Actuarial Valuation Report

The City of Bristol, CT

Postemployment Benefits Other Than Pensions Actuarial Valuation

Fiscal Year Ending June 30, 2017
July 1, 2016 Measurement Date

Empower Results®

December 1, 2017

Ms. Diane M. Waldron
Comptroller
City of Bristol
111 North Main Street
Bristol, CT 06010

This report presents the July 1, 2016 Actuarial Valuation results for the retiree health care benefits (medical, prescription drug, and dental insurance) provided through the ***City of Bristol ("the City")***. The purposes of this report are to:

(1) Determine the City's July 1, 2016 obligations;

(2) Determine the City's 2016-17 Fiscal Year accrual under the *Governmental Accounting Standards Board (GASB)* standard based on GASB Statement 45;

(3) Provide information for the City's June 30, 2017 financial statement disclosure; and

(4) Provide information that may be helpful in future planning for the City.

A summary of the major results is shown in the Executive Summary, while the Principal Valuation Results Section provides more detail.

The Accounting Information Section summarizes GASB Other Postemployment Benefit (OPEB) accounting treatment including the 2016-17 Fiscal Year Annual Required Contribution (ARC), Annual OPEB Cost (AOC), and Net OPEB Obligation (NOO).

This report's costs and liabilities are based upon the data and plan provisions provided by the City as summarized in the Demographic Information and Summary of Principal Plan Provisions Sections, respectively, and the funding method and actuarial assumptions outlined in the Methods and Assumptions Sections of this report. This report presents our best estimate of the costs of the Plan in accordance with accepted actuarial principles and our understanding of GASB Statement 45.

Respectfully,

Aon

Thomas G. Vicente

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Executive Summary

The ***City of Bristol ("the City")*** is comprised of the following two (2) groups:

1. City – consisting of General, Fire, and Police employees
2. Board of Education (BOE) – consisting of Certified and Non-Certified employees

The City provides medical, prescription drug, and dental insurance to these groups based on varying levels of eligibility requirements and cost sharing arrangements. Details of these eligibility requirements and cost sharing arrangements can be found in the Plan Provisions section of this report. All active employees who retire from the City and meet the eligibility criteria will receive these benefits.

This summary identifies costs for the 2014-15, 2015-16, and 2016-17 Fiscal Years:

Summary of Benefit Obligations

		GASB 45 Totals	
	July 1, 2014	**July 1, 2015**	**July 1, 2016**
Present Value of all Projected Benefits	$88,902,111	N/A	$103,863,018
Present Value of Benefits			
Earned to Date (Actuarial Accrued Liability)	$60,732,614	$62,574,248	$70,896,937
FY Annual Required Contribution (ARC)*	$7,008,204	$7,308,579	$8,097,574
FY Annual OPEB Cost	$6,622,558	$6,882,510	$7,627,535
Expected Benefit Premiums	$3,936,887	$3,961,206	$4,474,886

*** The Annual Required Contribution reflects a 30-year amortization of the Unfunded Actuarial Accrued Liability.**

Executive Summary (continued)

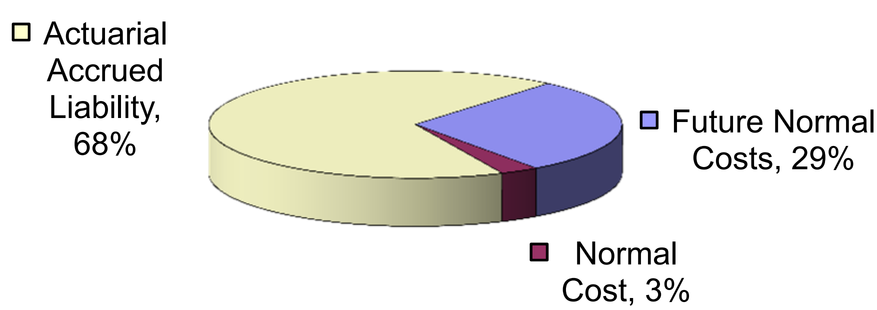
The ***Present Value of all Projected Benefits*** is the total present value of all expected future benefits, based on certain actuarial assumptions. The Present Value of all projected benefits is a measure of total liability or obligation. Essentially, the Present Value of all projected benefits is the value (on the valuation date) of the benefits promised to current and future retirees. The Plan's present value of all projected benefits (at July 1, 2016) is $103,863,018. The majority of this liability is for current active employees (future retirees).

The ***Actuarial Accrued Liability*** is the liability or obligation for benefits earned through the valuation date, based on certain actuarial methods and assumptions. The Plan's Actuarial Accrued Liability (at July 1, 2016) is $70,896,937 assuming no prefunding of obligations. Approximately 62% of this obligation is for active employees. The Actuarial Accrued Liability represents approximately 68% of the present value of all projected benefits.

Normal Cost is the value of benefits expected to be earned during the current year, again based on certain actuarial methods and assumptions. The 2016-17 Fiscal Year Normal Cost is $2,936,973 as of the beginning of the plan year. This is also known as "**service cost.**"

Future Normal Costs represent the present value of the remaining balance of all projected benefits to be earned in future years.

The following graph illustrates the Present Value of all Projected Benefits, the yellow area representing the Actuarial Accrued Liability in total:



Executive Summary (continued)

The results were calculated based upon plan provisions, as provided by the City, along with certain demographic and economic assumptions as recommended by Aon, in conjunction with the City with guidance from the GASB statement.

Demographic Assumptions

Data was provided by the City as of July 1, 2016. There is no assumption for future new hires.

Economic Assumptions

The GASB statement requires that the discount rate used to determine the retiree health care liabilities should be the estimated long-term yield on the “investments that are expected to be used to finance the payments of benefits.” Since the City is just beginning to pre-fund the retiree health care liabilities, the discount rate should be based on the portfolio of the City’s “general assets” used to pay these benefits. Aon will assume an ongoing discount rate of 5.00%.

The trend assumption is used to project the growth of the expected claims over the lifetime of the health care recipients. The GASB statement does not require a particular source for information to determine health care trends, but it does recommend selecting a source that is “publicly available, objective and unbiased.”

Aon developed the trend assumption utilizing the short-term rates expected on the City plan along with information in published papers from other industry experts (actuaries, health economists, etc.). The trend assumption begins at 7.65% and decreases to a 4.50% long-term trend rate for all health care benefits after ten years. Additionally, a constant trend of 5.00% per year has been assumed for the dental benefits.

The impact of the 40% excise tax on high cost employer plans 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. All other requirements from Health Care Reform result in no additional employer liability.

The balance of this report provides greater detail for the above results.

Actuarial Certification

This report presents the results of the Actuarial Valuation for the City of Bristol's Postemployment Benefits Other Than Pensions (the Plan) as of July 1, 2016 for development of accounting and financial reporting information under Statement No. 45 of the Governmental Accounting Standards Board.

This report has been prepared using generally accepted actuarial practices and methods. The actuarial methods and assumptions used in this valuation are described in the Methods and Assumptions Section of this report. The City selected the economic and demographic assumptions and prescribed them for use for purposes of compliance with GASB 45. Aon provided guidance with respect to these assumptions and it is our belief that the discount rate reasonably reflects current conditions as of the measurement date. All the other assumptions represent reasonable expectations of anticipated plan experience.

Aon did not audit the employee data and financial information used in this valuation. On the basis of our review of this data, we believe that the information is sufficiently complete and reliable, and that it is appropriate for the purposes intended.

Actuarial computations under GASB 45 are for purposes of fulfilling governmental accounting requirements. The calculations reported herein have been made on a basis consistent with our understanding of the accounting standard. Determinations for purposes other than meeting governmental financial accounting requirements may be different from these results. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security at termination.

This report is intended for the sole use of the City. It is intended only to supply information for the City to comply with the stated purposes of the report and may not be appropriate for other purposes. Reliance on information contained in this report by anyone for other than the intended purposes, puts the relying entity at risk of being misled because of confusion or failure to understand applicable assumptions, methodologies, or limitations of the report's conclusions. Accordingly, no person or entity, including the City should base any representations or warranties in any business agreement on any statements or conclusions contained in this report without the written consent of Aon.

The actuary whose signature appears below is a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. He is available to answer any questions with regard to the matters enumerated in this report.

We further certify that this report is in compliance with Actuarial Standard of Practice No. 41, "Actuarial Communications."

Aon's relationship with the Plan and the City is strictly professional. There are no aspects of the relationship that may impair or appear to impair the objectivity of our work.

Thomas G Vicente

Thomas G. Vicente, FSA, MAAA

Principal Valuation Results

The following highlights the City of Bristol's recognition of its GASB 45 obligations:

- The July 1, 2016 assets are $6,127,608.
- The FYE June 30, 2017 Annual Required Contribution (ARC) is $8,097,574.
- The FYE June 30, 2017 Annual OPEB Cost (AOC) is $7,627,535.
- Expected Fiscal Year Ending June 30, 2017 benefit payments are $4,474,886.

The following table shows results by active and retired employee groups:

GASB Results	July 1, 2014	July 1, 2015	July 1, 2016
Present Value of Projected Benefits			
Active	$65,821,403	N/A	$77,019,717
Retirees	$23,080,708	N/A	$26,843,301
Total	$88,902,111	N/A	$103,863,018
Actuarial Accrued Liability			
Active	$37,651,906	N/A	$44,053,636
Retirees	$23,080,708	N/A	$26,843,301
Total	$60,732,614	$62,574,248	$70,896,937
Assets	$4,439,558	$5,222,840	$6,127,608
Unfunded Actuarial Accrued Liability	$56,293,056	$57,351,408	$64,769,329
Normal Cost at beginning of year	$2,611,324	$2,741,890	$2,936,973

Note that since the July 1, 2015 valuation was actuarially rolled forward, the Present Value of Projected Benefits and the split between actives and retirees were not calculated. These breakouts are for illustrative purposes and not required by the GASB Standard so they were not shown in the "off-year" valuations.

Trust Information

The City established a Trust during FY 2012 to provide funding for postemployment benefits under the Police, Fire, and City plans. The activity of this trust from July 1, 2015 through June 30, 2016 is as follows:

Market Value of Assets				
July 1, 2015				$5,222,840
	(1)	Contributions		$862,582
	(2)	Investment Income		$97,827
	(3)	Unrealized/Realized Gain		($35,161)
	(4)	Disbursements		
		(a)	Management Fees	($20,480)
		(b)	Benefit Payments	$0
		(c)	Total = (4a) + (4b)	($20,480)
	(5)	Net Change = (1) + (2) + (3) + (4c)		$904,768
June 30, 2016				**$6,127,608**

Accounting Information

The effective date for the GASB OPEB Accounting Standard was the Fiscal Year beginning July 1, 2007. The following shows the Annual Required Contribution (ARC), Annual OPEB Cost (AOC), and the projected June 30, 2017 Net OPEB Obligation (NOO).

Annual Required Contribution (ARC)

The Standard sets the method for determining the City's postemployment benefits accrual, the Annual Required Contribution (ARC), to include both the value of benefits earned during the year (Normal Cost) and an amortization of the Unfunded Actuarial Accrued Liability. Accordingly, the following table shows the City's Fiscal Year Ending June 30, 2017 Annual Required Contribution (ARC) based on a closed, level dollar 30-year amortization of the Unfunded Actuarial Accrued Liability compared to what was reported for Fiscal Years Ending June 30, 2015 and June 30, 2016.

Fiscal Year Ending	June 30, 2015	June 30, 2016	June 30, 2017
Normal Cost at End of Year	$2,741,890	$2,878,985	$3,083,822
Unfunded Actuarial Accrued Liability Amortization	$4,266,314	$4,429,594	$5,013,752
Annual Required Contribution (ARC)	$7,008,204	$7,308,579	$8,097,574

Accounting Information (continued)

Schedule of Amortization Bases

For each year the Annual Required Contribution (ARC) is calculated, a new amortization base is established. The sum of all amortization bases is shown on the preceding page as the Unfunded Actuarial Accrued Liability Amortization. The chart below illustrates the development of the total amortization calculation, when each base was established, the original amount of the base, and the payment associated with each year for the current fiscal year.

Original Amount	Year Established	Years Left	Unamortized Amount	BOY Annual Payment
$71,673,579	7/1/2007	21	$59,778,226	$4,440,447
$5,429,000	7/1/2008	22	$4,648,702	$336,347
$5,641,915	7/1/2009	23	$4,950,506	$349,538
($14,580,963)	7/1/2010	24	($13,088,186)	($903,345)
$3,073,802	7/1/2011	25	$2,818,158	$190,434
$8,144,538	7/1/2012	26	$7,616,173	$504,585
$2,049,122	7/1/2013	27	$1,951,892	$126,950
($15,847,296)	7/1/2014	28	($15,358,320)	($981,799)
$2,510,013	7/1/2015	29	$2,472,233	$155,504
$8,979,945	7/1/2016	30	$8,979,945	$556,341
Total			**$64,769,329**	**$4,775,002**

Calculation of 2016 Amortization Base	
Prior Year Contribution Deficiency	$2,058,722
Prior Year AOC Adjustment	$426,069
Asset (Gain) / Loss	$218,956
Demographic (Gain) / Loss	($2,531,019)
Per Capita (Gain) / Loss	$3,264,335
Trend and Excise Tax (Gain) / Loss	$6,949,765
Mortality (Gain) / Loss	($1,406,883)
Total	**$8,979,945**

Accounting Information (continued)

Determination of Actuarial (Gain) / Loss

The following chart illustrates the development of the Unfunded Actuarial Liability from July 1, 2014 through July 1, 2016.

			Actuarial Liability
(1)	Liability at 7/1/2014		$60,732,614
(2a)	Service Cost	$2,611,324	
(2b)	Interest Cost	$3,167,197	
(2c)	Benefit Payments	($3,936,887)	
(2d)	Total Increase	$1,841,634	
(3)	Expected Liability at 6/30/2015: (1) + (2d)		$62,574,248
(4a)	Service Cost	$2,741,890	
(4b)	Interest Cost	$3,265,807	
(4c)	Benefit Payments	($3,961,206)	
(4d)	Total Increase	$2,046,491	
(5)	Expected Liability at 6/30/2016: (3) + (4d)		$64,620,739
(6a)	Demographic (Gain) / Loss	($2,531,019)	
(6b)	Per Capita (Gain) / Loss	$3,264,335	
(6c)	Trend and Excise Tax (Gain) / Loss	$6,949,765	
(6d)	Mortality (Gain) / Loss	($1,406,883)	
(6e)	Total (Gain) / Loss	$6,276,198	
(7)	Actual Liability at 7/1/2016: (5) + (6e)		**$70,896,937**

Accounting Information (continued)

Annual OPEB Cost (AOC)

The initial Net OPEB Obligation at July 1, 2007 was $0. Therefore, in Fiscal Year Ending June 30, 2008, or the first year of implementation of GASB 45, there is no adjustment to the Annual Required Contribution (ARC). As the years go forth, any cumulative unpaid ARC will result in an adjustment to the ARC.

Summary of Total Annual OPEB Cost (AOC)

Fiscal Year Ending	June 30, 2015	June 30, 2016	June 30, 2017
Annual Required Contribution (ARC)	$7,008,204	$7,308,579	$8,097,574
Adjustment to Annual Required Contribution			
- Interest on Net OPEB Obligation (NOO)	$1,281,092	$1,415,376	$1,561,441
- Amortization of Net OPEB Obligation (NOO)	($1,666,738)	($1,841,445)	($2,031,480)
Total Annual OPEB Cost (AOC)	$6,622,558	$6,882,510	$7,627,535

Annual OPEB Cost Summary

Fiscal Year Ending	Annual OPEB Cost	Percentage of Annual OPEB Cost Contributed *	Net OPEB Obligation
6/30/2015	$6,622,558	59.4%	$28,307,518
6/30/2016	$6,882,510	57.6%	$31,228,822
6/30/2017	$7,627,535	79.0%	$32,827,399

* Based on projected benefit payments for the June 30, 2017 Fiscal Year.

Accounting Information (continued)

Projected June 30, 2017 Net OPEB Obligation (NOO)

Based on the Annual OPEB Cost developed above, the following is the projected June 30, 2017 Net OPEB Obligation (NOO):

	Total
July 1, 2014 Net OPEB Obligation (NOO)	$25,621,847
Plus: FYE 2015 Annual OPEB Cost (AOC)	$6,622,558
Less: FYE 2015 Actual Contributions	$3,936,887
Equals: Actual June 30, 2015 Net OPEB Obligation (NOO)	$28,307,518
Plus: FYE 2016 Annual OPEB Cost (AOC)	$6,882,510
Less: FYE 2016 Actual Contributions	$3,961,206
Equals: Actual June 30, 2016 Net OPEB Obligation (NOO)	$31,228,822
Plus: FYE 2017 Annual OPEB Cost (AOC)	$7,627,535
*Less: FYE 2017 Estimated Benefit Payments Paid Outside the Trust**	$4,474,886
*Less: FYE 2017 Actual Contributions***	$1,554,072
Equals: Projected June 30, 2017 Net OPEB Obligation (NOO)	$32,827,399

*This does not include any additional contributions made to the trust

**This includes City employer contributions of $1,500,000 and Fire employee contributions of $54,072

Required Supplementary Information

Below is the projected schedule of funding progress:

Valuation Date	**Actuarial Value of Assets (a)**	**Actuarial Accrued Liability - Projected Unit Credit (b)**	**Unfunded Actuarial Accrued Liability (b) - (a)**	**Funded Ratio (a) / (b)**	**Covered Payroll (c)**	**Unfunded Actuarial Accrued Liability as a Percentage of Covered Payroll [(b) - (a)] / (c)**
7/1/2012	$0	$75,051,605	$75,051,605	0%	$88,563,124	84.7%
7/1/2014	$4,439,558	$60,732,614	$56,293,056	7%	$96,520,538	58.3%
7/1/2016	$6,127,608	$70,896,937	$64,769,329	9%	$98,287,369	65.9%

Note: This section will be populated for full valuations only.

Allocation of Liabilities Across Groups

	Groups					
	General City	*Police*	*Fire*	*BOE Certified*	*BOE Non-Certified*	*Grand Total*
Actuarial Accrued Liability						
Actives	20,903,902	8,925,208	7,422,254	713,168	6,089,104	44,053,636
Retirees	8,960,204	6,486,267	1,507,221	5,344,738	4,544,871	26,843,301
- Total	29,864,106	15,411,475	8,929,475	6,057,906	10,633,975	**70,896,937**
Assets	2,735,254	1,772,959	1,619,395	0	0	**6,127,608**
Annual Required Contribution						
Normal Cost (EOY)	1,401,209	680,415	433,417	48,341	520,440	3,083,822
Amort. Of UAAL	2,111,957	1,089,882	631,482	428,408	752,023	5,013,752
- Total	3,513,166	1,770,297	1,064,899	476,749	1,272,463	**8,097,574**
Interest on Net OPEB Obligation (NOO)	677,437	341,363	205,343	91,931	245,367	1,561,441
Amortization of Net OPEB Obligation (NOO)	(881,366)	(444,124)	(267,157)	(119,604)	(319,229)	(2,031,480)
Annual OPEB Cost	3,309,237	1,667,536	1,003,085	449,076	1,198,601	**7,627,535**
Expected Benefit Payments	1,800,143	1,044,789	379,520	262,536	987,898	**4,474,886**

10-Year Payout Projection

Annual payments expected based on assumptions and contributions detailed in the Methods and Assumptions Section.

Fiscal Year Ending	General City	Police	Fire	BOE Certified	BOE Non-Certified	Total
6/30/2017	$1,800,138	$1,044,791	$379,499	$262,545	$987,913	$4,474,886
6/30/2018	$1,895,496	$1,107,295	$380,923	$292,568	$1,036,797	$4,713,079
6/30/2019	$2,015,617	$1,208,260	$433,776	$321,724	$1,000,597	$4,979,974
6/30/2020	$2,105,061	$1,207,468	$483,827	$323,237	$918,211	$5,037,804
6/30/2021	$2,131,820	$1,232,399	$445,383	$347,375	$1,071,370	$5,228,347
6/30/2022	$2,237,045	$1,257,551	$465,835	$365,999	$1,052,669	$5,379,099
6/30/2023	$2,184,373	$1,173,632	$506,283	$371,878	$1,137,173	$5,373,339
6/30/2024	$2,347,775	$1,284,062	$527,771	$385,367	$1,051,021	$5,595,996
6/30/2025	$2,360,091	$1,328,347	$593,473	$408,009	$1,057,228	$5,747,148
6/30/2026	$2,610,334	$1,085,448	$682,468	$434,936	$1,068,100	$5,881,286

10-Year Projection of Annual OPEB Cost (AOC)

Projections assume a closed group population (i.e., no new hires). We also assume pay-as-you-go contributions and a 5.00% annual rate of investment return.

Fiscal Year Ending	Total AOC	Contributions*	Net OPEB Obligation at FYE
6/30/2017	$7,627,535	$6,028,958	$32,827,399
6/30/2018	$7,969,936	$4,713,079	$36,006,552
6/30/2019	$8,328,342	$4,979,974	$39,271,810
6/30/2020	$8,702,609	$5,037,804	$42,847,751
6/30/2021	$9,104,475	$5,228,347	$46,628,893
6/30/2022	$9,529,420	$5,379,099	$50,677,714
6/30/2023	$9,981,243	$5,373,339	$55,177,182
6/30/2024	$10,469,847	$5,595,996	$59,935,216
6/30/2025	$10,986,590	$5,747,148	$65,050,987
6/30/2026	$11,537,235	$5,881,286	$70,574,903

*Contributions are based on expected benefit payments. The contribution for Fiscal Year Ending June 30, 2017 includes the City employer trust contributions of $1,500,000 and Fire employee trust contributions of $54,072. No future trust contributions have been assumed.

The above projection does not take into account the revised accounting rules set by GASB 75.

Demographic Information

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**

Demographic Information (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**

Demographic Information (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.

Summary of Principal 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)

- Board of Education

- 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 a nd 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.
- 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.

Methods and Assumptions

Actuarial Method	Projected Unit Credit Cost 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	5.00% (assuming no prefunding)
Mortality Rates	RP-2014 Headcount-Weighted Combined Healthy Mortality Table projected generationally from the central year using Scale MP-2016

Methods and Assumptions (continued)

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

Males	Years of Service										
Age	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	Years of Service										
Age	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

Methods and Assumptions (continued)

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

	General		BOE- Teachers & BAPS			
			Eligible for Early Retirement		*Eligible for Normal Retirement*	
Age	*Rule of 80*	*Not Yet Attained*	*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%

Methods and Assumptions (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:

Age	*Medical*	*Age*	*Medical*
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%

Methods and Assumptions (continued)

Health Care Cost Trend

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

Year	*Trend*
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.

Methods and Assumptions (continued)

Health Care Reform	Aside from the Excise Tax, other requirements of Health Care Reform, noted below, have been included in the claims development. ▪ 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.
Amortization Period	The amortization cost for the initial Unfunded Actuarial Accrued Liability is a level dollar amount for a closed period of 30 years. In subsequent years, gains or losses will be recognized on a 30 year basis from the appropriate measurement date.
Salary Scale	N/A
Changes since prior Valuation	▪ Mortality table has been updated from RP-2014 Combined Healthy Generational Mortality Table with projection scale MP 2014 to RP-2014 Headcount-Weighted Combined Healthy Mortality Table projected with Scale MP-2016, from the central year. ▪ Health care cost trend rate was revised. ▪ Excise tax impact was revised from 3.27% to 8.81%.

Glossary

Actuarial accrued liability
That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of OPEB plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial assumptions
Assumptions as to the occurrence of future events affecting costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial cost method
A procedure for determining the Actuarial Present Value of OPEB plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

Actuarial experience gain or loss
A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial present value of total projected benefits
Total projected benefits include all benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members) as a result of their service through the valuation date and their expected future service. The actuarial present value of total projected benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment. Expressed another way, it is the amount that would have to be invested on the valuation date so that the amount invested plus investment earnings will provide sufficient assets to pay total projected benefits when due.

Actuarial valuation
The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for an OPEB plan.

Actuarial valuation date
The date as of which an actuarial valuation is performed.

Actuarial value of assets
The value of cash, investments and other property belonging to a plan, as used by the actuary for the purpose of an Actuarial Valuation.

Amortization (of unfunded actuarial accrued liability)
The portion of the OPEB plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability or the Unfunded Frozen Actuarial Accrued Liability.

Glossary (continued)

Annual OPEB cost
An accrual-basis measure of the periodic cost of an employer's participation in a defined benefit OPEB plan.

Annual required contributions of the employer (ARC)
The employer's periodic required contributions to a defined benefit OPEB plan.

Covered Group
Plan members included in an actuarial valuation.

Defined benefit OPEB plan
An OPEB plan having terms that specify the benefits to be provided at or after separation from employment. The benefits may be specified in dollars (for example, a flat dollar payment or an amount based on one or more factors such as age, years of service, and compensation), or as a type or level of coverage (for example, prescription drugs or a percentage of health care insurance premiums).

Employer's contributions
Contributions made in relation to the annual required contributions of the employer (ARC). An employer has made a contribution in relation to the ARC if the employer has (a) made payments of benefits directly to or on behalf of a retiree or beneficiary, (b) made premium payments to an insurer, or (c) irrevocably transferred assets to a 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) of plan administrator. Employer's contributions generally *do not equate* to benefits paid.

Funded ratio
The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Funding excess
The excess of the actuarial value of assets over the actuarial accrued liability.

Funding policy
The program for the amounts and timing of contributions to be made by plan members, employer(s), and other contributing entities (for example, state government contributions to a local government plan) to provide the benefits specified by an OPEB plan.

Health care cost trend rate
The rate of change in per capita health claims costs over time as a result of factors such as medical inflation, utilization of health care services, plan design, and technological developments.

Implicit Rate Subsidy
The differential between utilizing a blend of active and non-Medicare retiree experience for cost of benefits, and utilizing solely the expected retiree experience. Blending a lower cost active cohort with retirees' results in an implicit rate subsidy for the retirees of the entire group

Glossary (continued)

Inactives
Certain former employees with a minimum amount of years of creditable service who have left contributions in the state retirement system.

Investment return assumption (discount rate)
The rate used to adjust a series of future payments to reflect the time value of money.

Level percentage of projected payroll amortization method
Amortization payments are calculated so that they are a constant percentage of the projected payroll of active plan members over a given number of years. The dollar amount of the payments generally will increase over time as payroll increases due to inflation; in dollars adjusted for inflation, the payments can be expected to remain level.

Market-related value of plan assets
A term used with reference to the actuarial value of assets. A market related value may be fair value, market value (or estimated market value), or a calculated value that recognizes changes in fair or market value over a period of, for example, three to five years.

Net OPEB obligation
The cumulative difference since the effective date of this Statement between annual OPEB cost and the employer’s contributions to the plan, including the OPEB liability (asset) at transition, if any, and excluding (a) short-term differences and (b) unpaid contributions that have been converted to OPEB-related debt.

Normal cost
That portion of the Actuarial Present Value of OPEB plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method. In GASB 45, the term refers to employer normal cost.

OPEB assets
The amount recognized by an employer for contributions to an OPEB plan greater than OPEB expense.

OPEB expenditures
The amount recognized by an employer in each accounting period for contributions to an OPEB plan on the modified accrual basis of accounting.

OPEB expense
The amount recognized by an employer in each accounting period for contributions to an OPEB plan on the accrual basis of accounting.

OPEB liabilities
The amount recognized by an employer for contributions to an OPEB plan less than OPEB expense/expenditures.

Glossary (continued)

Other postemployment benefits
Postemployment benefits other than pension benefits. Other postemployment benefits (OPEB) include postemployment health care benefits, regardless of the type of plan that provides them, and all postemployment benefits provided separately from a pension plan, excluding benefits defined as termination offers and benefits.

Pay-as-you-go
A method of financing an OPEB plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.

Plan assets
Resources, usually in the form of stocks, bonds, and other classes of investments, that have been segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, (c) assets are legally protected from creditors of the employers or plan administrator, for the payment of benefits in accordance with the terms of the plan.

Plan members
The individuals covered by the terms of an OPEB plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.

Postemployment
The period between termination of employment and retirement as well as the period after retirement.

Postemployment health care benefits
Medical, dental, vision, and other health-related benefits provided to terminated or retired employees and their dependents and beneficiaries.

Postretirement benefit increase
An increase in the benefits of retirees or beneficiaries granted to compensate for the effects of inflation (cost-of-living adjustment) or for other reasons. Ad hoc increases may be granted periodically by a decision of the board of trustees, legislature, or other authoritative body; both the decision to grant an increase and the amount of the increase are discretionary. Automatic increases are periodic increases specified in the terms of the plan; they are nondiscretionary except to the extent that the plan terms can be changed.

Projected unit credit actuarial cost method
A method under which the benefits (projected or unprojected) of each individual included in an Actuarial Valuation are allocated by a consistent formula to valuation years. The Actuarial Present Value of benefits allocated to a valuation year is called the Normal Cost. The Actuarial Present Value of benefits allocated to all periods prior to a valuation year is called the Actuarial Accrued Liability.

Glossary (continued)

Under this method, the Actuarial Gains (losses), as they occur, generally reduce (increase) the Unfunded Actuarial Accrued Liability.

Under this method, benefits are projected to all future points in time under the terms of the Plan and actuarial assumptions (for example, health trends). Retirees are considered to be fully attributed in their benefits. For actives, attribution is to expected retirement age; thus, benefits at each future point in time are allocated to past service based on a prorate of service-to-date over projected service.

Required supplementary information (RSI)
Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Single-employer plan
A plan that covers the current and former employees, including beneficiaries, of only one employer.

Sponsor
The entity that established the plan. The sponsor generally is the employer or one of the employers that participate in the plan to provide benefits for their employees. Sometimes, however, the sponsor establishes the plan for the employees of other entities but does not include its own employees and, therefore, is not a participating employer of that plan. An example is a state government that establishes a plan for the employees of local governments within the state, but the employees of the state government are covered by a different plan.

Substantive plan
The terms of an OPEB plan as understood by the employer(s) and plan members.

Transition year
The fiscal year in which this Statement is first implemented.

Unfunded actuarial accrued liability (unfunded actuarial liability)
The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

About Aon

Aon empowers organizations and individuals to secure a better future through innovative talent, retirement and health solutions. We advise, design and execute a wide range of solutions that enable clients to cultivate talent to drive organizational and personal performance and growth, navigate retirement risk while providing new levels of financial security, and redefine health solutions for greater choice, affordability and wellness. Aon is the global leader in human resource solutions, with over 30,000 professionals in 90 countries serving more than 20,000 clients worldwide. For more information on Aon, please visit www.aonhewitt.com.