GASB-45, the entity can choose to amortize the current AAL or not. GASB-45 permits amortization over a period of from 10 to 30 years. If the government chooses to amortize the AAL, the amortization cost should be booked as a current year expense. The City elected to amortize the AAL over 30 years, and we use the level dollar amortization method for this calculation. GASB allows amortization on an open, closed or level

% of payroll basis. We selected the open basis; i.e. the amortization period begins and stays at 30 years.

Annual Required Contribution (ARC) – This is the total amount that should be booked as a current year expense. The ARC is the sum of the Normal Cost (Service Cost) and Amortization of Actuarial Accrued Liability. GASB-45 recommends, but does not require, that the ARC actually be contributed (funded) each year.

Net OPEB Obligation – Beginning of Year – This is last year's End of Year Net OPEB Obligation Estimate.

Interest of Net OPEB Obligation – This is interest, at the assumed interest rate, on the Beginning of Year Net OPEB Obligation.

Adjustment to ARC – This is the Beginning of Year Net OPEB Obligation divided by the amortization factor. It is designed to approximate the amount included in the ARC for past contribution deficiencies. It is removed from the ARC so the ARC won't be overstated due to these contribution deficiencies.

Annual OPEB Cost – This is the ARC + Interest on Net OPEB Obligation - Adjustment to ARC

Expected Contributions During the Year – This is the amount of OPEB payments the Government made for retiree OPEB during the just-completed fiscal year.

Net OPEB Obligation – End of Year Estimate – This is the Beginning of Year Net OPEB Obligation + Annual OPEB Cost - the Expected Contributions during the Year.

GASB-75

Effective in 2 years (i.e. FYE 6-30-18), GASB-75 will replace GASB-45 for the City. We will use a "phase-in" approach to complying with GASB-75; i.e. we will meet some of GASB-75's requirements now and the remaining requirements in 2 years (FYE 6-30-18).

The most significant GASB-75 requirements from the City's point of view will be:

- Unfunded Actuarial Accrued Liability – This will have to be recognized immediately on the City's balance sheet instead of just being a note disclosure. We will not comply with this until FYE 6-30-18.

- Interest discount rate assumption – For an unfunded plan, GASB-75 requires that the discount rate reflect "a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another scale)." For this GASB-75 index rate, we are using the Bond Buyer Go-20 municipal bond index. This index has a rate of 3.79% for July 1, 2015, the valuation date of this report. The 2.06% discount rate the City wants to use therefore meets this requirement.

- Entry Age Normal Actuarial Cost Method – Actuaries will be required to use this actuarial cost method instead of having a choice of 6 under GASB-45. We have changed our methodology beginning with this valuation, so we are complying with this requirement already.

- Extent of disclosures – GASB-75 disclosures are different and a lot more extensive than GASB-45 disclosures. We will not comply with this until FYE 6-30-18.

ANALYSIS

Assumptions

1. **Interest discount rate** – 2.00% per year, net of expenses for an unfunded plan, 7.04% for a fully funded plan and 2.06% for a partially-funded plan (actual situation). GASB-45 requires that the selection of an interest discount rate be based on the expected long term rate of return on the (General Fund) assets expected to be available to pay the benefits when due. The 2.06% rate is a blend of $3,569,734 of funded assets invested at the full funding rate of 7.25% and the remaining amount of the 7/1/16 Net OPEB Obligation invested at 2.00% (the unfunded discount rate). As noted above, the 2.06% discount rate the City wants to use complies with GASB-75 as well as GASB-45.

   We note that a level 1% increase in assumed interest rate will decrease the City's liability by about 18%. We also note that, because the City is funding some its OPEB obligations, its EPBO is more than $10,000,000 million lower and its ARC is more than $500,000 lower than they would have been absent any funding.

2. **Trend** – Medical Costs are assumed to increase each year according to the following schedule:

Year	Medical Trend
2016	8.39%
2017	7.93%
2018	7.47%
2019	7.00%
2020	6.54%
2021+	6.08%

The above trend rates were agreed upon with the City as representative of a conservative future trend. So they start at 8.39% (last year's average retiree rate increase) instead of 4.89% (this year's retiree rate increase).

We note that a level decrease of 1% in the assumed trend values will decrease the City's liability by about 18%.

3. **Amortization Period** – Thirty years (open)/ 30 years is the maximum period permitted by GASB-45. GASB-45 permits amortization payments to increase at a rate not to exceed projected salary growth. We assumed level amortization payments, which we think are more realistic for budgeting purposes. We used closed amortization in the past, but switched to open amortization last year to facilitate the City's funding projections.

4. **Retirement Eligibility** – As prescribed by the terms of the City's Retirement System.

5. **Marital Status** – Active participants are assumed to keep their current marital status upon retirement.

6. **Turnover** – Representative values of assumed annual turnover rates for general and uniformed employees are as follows.

Age Group	General Employees	Uniformed Employees
<20	15.00%	1.50%
20-24	13.13%	1.50%
25-29	10.12%	1.50%
30-34	8.33%	1.46%
35-39	6.78%	1.22%
40-44	5.96%	0.28%
45-49	5.13%	0.03%
50-54	3.23%	0.03%
55-59	2.45%	0.00%
60-64	2.07%	0.00%
65-69	1.94%	0.00%
70-74	1.22%	0.00%
75+	0.00%	0.00%

7. **Mortality** – Mortality assumptions are used to project the expected number of employees who will be receiving benefits each year in the future. We used the RP-2000 mortality table (combined healthy lives) with projected mortality using Scale BB. This is consistent with the pension valuation.

8. **Disability –** Disability assumptions are used to project the number of people who will retire early due to disability. The possibility of disability was accounted for by assuming average retirement ages that were 1 year younger than were observed by the City (see (10) below)

9. **Requirements for Retirement** – The City has informed us that there is no mandatory retirement age for general employees to retire with an unreduced pension benefit. Uniformed employees still have the 65 mandatory retirement age. Early retirement is available with twenty years of service with a reduced benefit.

10. **Age at Retirement** – Representative assumed average retirement ages are shown below; e.g. a general employee currently age 45 is assumed to retire at age 63. These values are consistent with the requirements for retirement stated above, the input provided by the City about average retirement ages (about 65 for General and 60 for Uniform) and the adjustment for disability retirements (see (8) and (9) above).

Age	General Employees	Uniformed Employees
45	63	58
50	63	59
55	64	61
60	66	64
62	67	65
65	69	65
69	72	69
70	72	70

11. **Retirement Election Rates –** The City provided us data for each group showing total retirees and how many retirees have elected to continue post-retirement benefits and pay the associated premiums. That data showed that retirement election rates have been as follows.

	All Employees
Health Insurance	100%

12. **Plan Changes** – The City informed us that two significant plan changes were implemented in 2011. These changes reduce the City's cost. The first change is that all active employees and new retirees must elect one of the (less expensive) "Advantage" plans. The second change is that many active employees must now contribute 25% or 30% instead of the previous 20%. The City noted which actives will contribute 20%, 25% or 30% when they retire in the census data they sent us.

13. **Expenses** – We did not make an explicit assumption for expenses because our assumed interest discount rates are net of expenses.

14. **Cadillac Tax** – The Affordable Care Act indicates that premiums over $10,200/$27,500 (Single/Family) in 2020 (postponed from 2018) will be subject to a 40% excise tax. Some of the City's premiums are projected to exceed these thresholds by 2020, generating a "Cadillac" tax according to our projections. On the other hand, both major political parties now seem opposed to this tax, so it will likely be repealed or postponed indefinitely by 2020. We therefore did not include any liability for the "Cadillac" tax in this valuation. (If the Cadillac tax does survive in its current form until 2020, the City would pay a tax of about $400,000 during that year.)

Methodology

We used the Entry Age Normal actuarial cost method to perform our estimate of the OPEB liability. This actuarial cost method will be required by GASB-75. In previous years, we used the Projected Unit Credit actuarial cost method. The Entry Age Normal actuarial cost method spreads gains/losses (i.e. results different from expected) over several years and thereby reduces year-to-year fluctuations in results.

The following is a summary of the steps employed in our analysis.

1. Determine current annual subsidy for life and health insurance for the pre-Medicare retirees, Medicare retirees and retirees over age 65 not on Medicare. We used the most recently available census data, current premiums, participant contribution requirements and age-sex adjustment factors to make these calculations.

2. Calculate the EPBO. This is the present value of future subsidies for life and health insurance for the actives, pre-Medicare retirees, retirees over 65 not on Medicare and Medicare retirees. Separate calculations were required for active general and active uniformed employees.

3. Calculate the AAL from the EPBO and the active employee age and service information from the census.

4. Calculate the other GASB-45 required disclosures.

FUNDING PROJECTION

The table below presents an estimate of future funding of the OPEB liability based on expected annual funding levels provided by the City.

The table reflects the normal cost and amortization of the unfunded actuarial accrued liability calculated for the fiscal year beginning June 30, 2015, future normal costs increasing at 5.0% per year and future amortization payments increasing at the assumed future healthcare trend rates, along with the City's additional OPEB funding amounts.

It is important to note that the validity of this funding projection is contingent on the City's ability to make a legally-binding commitment to actually fund the substantial annual OPEB appropriations after 2029 as shown on the funding table.

CITY OF NEWTON

CITY OF NEWTON
GASB 45 Valuation

FUNDING PROJECTION (Schedule of Funding of the Actuarial Accrued Liability)
30 Years Open (2.06% discount rate increasing after 2029 as funding increases)

Year	Fiscal Yr Ended June 30	(1) Projected Benefit Payments	(2) Normal Cost	(3) Amortization of UAAL	(4) ARC (3) + (2)	(5) Additional OPEB Appropriation	(6) Assets at End of Year	(7) AAL at End of Year	(8) UAAL at End of Year (7) - (6)
							$2,118,738		
1	2016	$18,391,867	$23,974,728	$30,865,329	$54,840,057	$1,372,288	$3,569,734	$722,762,332	$719,192,598
2	2017	$19,934,945	$25,173,464	$33,454,930	$58,628,395	$1,622,288	$5,500,335	$783,402,092	$777,901,756
3	2018	$21,515,387	$26,432,138	$36,107,237	$62,539,375	$1,872,288	$7,825,912	$845,510,209	$837,684,298
4	2019	$23,121,726	$27,753,745	$38,803,003	$66,556,748	$2,122,288	$10,574,348	$908,636,002	$898,061,653
5	2020	$24,741,172	$29,141,432	$41,520,766	$70,662,197	$2,372,288	$13,775,499	$972,276,867	$958,501,368
6	2021	$26,359,739	$30,598,503	$44,237,054	$74,835,557	$2,622,288	$17,461,325	$1,035,883,220	$1,018,421,894
7	2022	$27,962,411	$32,128,428	$46,926,667	$79,055,095	$2,872,288	$21,666,046	$1,098,864,920	$1,077,198,874
8	2023	$29,662,526	$33,734,850	$49,779,808	$83,514,658	$3,122,288	$26,426,294	$1,165,675,907	$1,139,249,613
9	2024	$31,466,007	$35,421,592	$52,806,421	$88,228,013	$3,372,288	$31,781,290	$1,236,549,002	$1,204,767,712
10	2025	$33,379,140	$37,192,672	$56,017,051	$93,209,723	$3,622,288	$37,773,023	$1,311,731,181	$1,273,958,158
11	2026	$35,408,592	$39,052,306	$59,422,888	$98,475,193	$3,872,288	$44,446,447	$1,391,484,437	$1,347,037,990
12	2027	$37,561,435	$41,004,921	$63,035,799	$104,040,720	$4,122,288	$51,849,690	$1,476,086,691	$1,424,237,001
13	2028	$39,845,170	$43,055,167	$66,868,376	$109,923,543	$4,372,288	$60,034,276	$1,565,832,761	$1,505,798,486
14	2029	$42,267,756	$45,207,925	$70,933,973	$116,141,899	$4,622,288	$69,055,368	$1,661,035,393	$1,591,980,026
15	2030	$44,837,636	$47,468,322	$75,246,759	$122,715,080	$59,442,504	$135,435,718	$1,605,621,985	$1,470,186,266
16	2031	$47,563,764	$49,841,738	$79,821,762	$129,663,499	$59,442,504	$206,502,521	$1,400,369,736	$1,193,867,215
17	2032	$50,455,641	$52,333,825	$84,674,925	$137,008,749	$59,442,504	$282,586,641	$1,503,124,379	$1,220,537,738
18	2033	$53,523,344	$54,950,516	$89,823,160	$144,773,676	$59,442,504	$364,042,299	$1,461,709,749	$1,097,667,450
19	2034	$56,777,563	$57,698,042	$95,284,408	$152,982,450	$59,442,504	$451,248,727	$1,393,301,893	$942,053,166
20	2035	$60,229,639	$60,582,944	$101,077,700	$161,660,644	$59,442,504	$544,611,928	$1,280,112,327	$735,500,398
21	2036	$63,891,601	$63,612,091	$107,223,225	$170,835,315	$59,442,504	$644,566,572	$1,121,925,195	$477,358,623
22	2037	$67,776,210	$66,792,695	$113,742,397	$180,535,092	$59,442,504	$751,578,013	$1,011,120,667	$259,542,654
23	2038	$71,897,004	$70,132,330	$120,657,934	$190,790,265	$59,442,504	$866,144,462	$1,077,268,181	$211,123,718
24	2039	$76,268,342	$73,638,947	$127,993,937	$201,632,883	$59,442,504	$988,799,303	$1,147,743,065	$158,943,762
25	2040	$80,905,457	$77,320,894	$135,775,968	$213,096,862	$59,442,504	$1,120,113,575	$1,222,828,416	$102,714,841
26	2041	$85,824,509	$81,186,939	$144,031,147	$225,218,086	$59,442,504	$1,260,698,635	$1,302,825,851	$42,127,217
27	2042	$91,042,639	$85,246,286	$0	$85,246,286	$59,442,504	$1,411,209,000	$1,388,056,718	($23,152,281)
28	2043	$96,578,031	$89,508,600	$0	$89,508,600	$0	$1,510,840,355	$1,478,863,389	($31,976,966)
29	2044	$102,449,976	$93,984,030	$0	$93,984,030	$0	$1,617,505,684	$1,575,610,632	($41,895,052)

Benefit payments calculated to increase with assumed trend
Normal costs projected to increase by 5% per year
For 2016-2029 AAL and amortization payments based on assumed future discount rate of 2.06%.
After 2029, AAL and amortization payments based on assumed future discount rates that depend on the total funded portion of the Net OPEB Obligation (up to 7.25% for full funding).
Assets assumed to earn 7.06% per year with deposits in the middle of the year.
Additional OPEB Appropriation assumed to be $1,372,288 in 2016, then an additional $250,000 every year until 2029 and then $59,442,504 per year diverted from the pension fund.
For higher discount rates to be used after 2029, there must be a binding commitment by the City to make the assumed post-2029 appropriations.

CITY OF NEWTON
GASB 45 DETERMINATION

REQUIRED DISCLOSURES-SUMMARY
2.06% Discount Rate

		Active	Retired	Total
A.	Expected Post-Retirement Benefit Obligation	$615,904,390	$402,028,486	$1,017,932,877
B.	Actuarial Accrued Liability (AAL)	$320,733,846	$402,028,486	$722,762,332
C.	Plan Assets			$3,569,734
D.	Unfunded Actuarial Accrued Liability			$719,192,598
E.	Service Cost (Normal Cost)	$22,811,368	$0	$22,811,368
F.	Amortization of unfunded accrued liability			$31,819,033
G.	Annual Required Contribution (ARC)			$54,630,401
H.	Expected Benefit (Premium) Payments	n/a	$17,698,065	$18,391,867

A-B. Exhibit 2
C. Since plan is not funded, current assets = 0.
D. B - C
E-G. Exhibit 2
H. These are the City's share of the annual retiree life and health insurance premiums (from March 31, 2016 information).

CITY OF NEWTON
GASB 45 DETERMINATION

REQUIRED DISCLOSURES-DETAIL
($ millions)
2.06% Discount Rate

		Active Employees	Retirees				Total
		All (1)	Pre-Medicare (2)	Ret. > 65 Not On Medicare (3)	Retirees on Medicare (4)	All Retirees (5)	Total (6)=(1)+(5)
A.	Number of Contracts Generating a Liability (Medical)	2,442	341	192	2,258	4,700	7,142
B.	Expected Post Retirement Benefit Obligation						
	Medical/Rx	$613,739,215	$107,271,691	$115,698,399	$177,645,088	$400,615,179	$1,014,354,393
	Other OPEB	$2,165,176	$378,438	$408,166	$626,704	$1,413,308	$3,578,483
	Total	$615,904,390	$107,650,129	$116,106,565	$178,271,792	$402,028,486	$1,017,932,877
C.	Actuarial Accrued Liability (AAL)						
	Medical/Rx	$319,606,325	$107,271,691	$115,698,399	$177,645,088	$400,615,179	$720,221,503
	Other OPEB	$1,127,521	$378,438	$408,166	$626,704	$1,413,308	$2,540,829
	Total	$320,733,846	$107,650,129	$116,106,565	$178,271,792	$402,028,486	$722,762,332
D.	Service Cost (Normal Cost)	$22,811,368	$0	$0	$0	$0	$22,811,368
E.	Amortization Factor	22.67	22.67	22.67	22.67	22.67	22.67
F.	Amortization of Actuarial Accrued Liability	$14,147,715	$4,731,803	$5,103,509	$7,836,005	$17,671,317	$31,819,033
G.	Annual Required Contribution	$36,959,084	$4,731,803	$5,103,509	$7,836,005	$17,671,317	$54,630,401

A. Exhibit 9
B. Exhibit 4. Other OPEB liability, where applicable = Medical Rx liability X Other OPEB Premium/Medical Rx premium.
C. Exhibit 3
D. Exhibit 3E
E. Amortization factor = present value at 2.00% interest of a 30-year annuity due.
F. C / E
G. D + F

CITY OF NEWTON
GASB 45 DETERMINATION

EXPECTED POST-RETIREMENT BENEFIT OBLIGATION - MEDICAL/Rx
2.06% Discount Rate

A.	Actuarial Accrued Liability from Exhibit 4		$ 650,031,109
B.	Expected Actuarial Accrued Liability from Exhibit 3		$ 724,291,679
C.	Average Remaining Service of Active Employees		18
D.	Difference Between Actual and Expected Actuarial Accrued Liability		$ (74,260,570)
E.	Amount Reccgnized This Year		$ (4,070,176)
F	Difference Due to Changes in Assumptions		Included above
G.	Amount Recognized This Year		Included above
H.	This is the Amount of AAL to Be Disclosed/Recognized		$ 720,221,503
I.	Actuarial Gains and Losses to Be Recognized in future FYs Includes gains/losses carried over from pervious years.	Gains	Losses
	2017	$ 4,070,176	
	2018	$ 4,070,176	
	2019	$ 4,070,176	
	2020	$ 4,070,176	
	2021	$ 4,070,176	
	2022	$ 4,070,176	
	2023	$ 4,070,176	
	2024	$ 4,070,176	
	2025	$ 4,070,176	
	2026+	$ 4,070,176	

A. Exhibit 4
B. Exhibit 3E
C. Calculated from the census information provided by the School.
D. B - A
E. D/C
F. Under GASB-75, this must be calculated separately; but it can be merged with D under GASB-45.
G. F/C
H. B + E + G
I. These are the gains/losses in D and F for the current and previous years.
A gain occurs when the actuarial accrued liability is less than expected.

CITY OF NEWTON
GASB 45 DETERMINATION

DERIVATION OF EXPECTED ACTUARIAL ACCCRUED LIABILITY
2.06% Discount Rate

A.	Last Year's Actuarial Accrued Liability (aka OPEB Expense)	$	703,630,477
B	Last Year's Service Cost (Normal Cost)	$	23,974,728
C.	Interest Cost	$	14,988,667
D.	Last Year's Benefit Payments	$	18,302,193
E.	Expected Actuarial Accrued Liability	$	724,291,679

ABD From last year's report
C. (Assumed Interest) X (A + B)
E. A + B + C - D

CITY OF NEWTON
GASB 45 DETERMINATION

EXPECTED POST-RETIREMENT BENEFIT OBLIGATION - MEDICAL/Rx
2.06% Discount Rate

		Active Employees		Retirees			Total
		(1)	(2)	(3)	(4)	(5)	(6)
		General	Uniformed	Pre-Medicare	Age 65+ Not on MC	Medicare	
A.	Number of Contracts	2,122	320	341	192	2,258	5,233
B.	Annual Subsidy per Contract	n/a	n/a	$19,523	$29,464	$5,121	
C.	PV of Future Subsidies for All Employees	$396,078,915	$220,948,091	$107,846,344	$116,318,194	$177,864,674	$1,019,056,218
D.	PV of Future Subsidies Already Accrued	$178,530,616	$72,221,432	$107,846,344	$116,318,194	$177,864,674	$652,781,260
E.	Expenses	0%	0%	0%	0%	0%	0%
F.	Adjustment to Account for Survivor Benefits	101%	101%	101%	101%	101%	101%
G.	PV of Medicare Part B Late Enrollment Penalties					$728,155	$728,155
H.	Liability for "Cadillac tax"	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
I.	Interest Adjustment	0.9848	0.9848	0.9848	0.9848	0.9848	0.9848
J.	Expected Post-Retirement Benefit Obligation	$393,968,433	$219,770,782	$107,271,691	$115,698,399	$177,645,088	$1,014,354,393
K.	Actuarial Accrued Liability	$177,579,326	$71,836,605	$107,271,691	$115,698,399	$177,645,088	$650,031,109

A. Exhibit 9
B. Exhibit 5
C. Calculated from B and the age and sex of each contractholder.
D. Calculated from B and the age, sex and service of each contractholder.
E. Expenses are 0% because the assumed interest rate is net of expenses.
F. Survivors can continue coverage and pay the same % their deceased spouse paid.
Also, retirees and survivors can resume coverage any time even if they decline it initially.
G. Assumes an annual cost of $15,000 per year. This is still appropriate according to the City.
H. We estimate the Cadillac tax liability at 0%. For calculation purposes, we put it all into Column L.
I. This is interest discount from the "data date" back to 7/1/15, the calculation date. Data was as of 3/31/16.
J. C x (1+E) x F x H X I +G
K. D x (1+E) x F x H X I +G

CITY OF NEWTON
GASB 45 DETERMINATION

CURRENT ANNUAL SUBSIDY - MEDICAL/Rx

		Current Actives During Pre-Med Retirement (1)	Current Actives During Med Retirement (2)	Current Pre-Med. Retirees (3)	Retirees >65 Not on Medicare (4)	Current Medicare Retirees 65+ (5)
A.	Average Annual Premium per Contract excluding Med Part B	$15,111	$5,244	$15,111	$12,700	$5,244
B.	Actual Annual Cost per Contract excluding Med Part B	$22,546	$5,244	$22,546	$32,004	$5,244
C.	Flat Annual City Contribution Toward the Medicare Part B Premium	n/a	$925.44	n/a	$0	$925.44
D.	Blended Annual ASO/Stop Loss Premium paid by the City	$0	$0	$0	$0	$0
E.	Total Actual Annual City Cost per Contract	$22,546	$6,169	$22,546	$32,004	$6,169
F.	Annual Member Contributions per Contract	$3,349	$1,162	$3,022	$2,540	$1,049
G.	Current Annual Subsidy per Contract	$19,197	$5,007	$19,523	$29,464	$5,121

A. Exhibit 6
B. For PMR, equal to A times an age-sex factor to account for the "implicit subsidy". This factor is 149.20%
For retirees > 65 not on Medicare, equal to an age-sex factor to account for no Medicare. This is 252.00%
C. The City reimburses its retirees and their spouses $925.44 a year for the Medicare Part B premium.
This is a flat amount that does not increase when the Medicare Part B premium increases.
Previously the City reimbursed 80% of the then-current Medicare Part B premium.
D. Since the City's insurance contracts are fully insured, the stop loss costs are included in the premium rates.
E. B + C + D
F. Exhibit 6
G. E - F

CITY OF NEWTON
GASB 45 DETERMINATION

MEMBER CONTRIBUTIONS

	Medical/Rx	Life Insurance
Current Pre-Medicare Retirees - < 65		
Average Monthly Premium per Contract	$ 1,259.29	$9.45
Average Annual Premium per Contract	$15,111.44	$113.40
Percent Paid By Members	20.00%	49.95%
Current Annual Amount Members Pay	$3,022.29	$56.64
Current Actives During Pre-Medicare Retirement		
Average Monthly Premium per Contract	$ 1,259.29	$9.45
Average Annual Premium per Contract	$15,111.44	$113.40
Average % Paid by Members	22.16%	49.95%
Current Annual Amount Members Pay	$3,348.56	$56.64
Retirees >65 Not on Medicare		
Average Monthly Premium per Contract	$ 1,058.35	$9.45
Average Annual Premium per Contract	$12,700.17	$113.40
Percent Paid By Members	20.00%	49.95%
Current Annual Amount Members Pay	$2,540.03	$56.64
Current Medicare Retirees		
Average Monthly Premium per Contract	$ 437.00	$9.45
Average Annual Premium per Contract	$5,244.04	$113.40
Percent Paid By Members	20.00%	49.95%
Current Annual Amount Members Pay	$1,048.81	$56.64
Current Actives During Medicare Retirement		
Average Monthly Premium per Contract	$ 437.00	$9.45
Average Annual Premium per Contract	$5,244.04	$113.40
Percent Paid By Members	22.16%	49.95%
Current Annual Amount Members Pay	$1,162.03	$56.64

Monthly costs calculated from census and premium rates.
Percent paid by members from Exhibit 7
Our calculations consider the savings to the City from requiring post 8/31/11 hires to pay more.
Many more pre-Medicare retirees are now electing Advanrage contracts.

CITY OF NEWTON
GASB 45 DETERMINATION

FUNDING INFORMATION

Actives		
	Medical	Pre-8/31/11 hires pay 20% of blended cost of actives and retirees not on Medicare.
		Employees hired on or after 8/31/11 currently pay between 25 or 30% of the cost
		They will also pay this amount when they retire.
		Harvard Pilgrim, Tufts EPO, Tufts POS and Tufts MCP are self insured
		Both the Legacy Plans and Advantage plans are self insured.
	Drugs	Included with Medical
	Dental	Actives pay <100% of the cost of the coverage.
	Life Insurance	Fully insured.
		Current 100% monthly premium rate is $9.45 per month for $5,000 of coverage.
		Members pay 50% of the total premium - so they pay $4.72 per month.
Retirees Not on Medicare		
	Medical	Retirees hired before 8/31/11 and their spouses pay 20% of blended cost of actives and retirees not on Medicare.
		Retirees hired on or after 8/31/11 will pay >20% (depending on their bargaining unit).
		The City notes that - so far - no one hired after 8/31/11 has retired.
	Drugs	Same as for Actives
	Dental	For the only plan available, retirees have to pay 100% of the cost of the coverage.
	Life Insurance	Retirees pay 50% of the total premium - so they pay $4.72 per month.
Retirees on Medicare		
	Medical	Plans designed for these participants are fully insured. When eligible for Medicare,
		retiree is transferred to a Medicare Supplement plan.
		Tufts Medicare Complement plan is self insured.
		Tufts Medicare Preferred and Medicare HMO Blue are fully insured.
		Pre-8/31/11 retirees and their spouses pay 20% of the cost.
		Retirees hired on or after 8/31/11 will pay 20% or >20% (depending on their bargaining unit).
		The City notes that - so far - no one hired after 8/31/11 has retired.
	Drugs and Vision	Since plan is fully insured, stop loss coverage is included in the insurance rates. Post - 8/31/11 retirees will pay more.
	Drugs	Same as for Actives
	Dental	For the only plan available, retirees have to pay 100% of the cost of the coverage.
	Life Insurance	Retirees pay 50% of the total premium - so they pay $4.72 per month.

Data provided by the City of Newton

CITY OF NEWTON
GASB 45 DETERMINATION

BENEFIT INFORMATION

Actives		
	Medical	Choice of Harvard Pilgrim, Tufts EPO and Tufts POS Advantage plans. These plans have been offered since 2011.
		Rates depend on choice of coverage
		The City only offers Individual and Family plans.
	Drugs and Vision	Included if Medical Elected (Drug Copays per Medical Plan Elected Apply)
	Dental	Several plans are available.
	Life Insurance	All life insurance benefits are a flat $5,000 with no reduction at retirement.
Retirees Not on Medicare		
	Medical	Same Choices as for Actives plus Harvard Pilgrim, Tufts EPO and Tufts POS "Legacy" plans are available for those who retired before 8/31/11.
		Those who retired after 8/31/11 can only chose among the Harvard Pilgrim, Tufts EPO and Tufts POS Advantage plans.
		Survivors from family contracts can continue coverage until they die.
		They may also re-enter the plan after initially declining coverage.
	Drugs and Vision	Same Choices as for Actives
	Dental	Only 1 plan is available. It is not subsidized by the City, so the City has no GASB-45 liability for dental benefits.
	Life Insurance	Flat $5,000
Retirees on Medicare		
	Medical	Most participants have elected the Tufts Medicare Complement Plan (Medicare Supplement).
		A minority have elected Tufts Medicare Preferred and a smaller minority have elected Medicare HMO Blue.
		The City reimburses a flat $925.44 per year toward the cost of the Medicare Part B premium for retirees and their spouses.
		This flat amount does not increase when the Medicare Part B premium increases.
		Surviving spouses can continue coverage on the same terms as the deceased retiree, per Massachusetts law.
		They may also re-enter the plan after initially declining coverage.
		The City has adopted Section 18 of MGL Chapter 32B. Effective July 1, 2010, the City is responsible to reimburse 100%
		of the penalties paid by retirees for enrolling late in Medicare B. The City estimates that this will cost $15,000 per year.
	Drugs and Vision	Same Choices as for Actives
		Drug Plan Not Eliminated When Medicare Part D Took Effect
	Dental	Only 1 plan is available. It is not subsidized by the City, so the City has no GASB-45 liability for dental benefits.
	Life Insurance	Flat $5,000

Data provided by the City of Newton

CITY OF NEWTON
GASB 45 DETERMINATION

CENSUS INFORMATION

	General (1)	Uniformed (2)	Elected No Coverage (3)	Total (4)
Actives - Medical				
Number of Contracts	2,122	320	0	2,442
Average Age	45	44		45
Average Service Years	10	16		10
Pre-Medicare Retirees - Medical/Under 65				
Number of Contracts	341	Incl in Gen	Incl Above	341
Average Age	60			
Retirees > 65 Not on Medicare				
Number of Contracts	192	Incl in Gen	Incl Above	192
Average Age	74			
Medicare Retirees - Medical				
Number of Contracts	2,258	Incl in Gen	Incl Above	2,258
Average Age	77			
Life Insurance				
Number of Contracts - Actives	1,050	Incl in Gen	1,524	2,574
Number of Contracts - Retirees	1,100	Incl in Gen	not avail	
Number Electing Life Insurance - Total	2,150	Incl in Gen	not avail	
Percent of New Retirees Electing Medical				100%
Percent Under-65 Retirees Keeping Medical at Age 65				100%

Data provided by the City of Newton
The City has noted that the declination rate for retiree medical insurance is negligible.