



Actuarial Valuation Report

GASB 75

The City of Bristol, CT

Postemployment Benefits Other Than Pensions

For the Fiscal Year Ending June 30, 2018

Measurement Date June 30, 2018

Introduction

This report documents the results of the actuarial valuation for the fiscal year ending June 30, 2018 of the Postemployment Benefits Other Than Pensions for the City of Bristol. The plan is a single-employer plan and does not issue a separate financial statement. As a result, all reporting requirements are included in the employer's financial statement. These results are based on a Measurement Date of June 30, 2018. The information provided in this report is intended strictly for documenting information relating to company and plan disclosure and reporting requirements.

Determinations for purposes other than the financial accounting requirements may be significantly different from the results in this report. Thus, the use of this report for purposes other than those expressed here may not be appropriate.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board. In addition, the valuation results are based on our understanding of the financial accounting and reporting requirements under U.S. Generally Accepted Accounting Principles as set forth in Government Accounting Standards Board Statement 75 (GASB 75) including any guidance or interpretations provided by the Company and/or its audit partners prior to the issuance of this report. The information in this report is not intended to supersede or supplant the advice and interpretations of the City of Bristol's auditors. Additional disclosures may be required under GASB 74.

Future actuarial measurements may differ significantly from the current measurements presented in this report due (but not limited to) to such factors as the following:

- Plan experience differing from that anticipated by the economic or demographic assumptions;
- Changes in actuarial methods or in economic or demographic assumptions;
- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- Changes in plan provisions or applicable law.

Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

Funded status measurements shown in this report are determined based on various measures of plan assets and liabilities. For entity and plan disclosure and reporting purposes, funded status is determined using plan assets measured at market value. Plan liabilities are measured based on the interest rates and other assumptions summarized in the Actuarial Assumptions and Methods section of this report.

These funded status measurements may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, and funded status measurements for the City of Bristol and plan disclosure and reporting purposes may not be appropriate for assessing the need for or the amount of future contributions. In conducting the valuation, we have relied on personnel, plan design, health care claim cost, and asset information supplied by the City of Bristol as of the valuation date. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

The actuarial assumptions and methods used in this valuation are described in the Actuarial Assumptions and Methods section of this report. The City of Bristol selected the economic and demographic assumptions and prescribed them for use for purposes of compliance with GASB 75. Aon provided guidance with respect to these assumptions, and it is our belief that the assumptions represent reasonable expectations of anticipated plan experience.

The undersigned is familiar with the near-term and long-term aspects of OPEB valuations and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. The information provided in this report is dependent upon various factors as documented throughout this report, which may be subject to change. Each section of this report is considered to be an integral part of the actuarial opinions.

To our knowledge, no colleague of Aon providing services to the City of Bristol has any material direct or indirect financial interest in the City of Bristol. Thus, we believe there is no relationship existing that might affect our capacity to prepare and certify this actuarial report for the City of Bristol.



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Accounting Requirements

Development of GASB 75 Net OPEB Expense

Calculation Details

The following table illustrates the Net OPEB Liability under GASB 75.

	Fiscal Year Ending 6/30/2017	Fiscal Year Ending 6/30/2018
(1) OPEB Liability		
(a) Retired Participants and Beneficiaries Receiving Payment	\$ 21,447,865	\$ 18,494,938
(b) Active Participants	<u>\$ 41,994,456</u>	<u>\$ 47,627,266</u>
(c) Total	\$ 63,442,321	\$ 66,122,204
(2) Plan Fiduciary Net Position	<u>\$ 8,126,904</u>	<u>\$ 9,926,387</u>
(3) Net OPEB Liability	\$ 55,315,417	\$ 56,195,817
(4) Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	12.81%	15.01%
(5) Deferred Outflow of Resources for Contributions Made After Measurement Date	\$ 0	\$ 0

GASB 75 Transition

(1) Net OPEB Obligation at Last Day of 2017 Fiscal Year	\$ 32,827,399
(2) Amount for Transition to GASB 75	<u>\$ 22,488,018</u>
(3) Liability Under GASB 75 at First Day of 2018 Fiscal Year	\$ 55,315,417

Expense

The following table illustrates the OPEB expense under GASB 75.

	Fiscal Year Ending 6/30/2017	Fiscal Year Ending 6/30/2018
(1) Service Cost	\$ 1,821,714	\$ 1,954,699
(2) Interest Cost	4,434,274	4,614,833
(3) Expected Investment Return	(503,040)	(644,144)
(4) Employee Contributions	(54,072)	(56,308)
(5) Administrative Expense	0	0
(6) Plan Changes	0	0
(7) Amortization of Unrecognized		
(a) Liability (Gain)/Loss	90,563	0
(b) Asset (Gain)/Loss	11,563	52,725
(c) Assumption Change (Gain)/Loss	<u>0</u>	<u>58,382</u>
(8) Total Expense	\$ 5,801,002	\$ 5,980,187

Shown below are details regarding the calculation of Service Cost, Interest Cost and Expected Investment Return components of the Expense.

	Fiscal Year Ending 6/30/2017	Fiscal Year Ending 6/30/2018
(1) Development of Service Cost:		
(a) Normal Cost at Beginning of Measurement Period	\$ 1,821,714	\$ 1,954,699
(2) Development of Interest Cost:		
(a) Total OPEB Liability at Beginning of Measurement Period	\$ 61,418,935	\$ 63,442,321
(b) Normal Cost at Beginning of Measurement Period	1,821,714	1,954,699
(c) Actual Benefit Payments	(5,083,891)	(4,438,442)
(d) Discount Rate	<u>7.30%</u>	<u>7.30%</u>
(e) Interest Cost	\$ 4,434,274	\$ 4,614,833
(3) Development of Expected Investment Return:		
(a) Plan Fiduciary Net Position at Beginning of Measurement Period	\$ 6,127,609	\$ 8,126,904
(b) Actual Contributions—Employer	5,974,886	5,801,097
(c) Actual Contributions—Employee	54,072	56,308
(d) Actual Benefit Payments	(4,474,886)	(4,438,442)
(e) Administrative Expenses	0	0
(f) Other	0	0
(g) Expected Return on Assets	<u>7.30%</u>	<u>7.30%</u>
(h) Expected Return	\$ 503,040	\$ 644,144

Reconciliation of Net OPEB Liability

Shown below are details regarding the Total OPEB Liability, Plan Fiduciary Net Position, and Net OPEB Liability for the Measurement Period from June 30, 2017 to June 30, 2018:

	Increase (Decrease)		
	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (c) = (a) – (b)
Balance Recognized at 6/30/2017 (Based on 6/30/2017 Measurement Date)	\$ 63,442,321	\$ 8,126,904	\$ 55,315,417
Changes Recognized for the Fiscal Year:			
Service Cost	1,954,699	N/A	1,954,699
Interest on the Total OPEB Liability	4,614,833	N/A	4,614,833
Changes of Benefit Terms	0	N/A	0
Differences Between Expected and Actual Experience	0	N/A	0
Changes of Assumptions	548,793	N/A	548,793
Benefit Payments	(4,438,442)	(4,438,442)	0
Contributions From the Employer	N/A	5,801,097	(5,801,097)
Contributions From the Employee	N/A	56,308	(56,308)
Net Investment Income	N/A	380,520	(380,520)
Administrative Expense	N/A	0	0
Net Changes	<u>2,679,883</u>	<u>1,799,483</u>	<u>880,400</u>
Balance Recognized at 6/30/2018 (Based on 6/30/2018 Measurement Date)	\$ 66,122,204	\$ 9,926,387	\$ 56,195,817

Liability (Gain)/Loss

The following table illustrates the liability gain/loss under GASB 75.

	Fiscal Year Ending 6/30/2017	Fiscal Year Ending 6/30/2018
(1) OPEB Liability at Beginning of Measurement Period	\$ 61,418,935	\$ 63,442,321
(2) Service Cost	1,821,714	1,954,699
(3) Interest on the Total OPEB Liability	4,434,274	4,614,833
(4) Changes of Benefit Terms	0	0
(5) Changes of Assumptions	0	548,793
(6) Benefit Payments	(5,083,891)	(4,438,442)
(7) Expected OPEB Liability at End of Measurement Period	62,591,032	66,122,204
(8) Actual OPEB Liability at End of Measurement Period	<u>63,442,321</u>	<u>66,122,204</u>
(9) OPEB Liability (Gain)/Loss	\$ 851,289	\$ 0
(10) Average Future Working Life Expectancy	<u>9.40</u>	<u>9.40</u>
(11) OPEB Liability (Gain)/Loss Amortization	\$ 90,563	\$ 0

Asset (Gain)/Loss

The following table illustrates the asset gain/loss under GASB 75.

	Fiscal Year Ending 6/30/2017	Fiscal Year Ending 6/30/2018
(1) OPEB Asset at Beginning of Measurement Period	\$ 6,127,609	\$ 8,126,904
(2) Contributions—Employer	5,974,886	5,801,097
(3) Contributions—Employee	54,072	56,308
(4) Expected Investment Income	503,040	644,144
(5) Benefit Payments	(4,474,886)	(4,438,442)
(6) Administrative Expense	0	0
(7) Other	0	0
(8) Expected OPEB Asset at End of Measurement Period	8,184,721	10,190,011
(9) Actual OPEB Asset at End of Measurement Period	<u>8,126,904</u>	<u>9,926,387</u>
(10) OPEB Asset (Gain)/Loss	\$ 57,817	\$ 263,624
(11) Amortization Factor	<u>5.00</u>	<u>5.00</u>
(12) OPEB Asset (Gain)/Loss Amortization	\$ 11,563	\$ 52,725

Deferred Outflows/Inflows

The following table illustrates the Deferred Inflows and Outflows as of June 30, 2018 under GASB 75.

	Deferred Outflows	Deferred Inflows
(1) Difference Between Actual and Expected Experience	\$ 0	\$ 0
(2) Net Difference Between Expected and Actual Earnings on OPEB Plan Investments	\$ 210,899	\$ 0
(3) Assumption Changes	<u>\$ 490,411</u>	<u>\$ 0</u>
(4) Sub Total	\$ 701,310	\$ 0
(5) Contributions Made in Fiscal Year Ending 6/30/2018 After Measurement Date	<u>\$ 0</u>	<u>\$ N/A</u>
(6) Total	\$ 701,310	\$ 0

Amortization of Deferred Inflows/Outflows

The table below lists the amortization bases included in the deferred inflows/outflows as of June 30, 2018.

Date Established	Type of Base	Period		Balance		Annual Payment
		Original	Remaining	Original	Remaining	
6/30/2017	Liability (Gain)/Loss	9.40	8.40	\$ 0	\$ 0	\$ 0
6/30/2017	Asset (Gain)/Loss	5.00	4.00	\$ 263,624	\$ 210,899	\$ 52,725
6/30/2017	Assumptions	9.40	8.40	\$ 548,793	<u>\$ 490,411</u>	<u>\$ 58,382</u>
	Total Charges				\$ 701,310	\$ 111,107

Amounts Recognized in the deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in the OPEB expense as follows:

Year End June 30:

2019	\$ 111,107
2020	\$ 111,107
2021	\$ 111,107
2022	\$ 111,107
2023	\$ 58,382
Total Thereafter	\$ 198,501

Plan Fiduciary Net Position Projection

The following table illustrates the projection of the fiduciary net position for use in the calculation of the discount rate as of June 30, 2018.

(\$ in thousands)

Year Ending June 30 ³	Beginning Fiduciary Net Position (a)	Total Contributions ¹ (b)	Benefit Payments (c)	Administrative Expenses (d)	Investment Earnings (e)	Ending Fiduciary Net Position ² (f)
2018	\$8,126.9	\$5,702.8	\$4,438.4	\$0.0	\$535.2	\$9,926.4
2019	9,926.4	6,511.7	4,488.8	0.0	790.3	12,739.7
2020	12,739.7	7,206.1	4,742.7	0.0	1,008.9	16,212.0
2021	16,212.0	7,843.6	4,797.5	0.0	1,279.9	20,538.0
2022	20,538.0	8,775.6	4,978.8	0.0	1,618.5	25,953.4
2023	25,953.4	9,868.8	5,101.5	0.0	2,043.5	32,764.1
2024	32,764.1	11,086.1	5,085.3	0.0	2,578.2	41,343.1
2025	41,343.1	11,483.8	5,288.5	0.0	3,203.0	50,741.4
2026	50,741.4	11,429.5	5,423.6	0.0	3,873.0	60,620.4
2027	60,620.4	11,355.5	5,544.3	0.0	4,577.3	71,008.9
2028	71,008.9	11,115.5	5,505.5	0.0	5,318.0	81,936.9
2029	81,936.9	11,215.6	5,805.2	0.0	6,097.9	93,445.2
2030	93,445.2	11,295.5	6,100.1	0.0	6,918.9	105,559.5
2031	118,314.0	11,347.1	6,375.9	0.0	7,783.2	118,314.0
2032	118,314.0	11,449.2	6,734.2	0.0	8,692.6	131,721.5
2033	131,721.5	11,380.5	6,941.3	0.0	9,648.1	145,808.8
2034	145,808.8	11,266.3	7,106.2	0.0	10,652.4	160,621.4
2035	160,621.4	11,078.4	7,204.5	0.0	11,708.7	176,204.0
2036	176,204.0	10,893.5	7,270.2	0.0	12,821.7	192,648.9
2037	192,648.9	10,518.6	7,148.9	0.0	13,996.5	210,015.1
2038	210,015.1	10,292.0	7,191.6	0.0	15,237.2	228,352.7
2039	228,352.7	9,974.3	7,164.4	0.0	16,547.0	247,709.6
2040	247,709.6	9,611.2	7,100.9	0.0	17,929.9	268,149.8
2041	268,149.8	9,423.2	7,289.4	0.0	19,388.2	289,671.8
2042	289,671.8	9,135.4	7,351.3	0.0	20,925.2	312,381.0
2043	312,381.0	8,792.8	7,349.5	0.0	22,548.0	336,372.3
2044	336,372.3	8,277.7	7,207.2	0.0	24,261.9	361,704.6
2045	361,704.6	7,811.3	7,122.5	0.0	26,072.0	388,465.4
2046	388,465.4	7,410.5	7,101.5	0.0	27,985.1	416,759.4
2047	416,759.4	6,747.9	6,828.5	0.0	30,008.1	446,686.9

¹ Total Contributions include the Funding Policy contribution to the trust and the ongoing pay-go benefit payments, offset for projected new entrant normal cost.

² (f)=(a) + (b) – (c) – (d) + (e)

³ Years later than 2047 were omitted from this table.

Plan Fiduciary Net Position

The last year in which projected benefit payments are due from the Plan is the fiscal year ending June 30, 2071.

As such, the Plan's fiduciary net position was projected to be available to make all projected future benefit payments for current Plan members. Therefore, the long-term expected rate of return on Plan investments of 7.20% per annum was applied to all periods of projected benefit payments to determine the total OPEB liability as of June 30, 2018 shown earlier in this report, pursuant to paragraph 48 of GASB Statement No. 75.

In projecting the Plan's fiduciary net position the following assumptions were made:

1. Interest rate for discounting was 7.20% per annum.
2. Projected total contributions are employer contributions to the trust per the outlined funding policy and the ongoing pay-go benefit payments until the trust is fully funded. Contributions are assumed to be paid in the middle of the year.
3. Assumed contributions are based on the contribution policy of the City as communicated in their financial statement. The City's contribution policy is to contribute amounts increasing by 25% per year until the contribution level is \$7.5 million. The contribution amount was \$1,362,655 for the fiscal year ending June 30, 2018.
4. Projected benefit payments have been determined in accordance with Paragraphs 30-35 of GASB Statement No. 75, and are based on the closed group of active, retired members and beneficiaries as of June 30, 2018. Benefit payments are assumed to be paid mid-year.
5. Administrative expenses are assumed to be \$0 for 2018. Expenses are assumed to be paid mid-year.
6. Projected investment earnings are based on the assumed investment rate of return of 7.20% per annum. The first year's earnings have been adjusted to account for the actual return through June 30, 2018.

Interest Rate Sensitivity

The following table illustrates the impact of interest rate sensitivity on the Net OPEB Liability for fiscal year ending June 30, 2017:

	1% Decrease (6.30%)	Current Rate (7.30%)	1% Increase (8.30%)
(1) Total OPEB Liability	\$ 69,087,856	\$ 63,442,321	\$ 58,442,771
(2) Plan Fiduciary Net Position	<u>\$ 8,126,904</u>	<u>\$ 8,126,904</u>	<u>\$ 8,126,904</u>
(3) Net OPEB Liability	\$ 60,960,952	\$ 55,315,417	\$ 50,315,867

The following table illustrates the impact of interest rate sensitivity on the Net OPEB Liability for fiscal year ending June 30, 2018:

	1% Decrease (6.20%)	Current Rate (7.20%)	1% Increase (8.20%)
(1) Total OPEB Liability	\$ 71,989,257	\$ 66,122,204	\$ 60,919,291
(2) Plan Fiduciary Net Position	<u>\$ 9,926,387</u>	<u>\$ 9,926,387</u>	<u>\$ 9,926,387</u>
(3) Net OPEB Liability	\$ 62,062,870	\$ 56,195,817	\$ 50,992,904

Healthcare Cost Trend Sensitivity

The following table illustrates the impact of healthcare cost trend sensitivity on the Net OPEB Liability for fiscal year ending June 30, 2017:

	1% Decrease 6.65% to 3.50%	Trend Rate 7.65% to 4.50%	1% Increase 8.65% to 5.50%
(1) Total OPEB Liability	\$ 57,387,577	\$ 63,442,321	\$ 70,470,936
(2) Plan Fiduciary Net Position	<u>\$ 8,126,904</u>	<u>\$ 8,126,904</u>	<u>\$ 8,126,904</u>
(3) Net OPEB Liability	\$ 49,260,673	\$ 55,315,417	\$ 62,344,032

The following table illustrates the impact of healthcare cost trend sensitivity on the Net OPEB Liability for fiscal year ending June 30, 2018:

	1% Decrease 6.51% to 3.50%	Trend Rate 7.51% to 4.50%	1% Increase 8.51% to 5.50%
(1) Total OPEB Liability	\$ 59,193,554	\$ 66,122,204	\$ 74,197,506
(2) Plan Fiduciary Net Position	<u>\$ 9,926,387</u>	<u>\$ 9,926,387</u>	<u>\$ 9,926,387</u>
(3) Net OPEB Liability	\$ 49,267,167	\$ 56,195,817	\$ 64,271,119

Water Department Allocation

Postemployment Benefits Other Than Pensions for the City of Bristol, CT

SCHEDULE OF OPEB AMOUNTS BY EMPLOYER AND NONEMPLOYER

As of June 30, 2018 Measurement Date for the Fiscal Year Ended June 30, 2018 reporting

Employer/Nonemployer	June 30, 2017 Net OPEB Liability	June 30, 2018 Net OPEB Liability	Deferred Outflows of Resources			Deferred Inflows of Resources	OPEB Expense	
			Differences Between Expected and Actual Experience	Net Differences Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assumptions	Total Deferred Outflows of Resources	Total Deferred Inflows of Resources	Proportionate Share of Plan OPEB Expense
Non Special Funding Situations:								
Employer:								
Non-Water Department Employees.....	\$ 51,716,240	\$ 52,566,838	\$ -	\$ 210,899	\$ 465,152	\$ 676,051	\$ -	\$ 5,639,425
Special Funding Situations:								
Nonemployer attributable to:								
Water Department Employees.....	\$ 3,599,177	\$ 3,628,979	\$ -	\$ -	\$ 25,259	\$ 25,259	\$ -	\$ 340,762
Total nonemployer	<u>3,599,177</u>	<u>3,628,979</u>	<u>-</u>	<u>-</u>	<u>25,259</u>	<u>25,259</u>	<u>-</u>	<u>340,762</u>
Totals.....	<u>\$ 55,315,417</u>	<u>\$ 56,195,817</u>	<u>\$ -</u>	<u>\$ 210,899</u>	<u>\$ 490,411</u>	<u>\$ 701,310</u>	<u>\$ -</u>	<u>\$ 5,980,187</u>

Disclosure—Changes in the Net OPEB Liability and Related Ratios

Changes in the Net OPEB Liability and Related Ratios¹

	Fiscal Year Ending	
	2017	2018
Total OPEB Liability		
Service Cost	\$1,821,714	\$1,954,699
Interest Cost	\$4,434,274	\$4,614,833
Changes of Benefit Terms	\$0	\$0
Differences Between Expected and Actual Experiences	\$851,289	\$0
Changes of Assumptions	\$0	\$548,793
Benefit Payments	\$(5,083,891)	\$(4,438,442)
Net Change in Total OPEB Liability	\$2,023,386	\$2,679,883
Total OPEB Liability (Beginning)	\$61,418,935	\$63,442,321
Total OPEB Liability (Ending)	\$63,442,321	\$66,122,204
Plan Fiduciary Net Position		
Contributions—Employer	\$6,583,891	\$5,801,097
Contributions—Member	\$54,072	\$56,308
Net Investment Income	\$445,223	\$380,520
Benefit Payments	\$(5,083,891)	\$(4,438,442)
Administrative Expense	\$0	\$0
Other	\$0	\$0
Net Change in Plan Fiduciary Net Position	\$1,999,295	\$1,799,483
Plan Fiduciary Net Position (Beginning)	\$6,127,609	\$8,126,904
Plan Fiduciary Net Position (Ending)	\$8,126,904	\$9,926,387
Net OPEB Liability (Ending)	\$55,315,417	\$56,195,817
Net Position as a Percentage of OPEB Liability	12.81%	15.01%
Covered-Employee Payroll	\$98,287,369	\$98,287,369
Net OPEB Liability as a Percentage of Payroll	56.28%	57.18%

¹ GASB 75 was effective first for employer fiscal years beginning after June 15, 2017.

Disclosure—Contribution Schedule

Contributions

	Fiscal Year Ending	
	2017	2018
Actuarially Determined Contribution	\$7,256,765	\$6,234,993
Contributions Made in Relation to the Actuarially Determined Contribution	\$6,583,891	\$5,801,097
Contribution Deficiency (Excess)	\$672,874	\$433,896
Covered-Employee Payroll	\$98,287,369	\$98,287,369
Contributions as a Percentage of Payroll	6.70%	5.90%

Investment return

	Fiscal Year Ending	
	2017	2018
Annual money-weighted rate of return, net of investment expense	6.83%	4.31%

Notes to Schedule:

Valuation Date: Actuarially determined contribution rates are calculated as of June 30, one year prior to the end of the fiscal year in which contributions are reported.

Methods and assumptions used to determine contribution rates:

Actuarial Cost Method	Entry Age Normal with a level percent of payroll 30-year open amortization period.
Asset Valuation Method	Market Value
Investment Rate of Return	Expected return on assets, net of OPEB plan investment expense, including inflation as of the beginning of the fiscal year
Retirement Age	Varies by age.
Mortality	RP-2014 Headcount-Weighted Combined Healthy Mortality Table projected generationally from the central year using Scale MP-2016

See additional information regarding assumptions in the “Actuarial Assumptions and Methods” section.

Appendix

Participant Data

The following tables summarize active, retiree, and spouse demographic information. The data collected, as well as age and service information shown, is as of July 1, 2016.

Active: Counts by Sex							
Sex	General City	Police	Fire	BOE Certified	BOE Non-Certified	Total	2014 Total
Female	127	4	2	488	207	828	869
Male	197	107	82	154	77	617	648
Total	324	111	84	642	284	1,445	1,517

Active: Average Age by Sex						
Sex	General City	Police	Fire	BOE Certified	BOE Non-Certified	Total
Female	50.07	41.00	34.00	44.01	50.94	46.63
Male	47.10	38.83	44.04	45.73	50.75	45.37
Total	48.26	38.91	43.80	44.42	50.89	46.10

Active: Average Service by Sex						
Sex	General City	Police	Fire	BOE Certified	BOE Non-Certified	Total
Female	11.34	13.43	9.61	12.84	9.86	11.86
Male	12.39	12.53	15.35	14.78	14.01	13.61
Total	11.98	12.56	15.21	13.31	10.99	12.61

Participant Data (continued)

Active: Age-Service Scatter

Service								
Age	0: 4	5: 9	10:14	15:19	20:24	25:29	30+	Total
15:19	0	0	0	0	0	0	0	0
20:24	19	0	0	0	0	0	0	19
25:29	91	5	0	0	0	0	0	96
30:34	62	60	20	0	0	0	0	142
35:39	48	36	92	10	0	0	0	186
40:44	30	39	60	48	6	0	0	183
45:49	37	35	50	56	24	13	1	216
50:54	30	36	40	44	31	31	10	222
55:59	24	17	48	42	21	20	27	199
60:64	9	19	28	37	13	7	25	138
65:69	2	4	9	6	4	4	11	40
70+	1	0	0	2	0	0	1	4
Total	353	251	347	245	99	75	75	1,445

Participant Data (continued)

Retiree: Participant Counts							
Sex	General City	Police	Fire	BOE Certified	BOE Non-Certified	Total	2014 Total
Female	52	6	1	78	68	205	221
Male	93	58	33	24	28	236	275
Total	145	64	34	102	96	441	496

Retiree: Participant Average Age						
Sex	General City	Police	Fire	BOE Certified	BOE Non-Certified	Total
Female	67.63	54.33	65.00	66.97	67.40	66.90
Male	63.92	59.36	64.58	64.17	65.68	63.13
Total	65.25	58.89	64.59	66.31	66.90	64.88

Covered Spouses

Of the 441 Retirees in the valuation data, 237 have a covered Spouse.

Actuarial Assumptions and Methods

Actuarial Method	Entry Age Normal Level Percent of Payroll Method
Normal Cost	Determined for each active employee as the Actuarial Present Value of benefits allocated to the valuation year. The benefit attributed to the valuation year is that incremental portion of the total projected benefit earned during the year in accordance with the plan provisions. This allocation is based on each individual's service between date of hire and date the individual becomes fully eligible for benefits.
Accumulated Postretirement Benefit Obligation	The Actuarial Present Value of Benefits allocated to all periods prior to the valuation year.
Discount Rate	6/30/2017 Measurement Date: 7.30% 6/30/2018 Measurement Date: 7.20%
Expected Return on Assets	6/30/2017 Measurement Date: 7.30% 6/30/2018 Measurement Date: 7.20%
Inflation Rate	2.50%
Valuation Date	July 1, 2016
Fiscal Year Ending	June 30, 2018
Measurement Date	June 30, 2018
Mortality Rates	RP-2014 Headcount-Weighted Combined Healthy Mortality Table projected generationally from the central year using Scale MP-2016

Actuarial Assumptions and Methods(continued)

Withdrawal Rates *BOE-Teachers & BAPS:* Rates are based on gender & length of service for the first 10 years; gender & age thereafter.

Males Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	10+
25	14.00%	8.50%	5.50%	4.50%	3.50%	2.50%	2.40%	2.30%	2.20%	2.10%	1.20%
30	14.00%	8.50%	5.50%	4.50%	3.50%	2.50%	2.40%	2.30%	2.20%	2.10%	1.20%
35	14.00%	8.50%	5.50%	4.50%	3.50%	2.50%	2.40%	2.30%	2.20%	2.10%	1.20%
40	14.00%	8.50%	5.50%	4.50%	3.50%	2.50%	2.40%	2.30%	2.20%	2.10%	1.20%
45	14.00%	8.50%	5.50%	4.50%	3.50%	2.50%	2.40%	2.30%	2.20%	2.10%	1.26%
50	14.00%	8.50%	5.50%	4.50%	3.50%	2.50%	2.40%	2.30%	2.20%	2.10%	1.96%
55	14.00%	8.50%	5.50%	4.50%	3.50%	2.50%	2.40%	2.30%	2.20%	2.10%	2.76%

Females Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	10+
25	12.00%	9.00%	7.00%	6.00%	5.50%	5.00%	4.50%	3.50%	3.00%	2.50%	3.50%
30	12.00%	9.00%	7.00%	6.00%	5.50%	5.00%	4.50%	3.50%	3.00%	2.50%	3.50%
35	12.00%	9.00%	7.00%	6.00%	5.50%	5.00%	4.50%	3.50%	3.00%	2.50%	3.50%
40	12.00%	9.00%	7.00%	6.00%	5.50%	5.00%	4.50%	3.50%	3.00%	2.50%	2.30%
45	12.00%	9.00%	7.00%	6.00%	5.50%	5.00%	4.50%	3.50%	3.00%	2.50%	1.30%
50	12.00%	9.00%	7.00%	6.00%	5.50%	5.00%	4.50%	3.50%	3.00%	2.50%	1.25%
55	12.00%	9.00%	7.00%	6.00%	5.50%	5.00%	4.50%	3.50%	3.00%	2.50%	1.60%

General: Rates are based on age.

Age	Rate
20	12.00%
25	12.00%
30	9.00%
35	4.50%
40	3.00%
45	2.00%
50	1.00%
55	0.00%

Police: Rates are based on age.

Age	Rate
20	2.00%
25	2.00%
30	1.50%
35	1.00%
40	0.00%

Fire: None

Disability Rates: None

Actuarial Assumptions and Methods(continued)

Retirement Rates Rates are based on age and, in some cases, gender.

Age	General		BOE- Teachers & BAPS			
	Rule of 80	Not Yet Attained	Eligible for Early Retirement		Eligible for Normal Retirement	
			Male	Female	Male	Female
47-49						
50			2.0%	2.0%	27.5%	15.0%
51			2.0%	2.0%	27.5%	15.0%
52			2.5%	3.0%	27.5%	15.0%
53			3.0%	3.5%	27.5%	15.0%
54			4.0%	4.0%	27.5%	15.0%
55	15.0%	3.0%	4.5%	6.0%	38.5%	30.0%
56	15.0%	3.0%	6.0%	7.0%	38.5%	30.0%
57	15.0%	3.0%	9.0%	7.5%	38.5%	30.0%
58	15.0%	10.0%	10.0%	8.0%	38.5%	30.0%
59	15.0%	10.0%	11.0%	8.5%	38.5%	30.0%
60	25.0%	10.0%			22.0%	20.0%
61	25.0%	10.0%			25.3%	22.5%
62	25.0%	10.0%			25.3%	22.5%
63	25.0%	10.0%			27.5%	22.5%
64	25.0%	10.0%			27.5%	22.5%
65	25.0%	10.0%			36.6%	30.0%
66	25.0%	10.0%			27.5%	30.0%
67	25.0%	10.0%			27.5%	30.0%
68	25.0%	10.0%			27.5%	30.0%
69	25.0%	10.0%			27.5%	30.0%
70-79	100.0%	100.0%			100.0%	40.0%
80						100.0%

Police	
Age	Rate
47-49	15%
50-54	20%
55-59	40%
60-64	50%
65+	100%

Fire	
Age	Rate
50-54	10%
55-59	15%
60-64	50%
65+	100%

Actuarial Assumptions and Methods(continued)

Health Care Claims

Claim costs were developed based on actual retiree claims experience from July 2013 through March 2016. The claims were age-adjusted based on the demographics of the population and trended to the current valuation period. Administrative costs are included in the claim costs. Below is a sample of the claims costs that were used in calculating the liabilities:

<i>Age</i>	<i>Medical</i>	<i>Age</i>	<i>Medical</i>
55	\$8,415	60	\$10,352
56	\$8,770	61	\$10,741
57	\$9,140	62	\$11,145
58	\$9,526	63	\$11,566
59	\$9,930	64	\$12,002

The annual premium associated with dental benefits is \$330.84

After reaching Medicare eligibility, current Teachers that do not pay into Social Security are assumed to have costs increase by the aging factors noted below. Non-Certified employees are assumed to enroll in CIGNA's Medicare Supplement program which is community-rated and fully-insured with an annual premium of \$6,457.92.

Morbidity/Aging

GASB requires that the costs for retiree benefits be separately identified. Currently, the City provides benefits for actives and retirees not eligible for Medicare under one rating structure. As we see in the morbidity table below, retirees utilize benefits at a greater rate than the active population, due to their age. The active employees are "implicitly" subsidizing the retiree cost of the plan of benefits in the City's rate basis. GASB requires that the City utilize actual experience or actuarial adjustments in order to calculate the true cost of retiree benefits in order to calculate the present value of the retiree benefits. The actuarial assessment of the best estimate of retiree cost of benefits is premised on utilizing the morbidity/aging table below in developing the claims costs by age shown in the table above.

Age	Medical Aging	RX Aging
40 - 44	3.00%	4.80%
45 - 49	3.70%	4.70%
50 - 54	4.20%	4.70%
55 - 59	4.40%	4.60%
60 - 64	3.70%	4.60%
65 - 69	2.70%	3.80%
70 - 74	1.80%	2.50%
75 - 79	2.20%	0.80%
80 - 84	2.80%	0.20%
85 - 89	1.40%	0.10%
90+	0.00%	0.00%

Actuarial Assumptions and Methods(continued)

Health Care Cost Trend

Health care costs are assumed to increase at the following rates:

<i>Year</i>	<i>Trend</i>
2016	7.65%
2017	7.51%
2018	7.17%
2019	6.83%
2020	6.48%
2021	6.13%
2022	5.77%
2023	5.41%
2024	5.06%
2025	4.70%
2026+	4.50%

Excise Tax

The impact of the 40% excise tax on high cost employer plans (effective in 2020) brought on by the Patient Protection and Affordable Care Act (PPACA) is estimated to be 8.81%. This impact has been reflected in the plan liabilities.

For purposes of determining this percentage, we made the following assumptions:

- Plan costs were developed on a two-tier basis (individual and individual plus spouse) for all retirees and assumed to increase with the valuation trend.
- The 2020 cost thresholds are assumed to be \$10,200 for individual and \$27,500 for family coverage (\$11,850 and \$30,950 for non-Medicare retirees).
- 2020 thresholds are adjusted accordingly by the amount that the accumulated 2010-2020 cost increases, observed for the BCBS “standard” plan option under the FEHBP program, exceeds 55%.
- After 2020, the cost thresholds are indexed by CPI (CPI+1% in 2021 only). CPI is assumed to be 2.5% in all future years.

Our excise tax model determined the additional trend loads to be applied to the existing valuation trend table in order to reflect the present value of expected tax amounts (40%) of the excess over the thresholds.

The excise tax threshold is estimated to be reached in fiscal year 2019, which means the first trend load is applied to the valuation trend from 2019 to 2020.

Actuarial Assumptions and Methods(continued)

Health Care Reform	<p>Aside from the Excise Tax, other requirements of Health Care Reform, noted below, have been included in the claims development.</p> <ul style="list-style-type: none"> ▪ Extended coverage for children ▪ Elimination of lifetime maximum benefits ▪ Removal of the limits on essential health care ▪ 100% coverage of preventive care
Medicare Part B Premium	N/A
Medicare Part B Trend	N/A
Spouse Age Difference/ Percent Married	Males are assumed to be 3 years older than females. Active employees are assumed to be 80% married and choose family coverage at retirement.
Coverage Assumptions	We have assumed that 95% of current City employees & 60% of current Board of Education (BOE) employees will elect health care benefits at their full eligibility age, or current age if later.
Valuation Methodology and Terminology	We have used GASB accounting methodology to determine the postretirement medical benefit obligations.
Salary Scale	N/A
Changes since prior Valuation	<ul style="list-style-type: none"> ▪ Discount Rate was changed from 7.3% to 7.2% due to the decrease in the City's expected return on trust assets.

Plan Provisions

Plan Eligibility All regular employees are eligible to participate in the plan upon attainment of the following eligibility criteria:

- *City, Certified Non-Bargaining, & Non-Certified BOE* Rule of 80 (Minimum Age 55)
- *Fire & Police* 25 Years of Service
- *Teachers & BAPS (BOE)* Age 55 with 20 Years of Service

Note: Only Teachers & BAPS who retire at Normal Retirement (age 60 with 20 Years of Service or 35 Years of Service) are eligible for the BOE subsidy.

Benefits Durations of retiree benefits & retiree contributions are detailed below:

- *City Employees* Receive medical and Rx drug (no dental) for 10 years after retirement for employee & spouse with the following cost sharing arrangements:

- General None

The following groups will receive benefits for 5 years only: Participants in Local 1338 hired after December 1, 2010; Local 233 hired after September 8, 2010; BPSA Employees hired after June 30, 2011; and Non Bargaining Employees hired after April 11, 2011.

- Police None

There are current Police retirees who receive benefits for 15 years. These participants were identified as such in the data.

- Fire 9.75% for new retirees effective 5/6/2010

- Health District 5.00% for new retirees

Summary of Principal Plan Provisions (continued)

Benefits (continued)	- <i>Board of Education</i>	
	- Administrators (BAPS)	Receive medical, Rx drug, and dental benefits along with a \$750 per year subsidy from the BOE for 7 years after retirement or age 65; retirees move to the state plan or other plan at 65
	- Teachers	Receive medical, Rx drug, and dental benefits along with a \$700 per year subsidy from the BOE for 7 years after retirement or age 65; some Teachers who did not pay into Social Security stay on BOE plan post-65
	- AFSCME 818	Receive medical and Rx drug benefits for 10 years with a 15% cost sharing; can continue on Medicare Supplement plans post-65. Those hired after 7/1/2004, 5 years, single coverage with 15% cost sharing
	- AFSCME 2267	Receive medical and Rx drug (no dental) for 10 years with a 10% cost sharing; can continue on Medicare Supplement plans post-65. 10 Month Employees (Paraprofessionals and Cafeteria workers) who retire after 6/30/2013 receive 5 years of benefits rather than 10 years Spouses of Cafeteria employees do not receive coverage unless the participant was in a Lead, Assistant Cook, Bulk, or 8 hour position and hired prior to 7/1/2010.
	- AFSCME 3551	Receive medical, Rx drug, and dental for 10 years; the first 5 years are free of charge and the next five have a 12% cost sharing; can continue on Medicare Supplement plans post-65 Note: Employees hired after 7/1/1992 are not eligible for postretirement medical benefits.

Summary of Principal Plan Provisions (continued)

**Benefits
(continued)**

- Board of Education

- Certified Non-Bargaining

Receive medical, Rx drug, and dental benefits for 10 years with a 16% cost sharing; retirees move to the state plan at 65

- Non-Certified Non-Bargaining

Receive medical, Rx drug, and dental benefits for 10 years free of charge unless noted as not eligible; can continue on Medicare Supplement plans.