



BURLINGTON EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION REPORT

JUNE 30, 2017

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## Executive Summary

	June 30, 2017			June 30, 2016		
	Class A	Class B	Total	Class A	Class B	Total
<b>Number of members</b>						
Active employees	179	666	845	174	680	854
Terminated vested members	15	356	371	15	361	376
Vested in employee contributions only	9	115	124	6	74	80
Retired, disabled and beneficiaries	178	496	674	177	483	660
<b>Total</b>	<b>381</b>	<b>1,633</b>	<b>2,014</b>	<b>372</b>	<b>1,598</b>	<b>1,970</b>
<b>Covered employee payroll</b>	10,903,872	34,746,500	45,650,372	11,016,208	37,091,509	48,107,717
<b>Average plan salary</b>	60,915	52,172	54,024	63,312	54,546	56,332
<b>Actuarial present value of future benefits</b>	134,863,320	161,548,365	296,411,685	N/A	N/A	N/A
<b>Actuarial accrued liability</b>	115,558,431	136,852,540	252,410,971	110,320,376	135,622,903	245,943,279
<b>Plan assets</b>						
Market value of assets	75,014,835	100,456,464	175,471,299	67,913,439	88,875,934	156,789,373
Actuarial value of assets	78,582,438	105,234,035	183,816,473	76,124,499	99,621,460	175,745,959
<b>Unfunded accrued liability</b>	36,975,993	31,618,505	68,594,498	34,195,877	36,001,443	70,197,320
<b>Funded ratio</b>	68.0%	76.9%	72.8%	69.0%	73.5%	71.5%
<b>Actuarially determined employer contribution (ADEC)</b>						
Fiscal year ending	2019	2019	2019	2018	2018	2018
ADEC	4,805,619	5,378,047	10,183,666	4,355,137	5,621,518	9,976,655



## Valuation Results and Highlights

### Purpose of the Valuation

The purpose of the valuation is to develop the Actuarially Determined Employer Contribution (ADEC).

The ultimate cost of a pension plan is based primarily on the level of benefits promised by the plan. The pension fund's investment earnings serve to reduce the cost of plan benefits and expenses. Thus,

$$\text{Ultimate cost} = \text{Benefits Paid} + \text{Expenses Incurred} - \text{Investment Return} - \text{Employee Contributions}$$

The actuarial cost method distributes this ultimate cost over the working lifetime of current plan participants. By means of this budgeting process, costs are allocated to both past and future years, and a cost is assigned to the current year. The current year's allocated cost, or normal cost, is the building block upon which the actuarially determined employer contribution is developed. The June 30, 2017 valuation produces the contribution for the fiscal year ending 2019.

### Information Available in the Valuation Report

The Executive Summary is intended to emphasize the notable results of the valuation from the perspective of the Plan Sponsor. Supporting technical detail is documented in Results of the Valuation, Supporting Exhibits and Description of Actuarial Methods and Assumptions. A concise summary of the principal provisions of the Plan is outlined in Summary of Plan Provisions.

### Changes Reflected in the Valuation

There were some changes to the vesting provisions for certain groups. The impact of these changes was an increase in unfunded liability and ADEC of approximately \$335,000 and \$145,000, respectively. Please see the Summary of Plan Provisions section for more details.

### Cash Contribution for Fiscal Year Ending 2019

	Class A	Class B
Normal Contribution Rate	10.7%	6.0%
Past Service Contribution	\$3,561,498	\$3,116,784

The City cost is:	2019 Fiscal Year
Class A	\$4,805,619
Class B	5,378,047
Total	<u>\$10,183,666</u>

### Liability Experience During Period Under Review

The plan experienced a net actuarial gain on liabilities of approximately \$4,721,000 since the prior valuation. There were a number of data adjustments made since the prior valuation, which lead to a gain of approximately \$4,626,000 in liabilities. The balance of the liability gain is due mainly to the combined gains from mortality, retirements, turnover, and salary increases. Please see page 10 for additional details.



### Asset Experience During Period Under Review

	2017 Fiscal Year
Market Value Basis	14.1%
Actuarial Value Basis	6.5%

The Actuarial Value of assets, rather than the Market Value, is used to determine plan contributions. The Actuarial Value spreads the asset volatility over 10 years, thereby smoothing out fluctuations that are inherent in the Market Value.

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## Certification

This report presents the results of the June 30, 2017 Actuarial Valuation for Burlington Employees' Retirement System (the Plan) for the purpose of estimating the funded status of the Plan and determining the Actuarially Determined Employer Contribution (ADEC) for the fiscal year ending June 30, 2019. This report may not be appropriate for any other purpose.

The valuation has been performed in accordance with generally accepted actuarial principles and practices. It is intended to comply with all applicable Actuarial Standards of Practice.

As required under Part II, Section 24-61 of the Burlington Code of Ordinances, experience studies are performed at least once in every five-year period. This report contains the full set of assumptions and methods used in the current valuation. The assumptions were based on a recent experience study covering the period July 1, 2007 to June 30, 2012. The assumptions were adopted by the Board on the basis of the study.

In preparing this valuation, I have relied on employee data provided by the Plan Sponsor, and on asset and contribution information provided by the Trustee. I have audited neither the employee data nor the financial information, although I have reviewed them for reasonableness.

The results in this valuation report are based on the Plan as summarized in the *Summary of Plan Provisions* section of this report and the actuarial assumptions and methods detailed in the *Description of Actuarial Methods and Assumptions* section of this report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes 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 or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed.

I have no relationship with the employer or the Plan that would impair, or appear to impair, my objectivity in performing the work presented in this report. I am a member of the American Academy of Actuaries and meet its Qualification Standards to render the actuarial opinion contained herein.

Steve A. Lemanski, FSA, FCA, MAAA  
Enrolled Actuary 17-05506

May 23, 2018

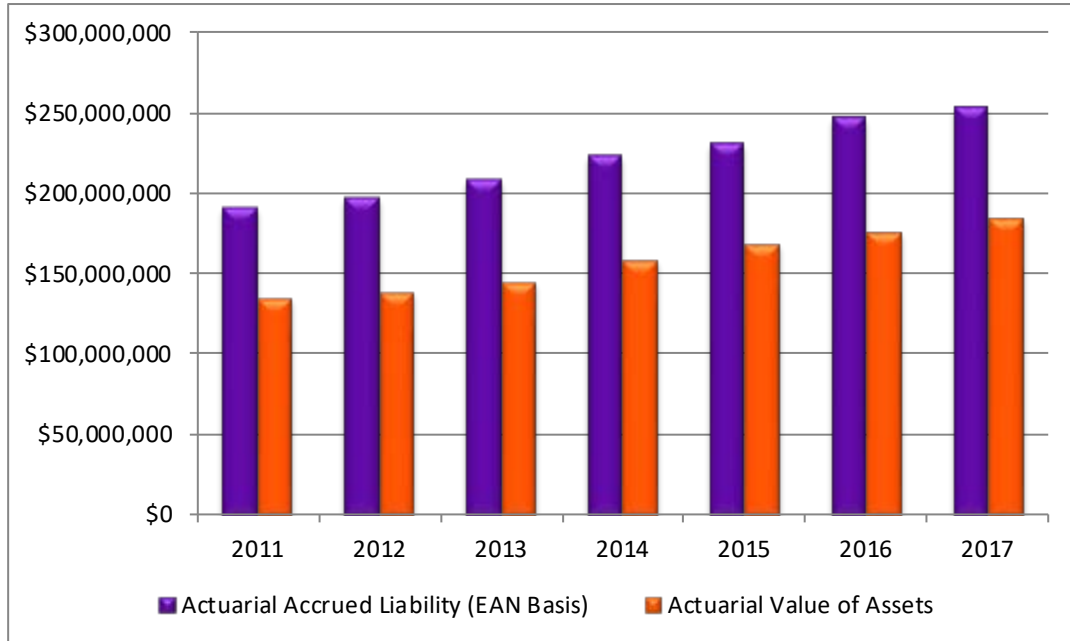


## Development of Unfunded Accrued Liability and Funded Ratio

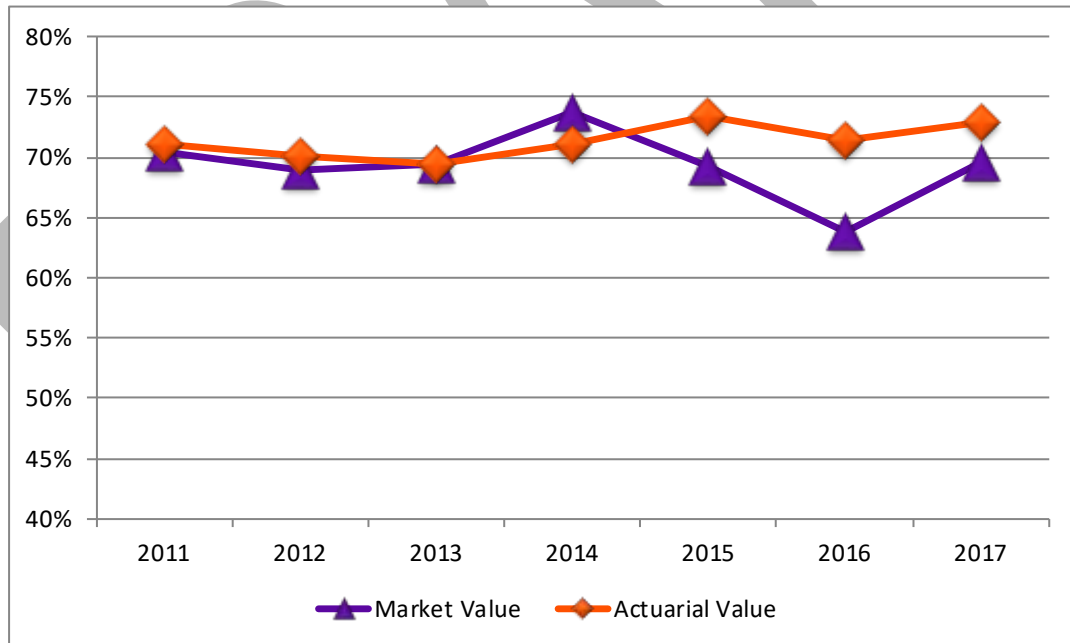
	June 30, 2017			June 30, 2016		
	Class A	Class B	Total	Class A	Class B	Total
Actuarial accrued liability for inactive members						
Retired, disabled and beneficiaries	\$79,082,146	\$73,672,702	\$152,754,848	N/A	N/A	N/A
Terminated vested members	939,222	7,198,353	8,137,575	N/A	N/A	N/A
Due refund of employee contributions only	100,380	285,830	386,210	N/A	N/A	N/A
Total	80,121,748	81,156,885	161,278,633	\$78,076,884	\$80,219,891	\$158,296,775
Actuarial accrued liability for active employees	35,436,683	55,695,655	91,132,338	32,243,492	55,403,012	87,646,504
Total actuarial accrued liability	115,558,431	136,852,540	252,410,971	110,320,376	135,622,903	245,943,279
Actuarial value of assets	78,582,438	105,234,035	183,816,473	76,124,499	99,621,460	175,745,959
Unfunded accrued liability	36,975,993	31,618,505	68,594,498	34,195,877	36,001,443	70,197,320
Funded ratio	68.0%	76.9%	72.8%	69.0%	73.5%	71.5%



### Actuarial Accrued Liability vs. Actuarial Value of Assets



### Funded Ratio





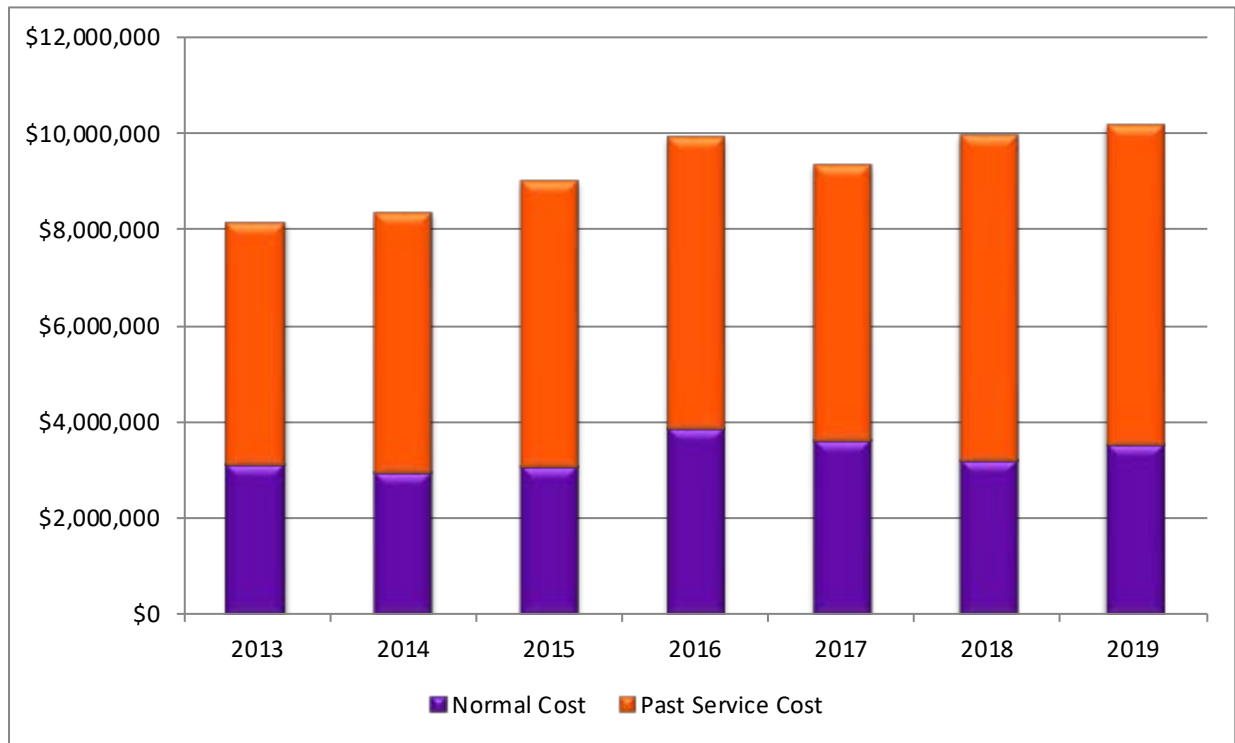


## Determination of Normal Cost and Actuarially Determined Employer Contribution

	June 30, 2017		June 30, 2016	
	Cost	Percent of payroll	Cost	Percent of payroll
Gross normal cost	\$6,200,159	13.1%	N/A	N/A
Estimated employee contributions	(2,813,315)	-5.9%	N/A	N/A
City's normal cost	3,386,844	7.1%	3,054,953	5.9%
Amortization of unfunded accrued liability	6,678,282	14.1%	6,814,779	13.2%
Contribution before adjustment as of the valuation date	10,065,126	21.2%	9,869,732	19.1%
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	47,419,400		51,795,700	
Fiscal year ending	2019		2018	
Adjustment for interest and inflation	118,540		106,923	
Actuarially determined employer contribution	10,183,666		9,976,655	

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### Actuarially Determined Employer Contribution



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### Actuarially Determined Employer Contribution per Group

	Class A	Class B BED	Class B School	Class B Other	Class B	Total
Gross normal cost	\$2,435,453	\$798,644	\$936,366	\$2,029,696	\$3,764,706	\$6,200,159
Estimated employee contributions	<u>(1,233,404)</u>	<u>(407,016)</u>	<u>(321,304)</u>	<u>(851,591)</u>	<u>(1,579,911)</u>	<u>(2,813,315)</u>
City's normal cost	1,202,049	391,628	615,062	1,178,105	2,184,795	3,386,844
Actuarial accrued liability	115,558,431	46,911,562	24,744,888	65,196,090	136,852,540	252,410,971
Actuarial value of assets	<u>78,582,438</u>	<u>36,073,082</u>	<u>19,027,812</u>	<u>50,133,141</u>	<u>105,234,035</u>	<u>183,816,473</u>
Unfunded accrued liability	36,975,993	10,838,480	5,717,076	15,062,949	31,618,505	68,594,498
Amortization of unfunded accrued liability	3,561,498	1,068,400	563,559	1,484,825	3,116,784	6,678,282
Contribution before adjustment as of the valuation date	4,763,547	1,460,028	1,178,621	2,662,930	5,301,579	10,065,126
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	11,212,762	8,274,687	7,651,713	20,280,238	36,206,638	47,419,400
City's normal cost as a percentage of payroll	10.7%	4.7%	8.0%	5.8%	6.0%	6.6%
Contribution as a percentage of payroll	42.5%	17.6%	15.4%	13.1%	14.6%	20.6%
Fiscal year ending June 30, 2019						
Adjustment for interest and inflation	<u>42,072</u>	<u>13,708</u>	<u>21,527</u>	<u>41,233</u>	<u>76,468</u>	<u>118,540</u>
Actuarially determined employer contribution	4,805,619	1,473,736	1,200,148	2,704,163	5,378,047	10,183,666



## Determination of Actuarial Gain/Loss

The Actuarial Gain/Loss is the difference between the expected unfunded accrued liability and the actual unfunded accrued liability, without regard to any changes in actuarial methods, actuarial assumptions or plan provisions. This can also be referred to an Experience Gain/Loss, since it reflects the difference between what was expected and what was actually experienced.

<b>Actuarial Gain / Loss</b>	
<b>Expected unfunded accrued liability June 30, 2017</b>	
Expected unfunded accrued liability June 30, 2017	
Unfunded accrued liability June 30, 2016	70,197,320
Gross normal cost June 30, 2016*	6,038,315
City and employee contributions for 2016-2017	(11,931,921)
Interest at 8.00% to June 30, 2017	<u>5,637,290</u>
Expected unfunded accrued liability June 30, 2017	69,941,004
<b>Actuarial (gain) / loss June 30, 2017</b>	<u>(1,680,991)</u>
<b>Actual unfunded accrued liability June 30, 2017, prior to plan provision, assumption and method changes</b>	68,260,013
<b>Sources of (gain) / loss</b>	
Assets	3,041,000
Salary increases	(43,000)
Retiree mortality	(252,000)
Turnover, disability and retirements	(521,000)
New entrants	78,000
Data adjustments	(4,626,000)
Other experience	<u>642,000</u>
Total (gain) / loss (rounded to nearest \$1,000)	(1,681,000)
<b>Plan provision changes since prior valuation</b>	<u>334,485</u>
<b>Actual unfunded accrued liability June 30, 2017, after plan provision, assumption and method changes</b>	68,594,498

*\*This amount was developed from H&H's liability match of the prior actuary because it was not shown in the prior valuation report.*

## Development of Asset Values

Summary of Fund Activity		
	Market Value	Actuarial Value
<b>1. Beginning value of assets June 30, 2016</b>		
Trust assets	\$156,789,373	\$175,745,959
<b>2. Contributions</b>		
City contributions during year	9,219,098	9,219,098
Employee contributions during year	2,712,823	2,712,823
Total for plan year	11,931,921	11,931,921
<b>3. Disbursements</b>		
Benefit payments during year	14,770,644	14,770,644
Administrative expenses during year	361,811	361,811
Total for plan year	15,132,455	15,132,455
<b>4. Net investment return</b>		
Interest and dividends	2,577,351	N/A
Realized and unrealized gain / (loss)	19,581,122	N/A
Expected return	N/A	12,419,344
Recognized gain / (loss)	N/A	(1,148,296)
Required adjustment due to corridor	N/A	0
Reversal of prior year required adjustment	N/A	0
Investment-related expenses	(276,013)	N/A
Total for plan year	21,882,460	11,271,048
<b>5. Ending value of assets June 30, 2017</b>		
Trust assets: (1) + (2) - (3) + (4)	175,471,299	183,816,473
<b>6. Approximate rate of return</b>	14.1%	6.5%



### Relationship of Actuarial Value to Market Value

1. Market value 6/30/2017	\$175,471,299
2. Gain / (loss) not recognized in actuarial value 6/30/2017	<u>(8,345,174)</u>
3. Preliminary actuarial value 6/30/2017: (1) - (2)	183,816,473
4. Preliminary actuarial value as a percentage of market value: (3) ÷ (1)	104.8%
5. Gain / (loss) recognized for corridor minimum / maximum	N/A
6. Actuarial value 6/30/2017 after corridor minimum / maximum: (3) + (5)	183,816,473
7. Actuarial value as a percentage of market value: (6) ÷ (1)	104.8%

### Development of Market Value Gain / Loss for 2016-2017 Plan Year

1. Market value 6/30/2016	\$156,789,373
2. City contributions	9,219,098
3. Employee contributions	2,712,823
4. Benefit payments	14,770,644
5. Administrative expenses	361,811
6. Expected return at 8.00%	<u>12,419,344</u>
7. Expected value 6/30/2017: (1) + (2) + (3) - (4) - (5) + (6)	166,008,183
8. Market value 6/30/2017	<u>175,471,299</u>
9. Market value gain / (loss) for 2016-2017 plan year: (8) - (7)	9,463,116

### Recognition of Gain / Loss in Actuarial Value

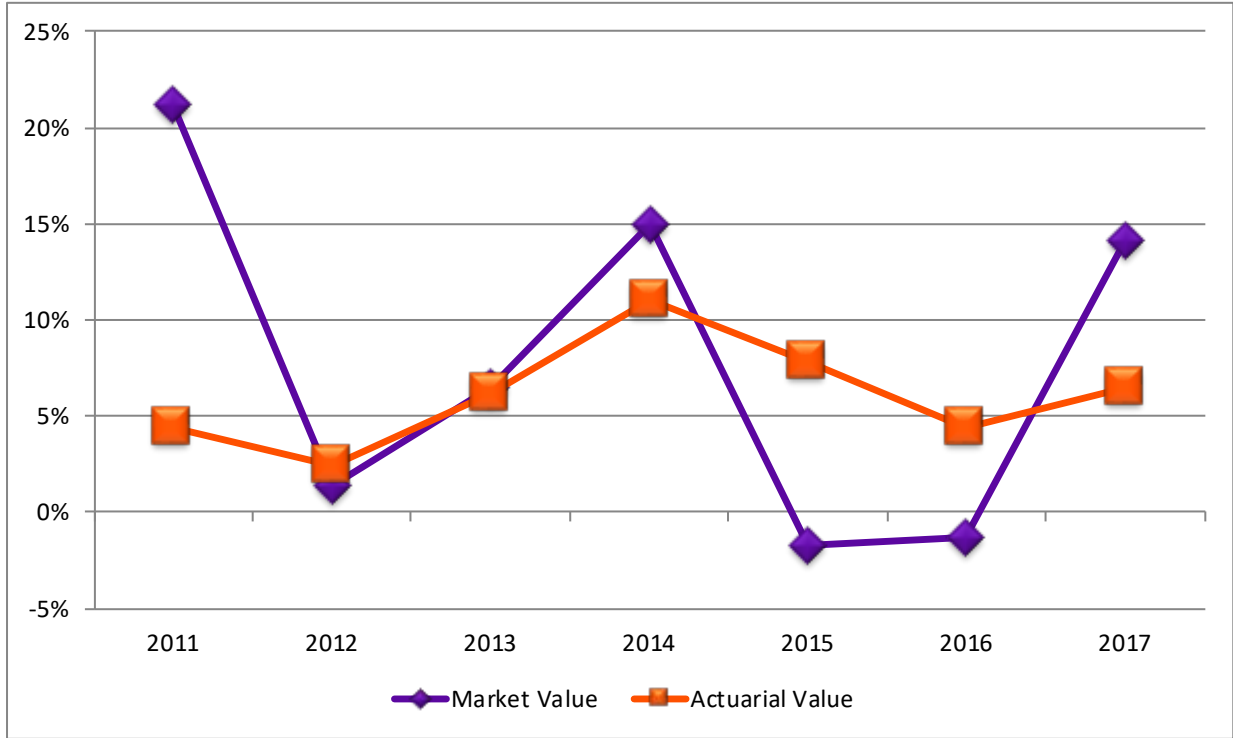
Year	(a) Gain / (loss)	(b) Total recognized as of 6/30/2016	(c) Recognized in current year: 10% of (a)	(d) Total recognized as of 6/30/2017: (b) + (c)	(e) Not recognized as of 6/30/2017: (a) - (d)
2012-2013	(\$498,233)	(\$199,293)	(\$49,823)	(\$249,116)	(\$249,117)
2013-2014	8,081,381	2,424,414	808,138	3,232,552	4,848,829
2014-2015	(13,616,950)	(2,723,390)	(1,361,695)	(4,085,085)	(9,531,865)
2015-2016	(14,912,281)	(1,491,228)	(1,491,228)	(2,982,456)	(11,929,825)
2016-2017	9,463,116	0	<u>946,312</u>	946,312	<u>8,516,804</u>
Total			(1,148,296)		(8,345,174)

Rate of Return on Market Value of Assets				
Period Ending June 30	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
2008	-7.3%	6.2%	N/A	N/A
2009	-19.6%	-4.4%	0.6%	N/A
2010	18.6%	-4.0%	2.7%	N/A
2011	21.2%	4.9%	4.7%	N/A
2012	1.4%	13.4%	1.7%	N/A
2013	6.5%	9.4%	4.5%	N/A
2014	15.0%	7.5%	12.3%	6.3%
2015	-1.7%	6.4%	8.2%	5.4%
2016	-1.3%	3.7%	3.8%	4.2%
2017	14.1%	3.4%	6.3%	3.9%

Rate of Return on Actuarial Value of Assets				
Period Ending June 30	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
2008	7.7%	7.5%	N/A	N/A
2009	0.9%	6.2%	4.6%	N/A
2010	1.2%	3.2%	4.9%	N/A
2011	4.4%	2.2%	4.8%	N/A
2012	2.4%	2.7%	3.3%	N/A
2013	6.2%	4.3%	3.0%	N/A
2014	11.0%	6.5%	5.0%	4.8%
2015	7.8%	8.3%	6.3%	5.6%
2016	4.4%	7.7%	6.3%	5.6%
2017	6.5%	6.2%	7.2%	5.2%



### Actual Rate of Return on Assets



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## Amortization of Unfunded Liability

Schedule of Amortization Bases - Total					
	Date established	Original amount	Amortization installment	Years remaining	Present value of remaining installments as of June 30, 2017
Initial base	June 30, 2004	\$10,020,499	\$905,446	17	\$8,485,735
2005 base	June 30, 2005	13,325,808	1,287,027	18	12,360,092
2006 base	June 30, 2006	7,669,440	736,717	19	7,233,195
2007 base	June 30, 2007	(2,444,427)	(234,503)	20	(2,348,965)
2008 base	June 30, 2008	(2,492,739)	(239,137)	21	(2,439,383)
2009 base	June 30, 2009	12,784,050	1,226,421	22	12,719,278
2010 base	June 30, 2010	8,547,645	820,006	23	8,633,648
2011 base	June 30, 2011	6,255,018	590,385	24	6,302,221
2012 base	June 30, 2012	3,602,242	345,576	25	3,735,671
2013 base	June 30, 2013	5,490,961	517,174	26	5,655,387
2014 base	June 30, 2014	1,295,623	124,293	27	1,373,582
2015 base	June 30, 2015	(2,956,424)	(283,620)	28	(3,164,753)
2016 base	June 30, 2016	10,621,866	1,018,994	29	11,471,615
2017 base	June 30, 2017	(1,422,825)	(136,497)	30	(1,422,825)
<b>Total</b>			6,678,282		68,594,498



Schedule of Amortization Bases - Class A					
	Date established	Original amount	Amortization installment	Years remaining	Present value of remaining installments as of June 30, 2017
Initial base	June 30, 2004	\$3,698,048	\$333,297	17	\$3,123,623
2005 base	June 30, 2005	6,655,535	638,489	18	6,131,797
2006 base	June 30, 2006	2,588,959	248,369	19	2,438,519
2007 base	June 30, 2007	(1,715,997)	(164,622)	20	(1,648,982)
2008 base	June 30, 2008	713,490	68,448	21	698,216
2009 base	June 30, 2009	3,308,275	317,375	22	3,291,512
2010 base	June 30, 2010	3,969,991	380,855	23	4,009,935
2011 base	June 30, 2011	3,564,353	337,420	24	3,601,877
2012 base	June 30, 2012	2,191,929	210,279	25	2,273,118
2013 base	June 30, 2013	2,337,776	214,678	26	2,347,539
2014 base	June 30, 2014	2,892,368	277,475	27	3,066,403
2015 base	June 30, 2015	(50,538)	(4,848)	28	(54,099)
2016 base	June 30, 2016	4,439,699	425,916	29	4,794,875
2017 base	June 30, 2017	2,901,660	278,367	30	2,901,660
<b>Total</b>			3,561,498		36,975,993



Schedule of Amortization Bases - Class B					
	Date established	Original amount	Amortization installment	Years remaining	Present value of remaining installments as of June 30, 2017
Initial base	June 30, 2004	\$6,322,451	\$572,149	17	\$5,362,112
2005 base	June 30, 2005	6,670,273	648,538	18	6,228,295
2006 base	June 30, 2006	5,080,481	488,348	19	4,794,676
2007 base	June 30, 2007	(728,430)	(69,881)	20	(699,983)
2008 base	June 30, 2008	(3,206,229)	(307,585)	21	(3,137,599)
2009 base	June 30, 2009	9,475,775	909,046	22	9,427,766
2010 base	June 30, 2010	4,577,654	439,151	23	4,623,713
2011 base	June 30, 2011	2,690,665	252,965	24	2,700,344
2012 base	June 30, 2012	1,410,313	135,297	25	1,462,553
2013 base	June 30, 2013	3,153,185	302,496	26	3,307,848
2014 base	June 30, 2014	(1,596,745)	(153,182)	27	(1,692,821)
2015 base	June 30, 2015	(2,905,886)	(278,772)	28	(3,110,654)
2016 base	June 30, 2016	6,182,167	593,078	29	6,676,740
2017 base	June 30, 2017	(4,324,485)	(414,864)	30	(4,324,485)
<b>Total</b>			3,116,784		31,618,505



## Member Data

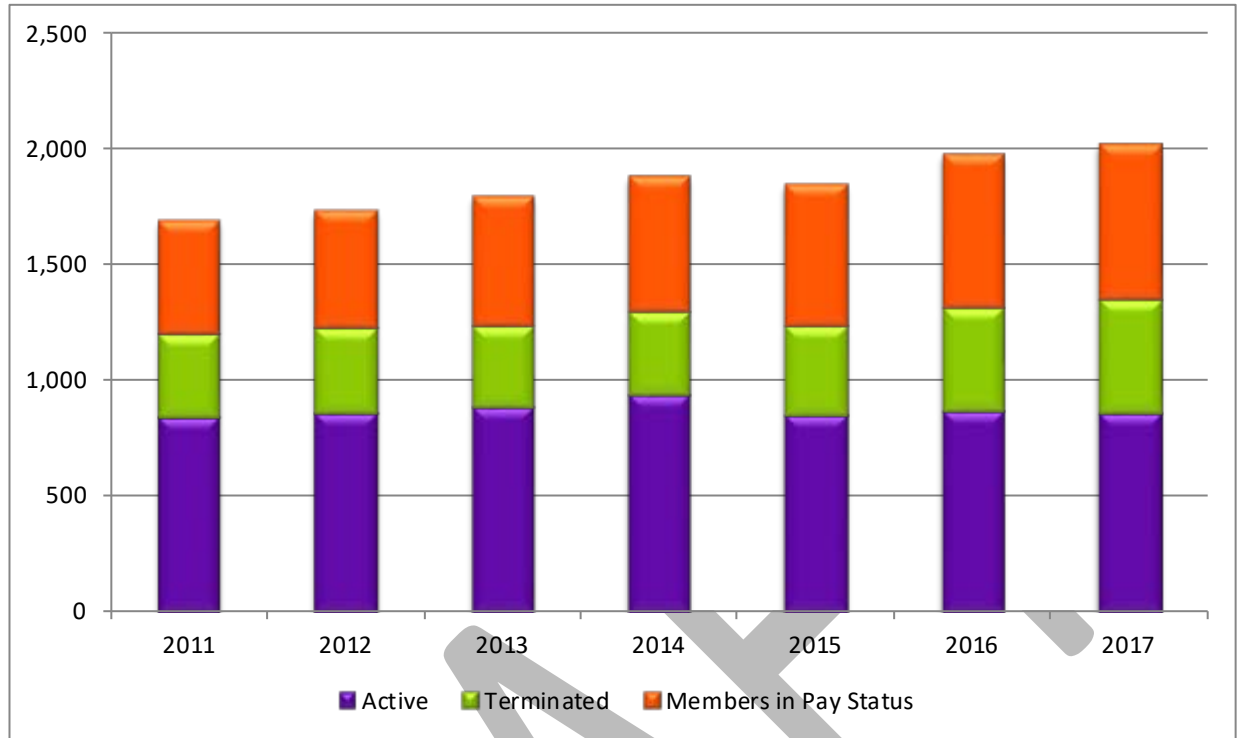
The data reported by the Plan Sponsor for this valuation includes 845 active employees who met the Plan's minimum age and service requirements as of June 30, 2017.

Member Data					
	Active	Terminated vested	Due refund of contributions	Members in pay status	Total
<b>Total members June 30, 2016</b>	854	376	80	660	1,970
Adjustments	-3	-9	+8	-1	-5
Retirements	-18	-9	N/A	+27	0
Disabilities	-2	+1	N/A	+1	0
Terminations					
Vested	-19	+19	N/A	N/A	0
Lump sum payments	-14	-3	0	N/A	-17
Due contributions only	-36	N/A	+36	N/A	0
Deaths					
With death benefit	-3	-1	0	-4	-8
Without death benefit	0	0	0	-17	-17
Transfers	0	0	0	N/A	0
Rehires	+3	-3	0	N/A	0
New beneficiaries	N/A	N/A	N/A	+8	+8
New entrants	+83	N/A	0	N/A	+83
<b>Total members June 30, 2017</b>	845	371	124	674	2,014





### Member Counts by Status



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<b>Member Data</b>				
	<b>Active</b>	<b>Terminated vested</b>	<b>Due refund of contributions</b>	<b>Members in pay status</b>
<b>Average age</b>				
June 30, 2016	45.4	52.8	37.2	68.0
June 30, 2017	45.3	53.8	37.7	68.5
<b>Average service</b>				
June 30, 2016	10.3	N/A	N/A	N/A
June 30, 2017	10.4	N/A	N/A	N/A
<b>Covered employee payroll</b>				
June 30, 2016	\$48,107,717	N/A	N/A	N/A
June 30, 2017	45,650,372	N/A	N/A	N/A
<b>Total annual benefits</b>				
June 30, 2016	N/A	N/A	N/A	\$14,499,003
June 30, 2017	N/A	1,792,334	N/A	14,944,747

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Member Data - Class A					
	Active	Terminated vested	Due refund of contributions	Members in pay status	Total
<b>Total members June 30, 2016</b>	174	15	6	177	372
Adjustments	0	0	0	0	0
Retirements	-4	0	N/A	+4	0
Disabilities	-1	0	N/A	+1	0
Terminations					
Vested	-1	+1	N/A	N/A	0
Lump sum payments	-3	0	0	N/A	-3
Due contributions only	-3	N/A	+3	N/A	0
Deaths					
With death benefit	0	0	0	-1	-1
Without death benefit	0	0	0	-4	-4
Transfers	+3	0	0	N/A	+3
Rehires	+1	-1	0	N/A	0
New beneficiaries	N/A	N/A	N/A	+1	+1
New entrants	+13	N/A	0	N/A	+13
<b>Total members June 30, 2017</b>	179	15	9	178	381





<b>Member Data - Class B</b>					
	<b>Active</b>	<b>Terminated vested</b>	<b>Due refund of contributions</b>	<b>Members in pay status</b>	<b>Total</b>
<b>Total members June 30, 2016</b>	680	361	74	483	1,598
Adjustments	-3	-9	+8	-1	-5
Retirements	-14	-9	N/A	+23	0
Disabilities	-1	+1	N/A	0	0
Terminations					
Vested	-18	+18	N/A	N/A	0
Lump sum payments	-11	-3	0	N/A	-14
Due contributions only	-33	N/A	+33	N/A	0
Deaths					
With death benefit	-3	-1	0	-3	-7
Without death benefit	0	0	0	-13	-13
Transfers	-3	0	0	N/A	-3
Rehires	+2	-2	0	N/A	0
New beneficiaries	N/A	N/A	N/A	+7	+7
New entrants	+70	N/A	0	N/A	+70
<b>Total members June 30, 2017</b>	666	356	115	496	1,633





<b>Member Data - Class B - Burlington Electric Department</b>					
	<b>Active</b>	<b>Terminated vested</b>	<b>Due refund of contributions</b>	<b>Members in pay status</b>	<b>Total</b>
<b>Total members June 30, 2016</b>	104	73	1	134	312
Adjustments	-1	-1	+1	0	-1
Retirements	-2	-3	N/A	+5	0
Disabilities	-1	0	N/A	+1	0
Terminations					
Vested	-5	+5	N/A	N/A	0
Lump sum payments	-2	0	0	N/A	-2
Due contributions only	0	N/A	0	N/A	0
Deaths					
With death benefit	0	0	0	0	0
Without death benefit	0	0	0	-4	-4
Transfers	0	0	0	N/A	0
Rehires	0	0	0	N/A	0
New beneficiaries	N/A	N/A	N/A	0	0
New entrants	+4	N/A	0	N/A	+4
<b>Total members June 30, 2017</b>	97	74	2	136	309





<b>Member Data - Class B - Burlington School District</b>					
	<b>Active</b>	<b>Terminated vested</b>	<b>Due refund of contributions</b>	<b>Members in pay status</b>	<b>Total</b>
<b>Total members June 30, 2016</b>	196	77	51	119	443
Adjustments	0	-5	+4	0	-1
Retirements	-5	-1	N/A	+6	0
Disabilities	0	0	N/A	0	0
Terminations					
Vested	-6	+6	N/A	N/A	0
Lump sum payments	0	-1	0	N/A	-1
Due contributions only	-21	N/A	+21	N/A	0
Deaths					
With death benefit	0	0	0	-1	-1
Without death benefit	0	0	0	-4	-4
Transfers	0	0	0	N/A	0
Rehires	+1	-1	0	N/A	0
New beneficiaries	N/A	N/A	N/A	+1	+1
New entrants	+19	N/A	0	N/A	+19
<b>Total members June 30, 2017</b>	184	75	76	121	456





<b>Member Data - Class B - Others</b>					
	<b>Active</b>	<b>Terminated vested</b>	<b>Due refund of contributions</b>	<b>Members in pay status</b>	<b>Total</b>
<b>Total members June 30, 2016</b>	380	211	22	230	843
Adjustments	-2	-3	+3	-1	-3
Retirements	-7	-5	N/A	+12	0
Disabilities	0	+1	N/A	-1	0
Terminations					
Vested	-7	+7	N/A	N/A	0
Lump sum payments	-9	-2	0	N/A	-11
Due contributions only	-12	N/A	+12	N/A	0
Deaths					
With death benefit	-3	-1	0	-2	-6
Without death benefit	0	0	0	-5	-5
Transfers	-3	0	0	N/A	-3
Rehires	+1	-1	0	N/A	0
New beneficiaries	N/A	N/A	N/A	+6	+6
New entrants	+47	N/A	0	N/A	+47
<b>Total members June 30, 2017</b>	385	207	37	239	868





## Description of Actuarial Methods

### Asset Valuation Method

The Actuarial Value of assets used in the development of plan contributions phases in the recognition of differences between the actual return on Market Value and expected return on Market Value over a 10-year period at 10% per year.

### Actuarial Cost Method

Changes in Actuarial Cost Method: None.

Description of Current Actuarial Cost Method: Entry Age Normal (level percentage of salary)

Normal Cost: Under this method, the total normal cost is the sum of amounts necessary to fund each active member's normal retirement benefit if paid annually from entry age to assumed retirement age. Entry age is the age at which the employee would have been first eligible for the plan, if it had always been in effect. The normal cost for each participant is expected to remain a level percentage of the employee's salary. The normal cost for the plan is the difference between the total normal cost for the year and the anticipated member contributions for that year.

Past Service Liability: The present value of future benefits that relates to service before the valuation date is the total past service liability. The unfunded past service liability is the difference between the total past service liability and any assets (including accumulated member contributions).

Unfunded accrued liabilities as of July 1, 2004 were amortized over a closed 30-year period. Future changes in the unfunded accrued liability will be amortized separately, assuming a new 30-year amortization each valuation.

Experience Gains and Losses: All experience gains and losses (the financial effect of the difference between the actual experience during the prior period and the result expected by the actuarial assumptions for that prior period) appear directly in the past service liability and are amortized at the same rate the plan is amortizing the remaining unfunded past service liability.



## Description of Actuarial Assumptions

### Changes in Actuarial Assumptions

There were no changes in assumptions from the prior valuation.

#### Investment rate of return (net of investment-related and administrative expenses)

8.00%

#### Rate of compensation increase (including inflation)

Graded scale (sample rates shown below):

Age	Class A&B
25	8.8%
30	7.0%
35	5.6%
40	4.9%
45	4.6%
50	4.3%
55	4.0%
59	3.9%
60	3.9%
65	3.8%
69	3.8%

For Class A Firemen and Class B AFSCME employees, salary increases rates as described above were reduced by 2% during fiscal year 2015-2016, 1.5% during fiscal 2016-2017, 0.5% during fiscal 2017-2018 and 0.25% during fiscal 2018-2019 to reflect lower short term salary increase per the collective bargaining agreements in place.

The actuarial assumption in regards to rate of compensation increases shown above are based on the results of an actuarial experience study for the period July 1, 2007 through June 30, 2012.

#### Inflation

3.00%.

This assumption is based on long term historical inflation numbers. While near term averages have been lower, we do not believe this trend will continue indefinitely and expect that there will be a reversion to the long-term average.

#### Mortality

105% of the probabilities in the RP-2000 Mortality Table with separate male and female rates, with no adjustment, combined table for non-annuitants and annuitants, projected to the valuation date with Scale BB.

#### Mortality Improvement

Projected to date of decrement using Scale BB (generational).

This mortality table is commonly used by public pension systems. It is a published pension mortality study released by the Society of Actuaries.



**Retirement age**

Class A	
Age	Rate
45-46	15%
47-48	30%
49-51	5%
52	18%
53-59	20%
60	100%

Class B	
Age	Rate
55-59	5%
60	10%
61	15%
62	20%
63-65	25%
66	20%
67	25%
68	20%
69	25%
70	100%

**Termination prior to retirement**

Class A		Class B		
Sample Rates		Sample Rates		
		Years of Service		
Age	Rate	Age	0-2	3+
20	14.0%	20	27.5%	15.0%
25	7.0%	25	27.5%	15.0%
30	6.0%	30	22.0%	12.0%
35	6.0%	35	22.0%	10.0%
40	5.0%	40	16.5%	4.0%
45	4.0%	45	16.5%	4.0%
50	3.0%	50	16.5%	4.0%
55	0.0%	55	16.5%	4.0%
		60	16.5%	4.0%
		65	16.5%	4.0%
		70	0.0%	0.0%

**Disability**

Class A		Class B	
Age	Rate	Age	Rate
20	2.0%	20	0.08%
25	2.4%	25	0.09%
30	2.9%	30	0.12%
35	3.8%	35	0.14%
40	5.0%	40	0.20%
45	7.4%	45	0.29%
50	12.5%	50	0.49%
55	0.0%	55	0.90%
		60	1.73%
		65	0.00%

The actuarial assumptions in regards to rates of decrement shown above are based on the results of an actuarial experience study for the period July 1, 2007 through June 30, 2012.



### **Administrative expenses**

Currently, there is no expense load assumed for administrative expenses.

### **Cost of living increases**

Cost of living increases averaging 3% per year were assumed. For employees retiring after July 1, 2017, cost of living increases were capped at 2.75%

### **Accrual rate election**

85% of retiring members are assumed to elect the no COLA accrual rate and 15% of retiring members are assumed to elect the full COLA accrual rate.

### **Payroll growth**

3.50% per year.

### **Percent of active employees married**

80%.

### **Spouse's age**

Husbands are assumed to be 3 years older than wives.

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## Summary of Plan Provisions

*This exhibit summarizes the major provisions of the Plan. It is not intended to be, nor should it be interpreted as a complete statement of all plan provisions. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.*

### Effective date

July 1, 1954.

### Average Final Compensation (AFC)

For Class A Police non-union employees, Class A Police employees hired after January 10, 2011, Class A Fire employees hired after October 7, 2011 Class B AFSCME Local 1343 employees hired after June 7, 2011, Class B IBEW Local 300 employees hired after October 30, 2012 or any employees hired on or after January 1, 2018, it is the average earnable compensation during the highest 5 non-overlapping 12-month periods. For all others, it is the average earnable compensation during the highest 3 non-overlapping 12-month periods.

### Membership eligibility

Regular employees of the City of Burlington excluding elective officers other than the mayor and excluding teachers other than certain teachers employed prior to July 1, 1947.

### Membership classification

Class A

Members of the Fire and Police Departments not including clerical employees.

Class B

All other members.

### Service retirement

Eligibility

Class A

For Police employees hired before July 1, 2006, age 42 and 5 years of creditable service. For Police employees hired after January 10, 2011, age 40 and 20 years of creditable service. For other Police Union employees, age 45 and 5 years of creditable service. For Fire employees hired after October 7, 2011, age 45 and 20 years of creditable service. For Fire Union employees hired on or before October 7, 2011, age 45 and 5 years of creditable service. For all others, age 42 and 5 years of creditable service. Compulsory at age 60.

Class B

Age 55 and 5 years of creditable service.





## Service retirement (continued)

### Amount of Benefit

#### Class A

For Fire employees hired before January 1, 2007 and Police employees hired before July 1, 2006, 2.75% of AFC times creditable service not in excess of 25 years plus 0.50% of AFC times creditable service between 25 and 35 years. For Police employees hired after January 10, 2011, 2.50% of AFC times creditable service not in excess of 20 years plus 0.50% of AFC times creditable service between 20 and 25 years. For all others, 2.65% of AFC times creditable service not in excess of 25 years plus 0.50% of AFC times creditable service between 25 and 35 years. Benefit increased by Cost of Living Adjustment detailed below.

In lieu of this benefit, at the time of retirement, a member hired prior to July 1, 2006 may choose either (i) an accrual rate of 3.25% for the first 25 years of creditable service, plus an accrual of 0.50% for creditable service between 25 and 35 years, and a Cost of Living Adjustment equal to one half of the Cost of Living Adjustment detailed below, or (ii) an accrual rate of 3.80% for all years of service prior to June 30, 2006 for the first 25 years, an accrual rate of 3.60% for all years of service commencing July 1, 2006 for the first 25 years, plus an accrual rate of 0.50% for creditable service between 25 and 35 years, and no Cost of Living Adjustment.

A Fire employee hired on or after January 1, 2007 or a Police employee hired on or after July 1, 2006 may only select a benefit with a full Cost of Living Adjustment.

For Police employees hired after January 10, 2011, the above benefits based on AFC and creditable service at retirement are reduced actuarially for the period of time by which retirement precedes age 50.

For all other Police employees, prior to age 55, the above benefit based on AFC and creditable service at retirement is reduced actuarially for the period of time by which retirement precedes the earlier of 25 years of creditable service and age 55. For employees who terminate with 20 to 25 years of creditable service the above benefit based on AFC and creditable service at retirement is reduced by 1.82% for each year that creditable service is less than 25 years.

For Fire employees hired after October 7, 2011, prior to age 55, the above benefit based on AFC and creditable service at retirement is reduced actuarially for the period of time by which retirement precedes the earlier of 25 years of creditable service and age 55. For employees who terminate with 20 to 25 years of creditable service the above benefit based on AFC and creditable service at retirement is reduced by 1.82% for each year that creditable service is less than 25 years.

For Fire employees hired on or before October 7, 2011 who retire on July 1, 2013 or later, the above benefit based on AFC and creditable service at retirement is reduced actuarially for the period of time by which retirement precedes the earlier of 25 years of creditable service and age 55. For employees who terminate with 20 to 25 years of creditable service and have attained age 48, the above benefit based on AFC and creditable service at retirement is reduced by 1.82% for each year that creditable service is less than 25 years. Employees that retire at age 50 with at least 20 years of creditable service receive an unreduced benefit.



## Class B

For employees hired prior to July 1, 2006: Age 65 and older, the greater of (i) 1.60% of AFC (at age 65) times creditable service not in excess of 25 years plus 0.50% of AFC (at age 65) times creditable service in excess of 25 years or (ii) the actuarial equivalent of the benefit determined at age 65. This benefit will be increased by the Cost of Living Adjustment detailed below.

For employees hired on or after July 1, 2006: Age 65 and older, the greater of (i) 1.40% of AFC (at age 65) times creditable service not in excess of 25 years plus 0.50% of AFC (at age 65) times creditable service in excess of 25 years or (ii) the actuarial equivalent of the benefit determined at age 65. This benefit will be increased by the Cost of Living Adjustment detailed below.

In lieu of this benefit, at the time of retirement, a member may choose (i) an accrual rate of 1.90% for all years of service prior to June 30, 2006 for the first 25 years, an accrual rate of 1.80% for all years of service commencing July 1, 2006 for the first 25 years, plus an accrual of 0.50% for creditable service in excess of 25 years, and a Cost of Living Adjustment equal to one-half of the Cost of Living Adjustment detailed below, or (ii) an accrual rate of 2.20% for all years of service prior to June 30, 2006 for the first 25 years, an accrual rate of 2.00% for all years of service commencing July 1, 2006 for the first 25 years, plus an accrual of 0.50% for creditable service in excess of 25 years, and no Cost of Living Adjustment.

Except for employees detailed below, prior to age 65, the above benefit based on AFC and creditable service at retirement reduced by 2% for each year that retirement precedes age 65. For Class B IBEW employees hired before May 1, 2008, who elect a contribution rate of 4% is elected the early reduction factor is 2% for each year the retirement precedes age 65. For Class B IBEW employees hired before May 1, 2008, who elect a contribution rate of 3% the benefit is reduced by a factor which varies with age. The factor equals 1 at 65 and .4 at 50.

For Class B IBEW employees hired after May 4, 2008, the benefit is reduced by a factor which varies by age. The factor equals 1 at 65 but is equal to .356 at age 55.

For Class B AFSCME Local 1343 employees hired before January 1, 2006 that meet the Rule of 82 by December 7, 2011 but retire later than December 7, 2011, the reduction is 4% per year at ages 55 to 59 for each year under age 65, and the standard 2% per year reduction for ages 60 to 65. For other Class B AFSCME Local 1343 employees retiring after December 7, 2011, there will be full actuarial reduction from ages 55 to 59 and the standard 2% per year reduction for ages 60 to 65.

## Cost of Living Adjustment

Benefits increase annually by changes in the Consumer Price Index of more than 1%. For Class A Firemen and Class B AFSCME employees retiring after November 2, 2015, the maximum annual increase is 2.75%. For all other participants, the maximum annual increase is 5%. Increases are not applicable to deferred vested benefit prior to commencement, survivor income benefit, disability benefit prior to normal retirement age or members who choose to have no cost of living adjustment. For all employees retiring after July 1, 2017, the maximum annual increase is 2.75%.

## Service Adjustment

Class A service for calculation of benefits shall be adjusted such that any Class A employee shall be granted 1.07 years of credit for each year in which the employee worked prior to July 1, 1996, and 1.17 years thereafter, in a position regularly assigned a workweek consisting on average of fifty-three or more hours of work per week.



## Disability Retirement

### Eligibility

All Members. Permanently disabled. Class B AFSCME Local 1343 employees must have 2 years of creditable service to be eligible for disabilities that are not work-related. Class A Fire employees hired after October 7, 2011 must have 1 year of creditable service to be eligible for disabilities that are not work-related. All other employees are immediately eligible.

### Amount of Benefit

A benefit payable until normal service retirement eligibility (Class A - age 55 and 5 years of creditable service, Class B - age 65 and 5 years of creditable service). For Class A Fire employees hired after October 7, 2011, it is equal to 66 2/3% of the member's earnable compensation less workmen's compensation. For Class B IBEW employees hired after October 20, 2012, it is equal to 66 2/3% of the member's earnable compensation less workmen's compensation. For Class B AFSCME employees, it is equal to 66 2/3% of the member's earnable compensation less workmen's compensation and Social Security. For all others, it is equal to 75% of the member's earnable compensation less workmen's compensation and, in the case of Class B, less Social Security.

After normal service retirement eligibility, a service retirement benefit based on AFC at retirement and creditable service at normal service retirement eligibility, including the period while permanently disabled and receiving a disability benefit from the System.

## Accidental Death

### Eligibility

Class A only. Death due to accident while in the performance of duty.

### Amount of Benefit

A benefit to the spouse until death or remarriage of the greater of (i) 55% of AFC, and (ii) the participant's current accrued retirement benefit. Upon death or remarriage of the spouse, the benefit will be payable to children until age 21.

## Survivor Income

### Eligibility

All Members. Death in active service.

### Amount of Benefit

#### Class A

30% of compensation during the July preceding death payable to spouse until earlier of death or 2nd anniversary of remarriage. An additional 5% per unmarried child under 21 (maximum additional 10%) is payable until benefits cease or children no longer eligible. If there is no spouse or spouse dies, the benefit is payable to unmarried children under age 21 until earlier of death, marriage or age 21.

#### Class B

30% of compensation during the July preceding death payable to spouse until earlier of death, 2nd anniversary of remarriage or age 62. Upon the spouse's attainment of age 62 (if not remarried) a benefit based on the 50% Joint and Survivor form of payment will be paid to the spouse for life. If there is no spouse or spouse dies, the benefit is payable to unmarried children under age 21 until earlier of death, marriage or age 21.



## Return of Contributions

Accumulated contributions returned upon separation with no vested benefits under the plan or upon death with no accidental death benefit payable. Interest will accrue on these contributions at a rate of 5.5% until December 31, 2017 and 2.0% thereafter, or at a higher rate as may be set by the Retirement Board. Interest will only accrue on contributions made after June 30, 1980.

Upon death of a retired member, the excess of his contribution at retirement over the benefits paid will be paid to his beneficiary or estate.

## Vested Retirement

### Eligibility

5 years of creditable service.

Prior: For Class A Fire and Class B AFSCME employees, 5 years of creditable service unless currently vested. For all others, 3 years of creditable service.

### Vesting percentage.

100% after 5 years.

Prior: For Class A Fire and Class B AFSCME employees, 100% after 5 years, and 0% before that, unless already partially vested as of July 1, 2015 under the prior vesting schedule. For all others, a percentage grading from 20% after completion of 3 years of service to 100% after completion of 7 years of service.

### Amount of Benefit

#### Class A

Vesting percentage times the benefit calculated using AFC and creditable service at termination. The benefit is payable commencing at age 55. Member may elect early receipt with reduction as for service retirement prior to age 55.

#### Class B

Vesting percentage times the benefit calculated using AFC and creditable service at termination. The benefit is payable commencing at age 65. Member may elect early receipt with reduction as for service retirement prior to age 65.

## Survivor Spouse's Pension

### Eligibility

All Members. Death of a terminated member entitled to a vested retirement benefit prior to commencement of such benefit.

### Amount of Benefit

50% of reduced accrued benefit reflecting the 50% Joint and Survivor form of payment (ages as of date payments commence) payable at member's early retirement date.

Spouse may elect to receive payments later than member's early retirement date with no reduction for receipt at member's 65th birthday.

## Offsets on Benefits

Disability and accidental death benefits are offset by workmen's compensation paid for the same disability or death.



## Contributions

### By Members

#### Class A

11.0% of earnable compensation for Class A employees for the first 35 years of creditable service, and none thereafter.

#### Class B

Member contributions for Class B employees, who elected to continue to be eligible for early retirement benefits at 2% per year deduction between ages 55 and 65, in accordance with the 2006-2009 collective bargaining agreement will be 4.8% in fiscal year 2016-2017, and 5.2% beginning with fiscal year 2017-2018. Member contributions for all other Class B employees will be 3.8% in fiscal year 2016-2017, and 4.2% beginning with fiscal year 2017-2018.

### By City

Remainder necessary to fund for the benefits of the System on an actuarial basis. With the exception that if actuarially determined employer contribution exceeds \$9 million for fiscal year 2016-2017, all the employee contributions will automatically increase up to 1% of wages and then re-set at the end of the year. If the actuarially determined employer contribution exceeds \$9 million for fiscal year 2017-2018, the contribution will increase up to 2% and then re-set; further, if those increases are not enough to keep the ADEC at \$9M, the City may reopen the financial components of the Agreement (Backup trigger).