



BURLINGTON EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION REPORT

JUNE 30, 2019



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Table of Contents

Executive Summary	1
Valuation Results and Highlights	2
Purpose of the Valuation	2
Information Available in the Valuation Report.....	2
Changes Reflected in the Valuation.....	2
Cash Contribution for Fiscal Year Ending 2021.....	2
Liability Experience During Period Under Review	2
Asset Experience During Period Under Review	3
Assessment and Measurement of Risks	3
Certification	5
Development of Unfunded Accrued Liability and Funded Ratio.....	6
Determination of Normal Cost and Actuarially Determined Employer Contribution.....	8
Actuarially Determined Employer Contribution per Group	10
Determination of Actuarial Gain/Loss	11
Development of Asset Values.....	12
Amortization of Unfunded Liability	16
Member Data	19
Description of Actuarial Methods	24
Description of Actuarial Assumptions	25
Summary of Plan Provisions	29

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Executive Summary

	June 30, 2019			June 30, 2018		
	Class A	Class B	Total	Class A	Class B	Total
Number of members						
Active employees	184	729	913	187	733	920
Terminated vested members	14	361	375	15	351	366
Vested in employee contributions only	5	109	114	9	119	128
Retired, disabled and beneficiaries	193	573	766	183	530	713
Total	396	1,772	2,168	394	1,733	2,127
Covered employee payroll	11,377,575	37,840,862	49,218,437	11,485,871	37,526,157	49,012,028
Average plan salary	61,835	51,908	53,908	61,422	51,195	53,274
Actuarial present value of future benefits	158,132,024	169,397,695	327,529,719	151,429,831	161,591,547	313,021,378
Actuarial accrued liability	130,767,034	147,384,156	278,151,191	125,118,494	139,577,529	264,696,024
Plan assets						
Market value of assets	82,540,938	112,172,521	194,713,459	80,065,219	108,944,823	189,010,042
Actuarial value of assets	85,845,870	116,663,898	202,509,768	82,027,416	111,614,786	193,642,202
Unfunded accrued liability	44,921,164	30,720,258	75,641,423	43,091,078	27,962,743	71,053,822
Funded ratio	65.6%	79.2%	72.8%	65.6%	80.0%	73.2%
Actuarially determined employer contribution (ADEC)						
Fiscal year ending	2021	2021	2021	2020	2020	2020
ADEC	6,010,579	4,823,642	10,834,221	5,749,338	4,492,027	10,241,365



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, 2019 valuation produces the contribution for the fiscal year ending 2021.

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

The investment rate of return and mortality improvement assumptions were updated. The impact of these changes was an increase in the unfunded accrued liability and ADEC of \$2,148,000 and \$251,000, respectively.

Cash Contribution for Fiscal Year Ending 2021

	Class A	Class B
Normal Contribution Rate	15.1%	4.3%
Past Service Contribution	\$4,153,039	\$3,069,657

The City cost is:	2021 Fiscal Year
Class A	\$6,010,579
Class B	<u>4,823,642</u>
Total	\$10,834,221

Liability Experience During Period Under Review

The plan experienced a net actuarial loss on liabilities of approximately 0.7% of the expected liability since the prior valuation.

There were losses due primarily to the combined impact of inactive mortality and retirement and turnover patterns during the year. These losses were partially offset by gains due to salary and COLA increases that were less than expected.



Asset Experience During Period Under Review

The plan's assets provided the following rates of return during the past fiscal year:

	2019 Fiscal Year
Market Value Basis	5.1%
Actuarial Value Basis	6.6%

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.

Assessment and Measurement of Risks

A new Actuarial Standard of Practice (ASOP 51) requires the actuary to provide certain measures to assess the risk of a pension plan. The funding shortfall of a pension plan can quickly worsen in response to various events, most notably a negative return on assets. Additional pension contributions may be needed at inopportune times for the plan sponsor. In general, a plan sponsor with assets that are much larger than its unfunded pension liabilities will be better able to withstand the contribution increases that result from these events.

Plan Maturity Measurements

	June 30, 2019	June 30, 2018
Actuarial accrued liability for members currently in pay status as a percentage of the total actuarial accrued liability	61.7%	60.4%

- A lower percentage results in greater volatility as the investment return assumption changes.
- A higher percentage results in greater demand on cash due to a proportionately higher percentage of benefits being in pay status.

	June 30, 2019
Duration of benefit payments using an investment rate of return of 7.40%	13.1 years

- A higher duration will occur if the plan's percentage of members in pay status decreases. A plan with a higher duration will have a liability that is more sensitive to changes in the investment return assumption.

	June 30, 2019	June 30, 2018
Ratio of market value of assets to covered payroll	4.0	3.9

- A higher ratio is more typical of relatively mature plans with a larger percentage of inactive members and may cause more potential contribution volatility as pension fund assets fluctuate.



Risks to Assess

Estimated Impact of a 5% Reduction in Market Value of Assets

	Fiscal Year Ending 2021
Increase in actuarially determined employer contribution (ADEC)	87,673
<ul style="list-style-type: none"> Plans would generally be subject to a larger amortization payment if the market value of assets were 5% smaller. As a result, the ADEC would generally be higher for up to 30 years. 	

Due to the asset smoothing method, the ADEC will additionally increase by the same amount in each of the next 10 years. Each of these additional contributions will continue for up to 30 years.

Estimated Impact of a 1 Year Increase in Life Expectancies

	Fiscal Year Ending 2021
Increase in actuarially determined employer contribution (ADEC)	536,490
<ul style="list-style-type: none"> If members live longer than expected, it generally results in larger benefits and/or additional benefit payments made. As a result, the ADEC would generally be higher for up to 30 years. 	

Historical Results

Valuation Year Beginning	Investment Return Assumption	Annual Effective Rate of Return on Market Value of Assets	Market Value of Assets as a % of Actuarial Accrued Liability	Benefit Payments as a % of Market Value of Assets
2019	7.40%	N/A	70.0%	N/A
2018	7.50%	5.1%	71.4%	8.8%
2017	8.00%	9.6%	69.5%	8.9%
2016	8.00%	14.1%	63.8%	9.4%
2015	8.00%	-1.3%	69.3%	8.8%



Certification

This report presents the results of the June 30, 2019 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, 2021. 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. The assumptions in this report were based on a recent experience study covering the period July 1, 2012 to June 30, 2017.

In our opinion, the actuarial assumptions used in this report are reasonably related to the experience of the Plan and to reasonable long-term expectations.

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 20-05506

May 19, 2020

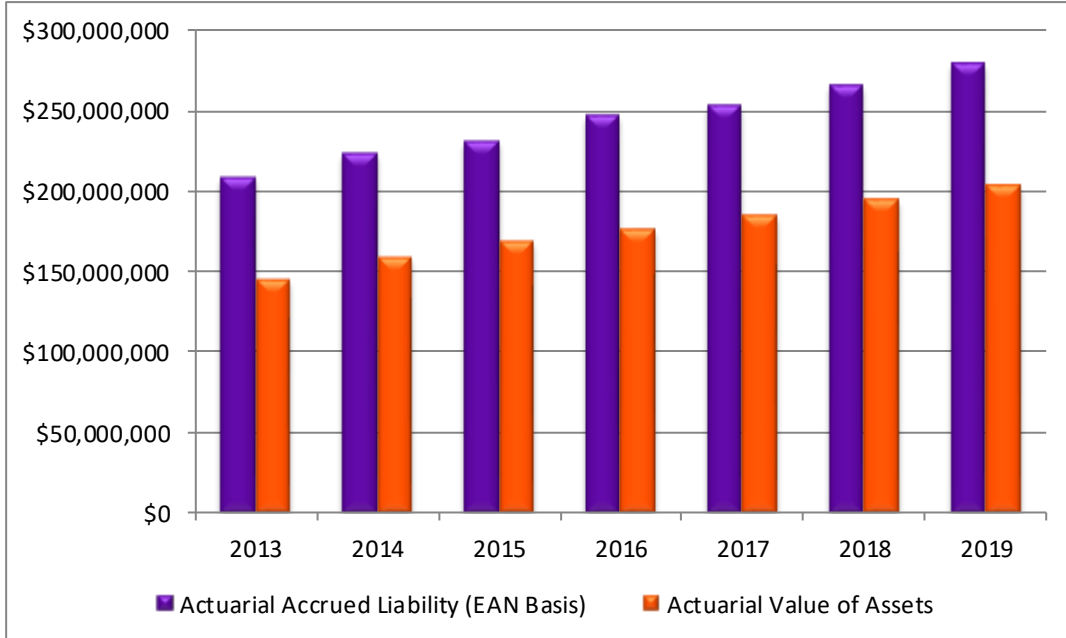


Development of Unfunded Accrued Liability and Funded Ratio

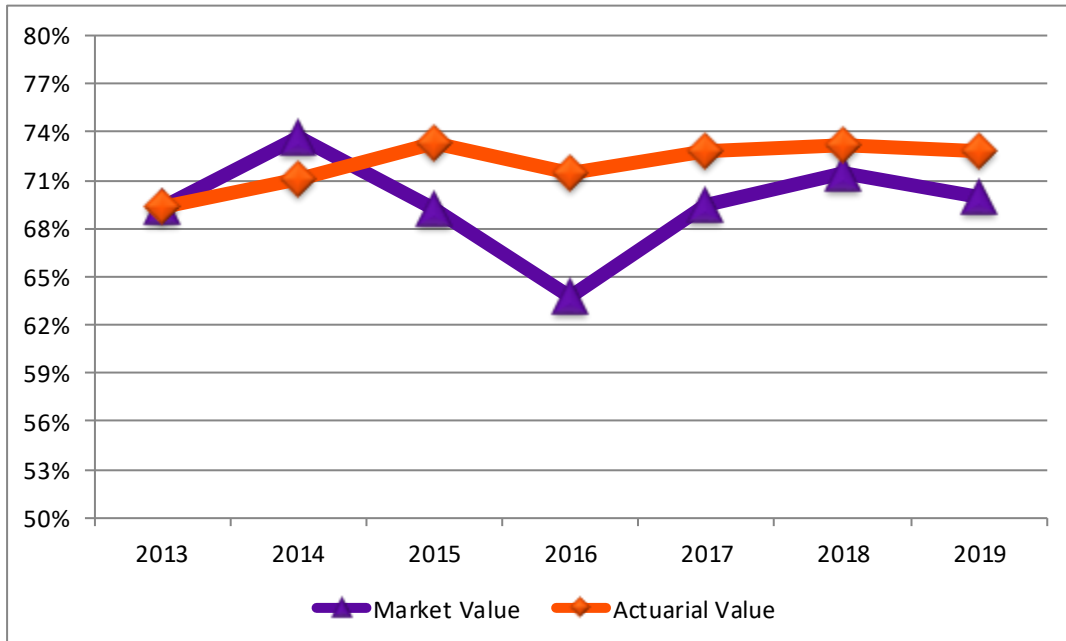
	June 30, 2019			June 30, 2018		
	Class A	Class B	Total	Class A	Class B	Total
Actuarial accrued liability for inactive members						
Retired, disabled and beneficiaries	\$88,055,275	\$83,538,817	\$171,594,093	\$82,618,860	\$77,183,538	\$159,802,399
Terminated vested members	1,066,722	9,074,614	10,141,335	1,079,991	8,216,315	9,296,305
Due refund of employee contributions only	16,545	261,815	278,360	107,573	297,701	405,274
Total	89,138,542	92,875,246	182,013,788	83,806,424	85,697,554	169,503,978
Actuarial accrued liability for active employees	41,628,492	54,508,910	96,137,403	41,312,070	53,879,975	95,192,046
Total actuarial accrued liability	130,767,034	147,384,156	278,151,191	125,118,494	139,577,529	264,696,024
Actuarial value of assets	85,845,870	116,663,898	202,509,768	82,027,416	111,614,786	193,642,202
Unfunded accrued liability	44,921,164	30,720,258	75,641,423	43,091,078	27,962,743	71,053,822
Funded ratio	65.6%	79.2%	72.8%	65.6%	80.0%	73.2%



Actuarial Accrued Liability vs. Actuarial Value of Assets



Funded Ratio



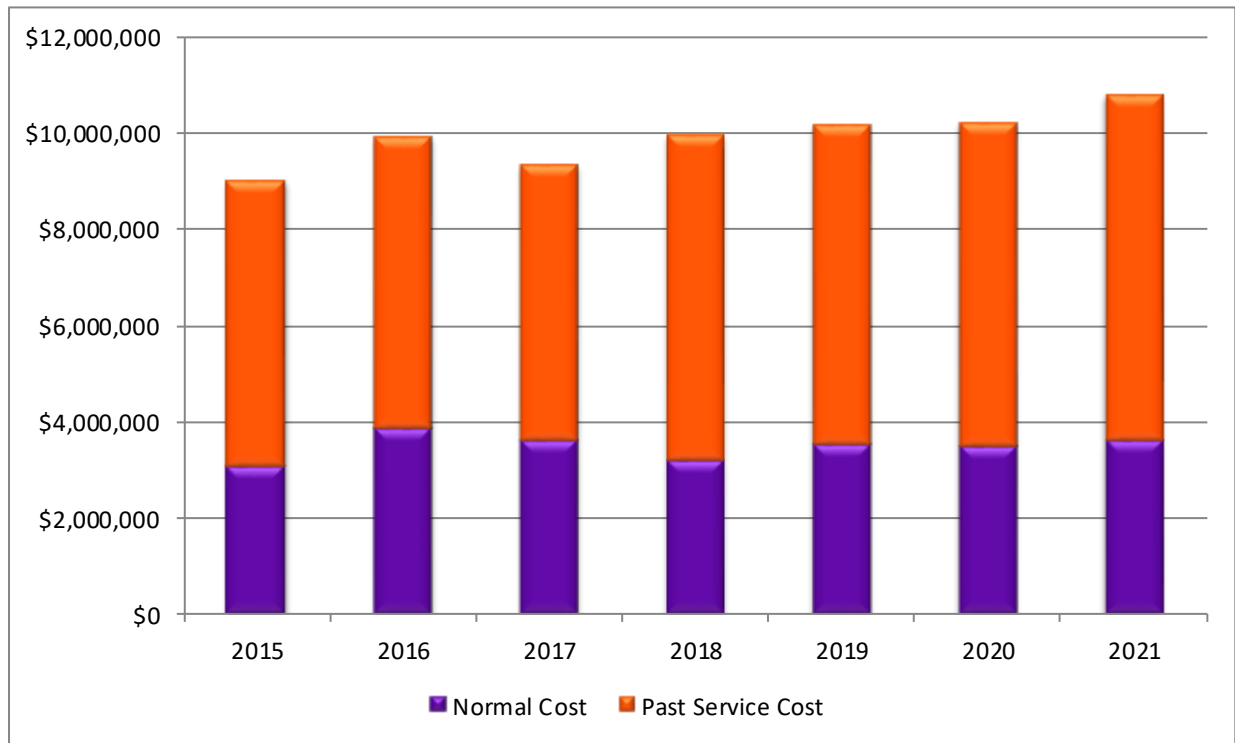


Determination of Normal Cost and Actuarially Determined Employer Contribution

	June 30, 2019		June 30, 2018	
	Cost	Percent of payroll	Cost	Percent of payroll
Gross normal cost	\$6,513,321	12.6%	\$6,374,840	12.4%
Estimated employee contributions	(3,006,986)	-5.8%	(2,999,093)	-5.8%
City's normal cost	3,506,335	6.8%	3,375,747	6.6%
Amortization of unfunded accrued liability	7,222,696	14.0%	6,764,346	13.1%
Contribution before adjustment as of the valuation date	10,729,031	20.8%	10,140,093	19.7%
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	51,602,304		51,383,358	
Fiscal year ending	2021		2020	
Adjustment for interest and inflation	105,190		101,272	
Actuarially determined employer contribution	10,834,221		10,241,365	



Actuarially Determined Employer Contribution





Actuarially Determined Employer Contribution per Group

	Class A	Class B BED	Class B School	Class B Other	Class B	Total
Gross normal cost	\$3,113,588	\$710,614	\$991,329	\$1,697,790	\$3,399,733	\$6,513,321
Estimated employee contributions	(1,310,151)	(407,304)	(398,255)	(891,276)	(1,696,835)	(3,006,986)
City's normal cost	1,803,437	303,310	593,074	806,514	1,702,898	3,506,335
Actuarial accrued liability	130,767,035	50,020,428	27,280,505	70,083,223	147,384,156	278,151,191
Actuarial value of assets	85,845,870	39,594,337	21,594,249	55,475,312	116,663,898	202,509,768
Unfunded accrued liability	44,921,165	10,426,091	5,686,256	14,607,911	30,720,258	75,641,423
Amortization of unfunded accrued liability	4,153,039	1,041,805	568,187	1,459,665	3,069,657	7,222,696
Contribution before adjustment as of the valuation date	5,956,476	1,345,115	1,161,261	2,266,179	4,772,555	10,729,031
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	11,910,459	8,988,708	9,482,263	21,220,874	39,691,845	51,602,304
City's normal cost as a percentage of payroll	15.1%	3.4%	6.3%	3.8%	4.3%	6.8%
Contribution as a percentage of payroll	50.0%	15.0%	12.2%	10.7%	12.0%	20.8%
Fiscal year ending June 30, 2021						
Adjustment for interest and inflation	54,103	9,099	17,792	24,196	51,087	105,190
Actuarially determined employer contribution	6,010,579	1,354,214	1,179,053	2,290,375	4,823,642	10,834,221



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.

Actuarial Gain / Loss	
Expected unfunded accrued liability June 30, 2019	
Expected unfunded accrued liability June 30, 2019	
Unfunded accrued liability June 30, 2018	\$71,053,822
Gross normal cost June 30, 2018	6,374,840
City and employee contributions for 2018-2019	(13,147,757)
Interest at 7.50% to June 30, 2019	5,327,073
Expected unfunded accrued liability June 30, 2019	69,607,978
Actuarial (gain) / loss June 30, 2019	3,885,530
Actual unfunded accrued liability June 30, 2019, prior to plan provision, assumption and method changes	73,493,508
Sources of (gain) / loss	
Assets	2,009,000
Salary increases	(767,000)
Retiree mortality	1,856,000
Turnover, disability and retirements	335,000
New entrants	306,000
Data adjustments	412,000
COLA increases	(355,000)
Other experience	90,000
Total (gain) / loss (rounded to nearest \$1,000)	3,886,000
Assumption and method changes since prior valuation	2,147,915
Actual unfunded accrued liability June 30, 2019, after plan provision, assumption and method changes	75,641,423



Development of Asset Values

Summary of Fund Activity		
	Market Value	Actuarial Value
1. Beginning value of assets June 30, 2018		
Trust assets	\$189,010,042	\$193,642,202
2. Contributions		
City contributions during year	9,516,913	9,516,913
Employee contributions during year	3,630,844	3,630,844
Total for plan year	13,147,757	13,147,757
3. Disbursements		
Benefit payments during year	16,617,928	16,617,928
Administrative expenses during year	338,039	338,039
Other disbursements	50,100	50,100
Total for plan year	17,006,067	17,006,067
4. Net investment return		
Interest and dividends	2,375,999	N/A
Realized and unrealized gain / (loss)	7,602,986	N/A
Expected return	N/A	14,036,700
Recognized gain / (loss)	N/A	(1,310,824)
Required adjustment due to corridor	N/A	0
Reversal of prior year required adjustment	N/A	0
Investment-related expenses	(417,258)	N/A
Total for plan year	9,561,727	12,725,876
5. Ending value of assets June 30, 2019		
Trust assets: (1) + (2) - (3) + (4)	194,713,459	202,509,768
6. Approximate rate of return	5.1%	6.6%



Relationship of Actuarial Value to Market Value

1. Market value 6/30/2019	\$194,713,459
2. Gain / (loss) not recognized in actuarial value 6/30/2019	(7,796,309)
3. Preliminary actuarial value 6/30/2019: (1) - (2)	202,509,768
4. Preliminary actuarial value as a percentage of market value: (3) ÷ (1)	104.0%
5. Gain / (loss) recognized for corridor minimum / maximum	N/A
6. Actuarial value 6/30/2019 after corridor minimum / maximum: (3) + (5)	202,509,768
7. Actuarial value as a percentage of market value: (6) ÷ (1)	104.0%

Development of Market Value Gain / Loss for 2018-2019 Plan Year

1. Market value 6/30/2018	\$189,010,042
2. City contributions	9,516,913
3. Employee contributions	3,630,844
4. Benefit payments and other disbursements	16,668,028
5. Administrative expenses	338,039
6. Expected return at 7.50%	14,036,700
7. Expected value 6/30/2019: (1) + (2) + (3) - (4) - (5) + (6)	199,188,432
8. Market value 6/30/2019	194,713,459
9. Market value gain / (loss) for 2018-2019 plan year: (8) - (7)	(4,474,973)

Recognition of Gain / Loss in Actuarial Value

Year	(a) Gain / (loss)	(b) Total recognized as of 6/30/2018	(c) Recognized in current year: 10% of (a)	(d) Total recognized as of 6/30/2019: (b) + (c)	(e) Not recognized as of 6/30/2019: (a) - (d)
2012-2013	(\$498,233)	(\$298,939)	(\$49,823)	(\$348,762)	(\$149,471)
2013-2014	8,081,381	4,040,690	808,138	4,848,828	3,232,553
2014-2015	(13,616,950)	(5,446,780)	(1,361,695)	(6,808,475)	(6,808,475)
2015-2016	(14,912,281)	(4,473,684)	(1,491,228)	(5,964,912)	(8,947,369)
2016-2017	9,463,116	1,892,624	946,312	2,838,936	6,624,180
2017-2018	2,849,687	284,969	284,969	569,938	2,279,749
2018-2019	(4,474,973)	0	(447,497)	(447,497)	(4,027,476)
Total			(1,310,824)		(7,796,309)

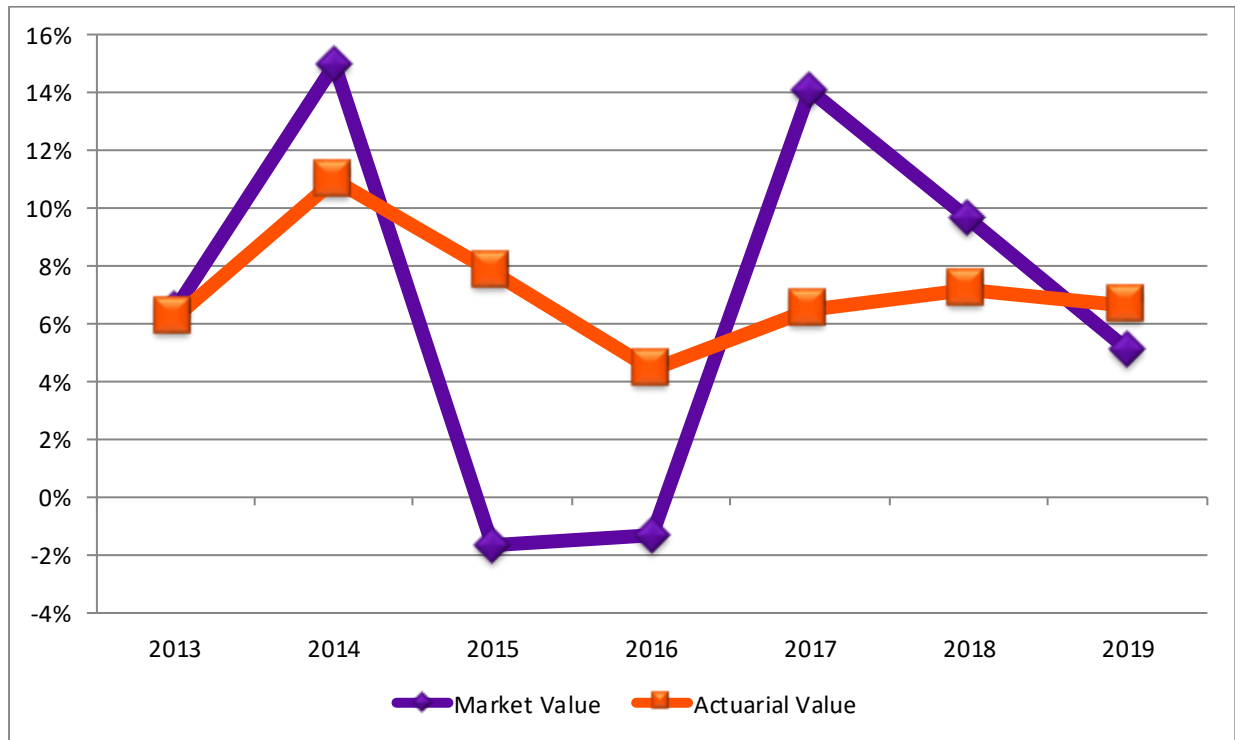


Rate of Return on Market Value of Assets				
Period Ending	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
June 30				
2010	18.6%	-4.0%	2.7%	N/A
2011	21.2%	4.9%	4.7%	N/A
2012	1.4%	13.4%	1.7%	N/A
2013	6.5%	9.4%	4.5%	N/A
2014	15.0%	7.5%	12.3%	6.3%
2015	-1.7%	6.4%	8.2%	5.4%
2016	-1.3%	3.7%	3.8%	4.2%
2017	14.1%	3.4%	6.3%	3.9%
2018	9.6%	7.3%	6.9%	5.7%
2019	5.1%	9.5%	5.0%	8.6%

Rate of Return on Actuarial Value of Assets				
Period Ending	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
June 30				
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%
2018	7.1%	6.0%	7.3%	5.1%
2019	6.6%	6.7%	6.5%	5.7%



Actual Rate of Return on Assets





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, 2019
Initial base	June 30, 2004	\$10,020,499	\$869,780	15	\$8,003,114
2005 base	June 30, 2005	13,325,808	1,234,288	16	11,723,790
2006 base	June 30, 2006	7,669,440	705,402	17	6,895,348
2007 base	June 30, 2007	(2,444,427)	(224,189)	18	(2,249,213)
2008 base	June 30, 2008	(2,492,739)	(228,282)	19	(2,345,023)
2009 base	June 30, 2009	12,784,050	1,169,074	20	12,270,365
2010 base	June 30, 2010	8,547,645	780,589	21	8,355,208
2011 base	June 30, 2011	6,255,018	561,262	22	6,116,247
2012 base	June 30, 2012	3,602,242	328,112	23	3,634,682
2013 base	June 30, 2013	5,490,961	490,437	24	5,515,172
2014 base	June 30, 2014	1,295,623	117,730	25	1,342,318
2015 base	June 30, 2015	(2,956,424)	(268,339)	26	(3,098,564)
2016 base	June 30, 2016	10,621,866	963,048	27	11,250,983
2017 base	June 30, 2017	(1,422,825)	(128,869)	28	(1,521,790)
2018 base	June 30, 2018	3,786,540	341,308	29	4,070,531
2019 base	June 30, 2019	5,678,255	511,345	30	5,678,255
Total			7,222,696		75,641,423



Schedule of Amortization Bases - Class A					
	Date established	Original amount	Amortization installment	Years remaining	Present value of remaining installments as of June 30, 2019
Initial base	June 30, 2004	\$3,698,048	\$320,168	15	\$2,945,969
2005 base	June 30, 2005	6,655,535	612,326	16	5,816,129
2006 base	June 30, 2006	2,588,959	237,812	17	2,324,620
2007 base	June 30, 2007	(1,715,997)	(157,381)	18	(1,578,955)
2008 base	June 30, 2008	713,490	65,340	19	671,207
2009 base	June 30, 2009	3,308,275	302,535	20	3,175,342
2010 base	June 30, 2010	3,969,991	362,548	21	3,880,613
2011 base	June 30, 2011	3,564,353	320,775	22	3,495,587
2012 base	June 30, 2012	2,191,929	199,653	23	2,211,668
2013 base	June 30, 2013	2,337,776	203,579	24	2,289,335
2014 base	June 30, 2014	2,892,368	262,822	25	2,996,609
2015 base	June 30, 2015	(50,538)	(4,587)	26	(52,966)
2016 base	June 30, 2016	4,439,699	402,532	27	4,702,656
2017 base	June 30, 2017	2,901,660	262,810	28	3,103,485
2018 base	June 30, 2018	6,440,134	580,495	29	6,923,145
2019 base	June 30, 2019	2,016,721	181,612	30	2,016,721
Total			4,153,039		44,921,165



Schedule of Amortization Bases - Class B					
	Date established	Original amount	Amortization installment	Years remaining	Present value of remaining installments as of June 30, 2019
Initial base	June 30, 2004	\$6,322,451	\$549,612	15	\$5,057,145
2005 base	June 30, 2005	6,670,273	621,962	16	5,907,661
2006 base	June 30, 2006	5,080,481	467,590	17	4,570,728
2007 base	June 30, 2007	(728,430)	(66,808)	18	(670,258)
2008 base	June 30, 2008	(3,206,229)	(293,622)	19	(3,016,230)
2009 base	June 30, 2009	9,475,775	866,539	20	9,095,023
2010 base	June 30, 2010	4,577,654	418,041	21	4,474,595
2011 base	June 30, 2011	2,690,665	240,487	22	2,620,660
2012 base	June 30, 2012	1,410,313	128,459	23	1,423,014
2013 base	June 30, 2013	3,153,185	286,858	24	3,225,837
2014 base	June 30, 2014	(1,596,745)	(145,092)	25	(1,654,291)
2015 base	June 30, 2015	(2,905,886)	(263,752)	26	(3,045,598)
2016 base	June 30, 2016	6,182,167	560,516	27	6,548,327
2017 base	June 30, 2017	(4,324,485)	(391,679)	28	(4,625,275)
2018 base	June 30, 2018	(2,653,594)	(239,187)	29	(2,852,614)
2019 base	June 30, 2019	3,661,534	329,733	30	3,661,534
Total			3,069,657		30,720,258



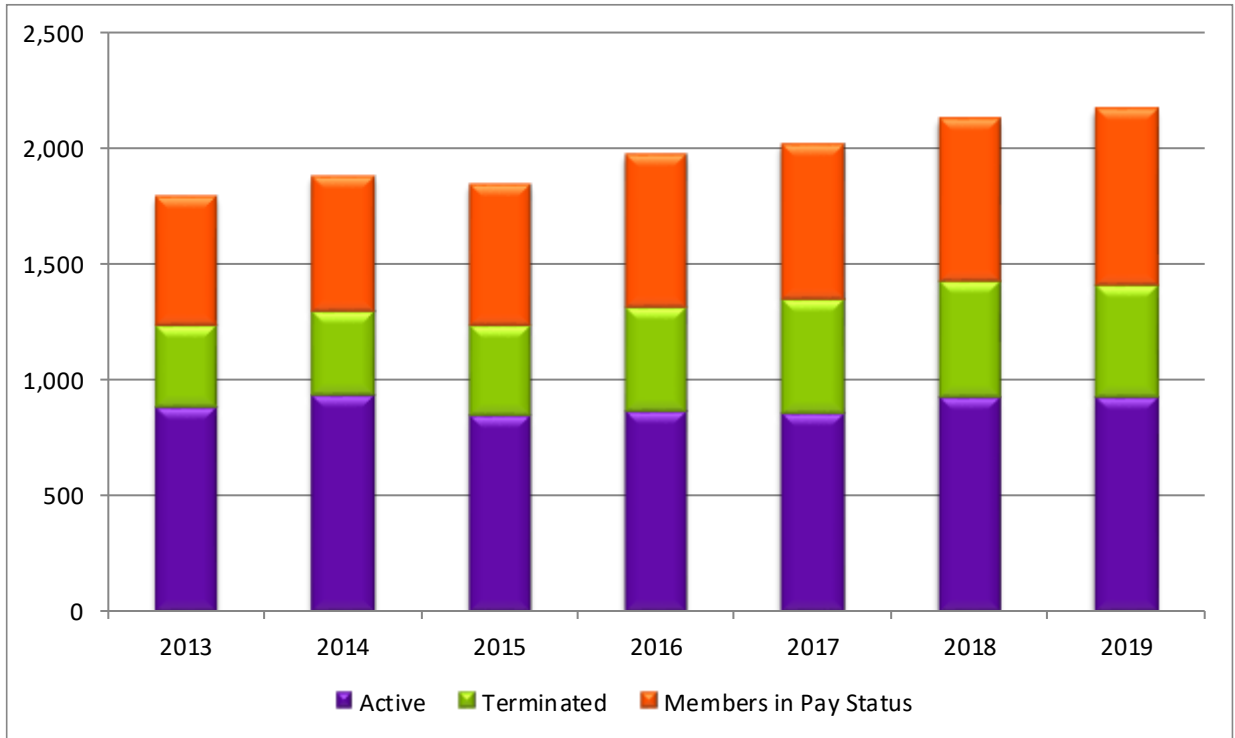
Member Data

The data reported by the Plan Sponsor for this valuation includes 913 active employees who met the Plan's minimum age and service requirements as of June 30, 2019.

Member Data					
	Active	Terminated vested	Due refund of contributions	Members in pay status	Total
Total members June 30, 2018	920	366	128	713	2,127
Adjustments	0	+2	-2	0	0
Retirements	-26	-24	N/A	+50	0
Disabilities	-5	N/A	N/A	+5	0
Terminations					
Vested	-31	+31	N/A	N/A	0
Lump sum payments	-34	0	-28	N/A	-62
Due contributions only	-16	N/A	+16	N/A	0
Deaths					
With death benefit	0	0	0	-4	-4
Without death benefit	-1	0	0	-3	-4
Transfers	0	0	0	N/A	0
Rehires	+1	0	-1	N/A	0
New beneficiaries	N/A	N/A	N/A	+5	+5
New entrants	+105	N/A	+1	N/A	+106
Total members June 30, 2019	913	375	114	766	2,168



Member Counts by Status





Member Data				
	Active	Terminated vested	Due refund of contributions	Members in pay status
Average age				
June 30, 2018	44.4	54.4	38.7	69.2
June 30, 2019	44.2	54.1	39.1	69.4
Average service				
June 30, 2018	9.7	N/A	N/A	N/A
June 30, 2019	9.5	N/A	N/A	N/A
Covered employee payroll				
June 30, 2018	\$49,012,028	N/A	N/A	N/A
June 30, 2019	49,218,437	N/A	N/A	N/A
Total annual benefits				
June 30, 2018	N/A	\$1,808,401	N/A	\$15,882,875
June 30, 2019	N/A	2,025,375	N/A	17,130,528



Member Data - Class A					
	Active	Terminated vested	Due refund of contributions	Members in pay status	Total
Total members June 30, 2018	187	15	9	183	394
Adjustments	-1	0	0	0	-1
Retirements	-7	-1	N/A	+8	0
Disabilities	-2	N/A	N/A	+2	0
Terminations					
Vested	0	0	N/A	N/A	0
Lump sum payments	-9	0	-5	N/A	-14
Due contributions only	-1	N/A	+1	N/A	0
Deaths					
With death benefit	0	0	0	-1	-1
Without death benefit	0	0	0	-1	-1
Transfers	0	0	0	N/A	0
Rehires	0	0	0	N/A	0
New beneficiaries	N/A	N/A	N/A	+2	+2
New entrants	+17	N/A	0	N/A	+17
Total members June 30, 2019	184	14	5	193	396



Member Data - Class B					
	Active	Terminated vested	Due refund of contributions	Members in pay status	Total
Total members June 30, 2018	733	351	119	530	1,733
Adjustments	+1	+2	-2	0	+1
Retirements	-19	-23	N/A	+42	0
Disabilities	-3	N/A	N/A	+3	0
Terminations					
Vested	-31	+31	N/A	N/A	0
Lump sum payments	-25	0	-23	N/A	-48
Due contributions only	-15	N/A	+15	N/A	0
Deaths					
With death benefit	0	0	0	-3	-3
Without death benefit	-1	0	0	-2	-3
Transfers	0	0	0	N/A	0
Rehires	+1	0	-1	N/A	0
New beneficiaries	N/A	N/A	N/A	+3	+3
New entrants	+88	N/A	+1	N/A	+89
Total members June 30, 2019	729	361	109	573	1,772



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 June 30, 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

The valuation reflects changes in the actuarial assumptions listed below. (The assumptions used before and after these changes are more fully described in the next section.)

- Investment rate of return
- Mortality improvement

The assumptions indicated were changed to better reflect the Enrolled Actuary's current best estimate of anticipated experience of the plan.

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

7.40%. (Prior: 7.50%)

Rate of compensation increase (including inflation)

Class A

Completed Years of Service	Rate
<1	10.0%
1	8.5%
2	7.3%
3	6.3%
4	5.9%
5	5.6%
6	5.4%
7	5.2%
8	5.0%
9	4.8%
10	4.7%
11	4.6%
12	4.5%
13	4.4%
14	4.3%
15	4.2%
16	4.0%
17	3.8%
18	3.7%
19	3.6%
20+	3.5%

Class B

Completed Years of Service	Rate
<1	6.6%
1	6.0%
2	5.5%
3	5.1%
4	4.9%
5	4.7%
6	4.5%
7	4.4%
8	4.3%
9	4.3%
10	4.2%
11	4.2%
12	4.1%
13	4.0%
14	3.9%
15	3.8%
16	3.8%
17	3.8%
18	3.7%
19	3.6%
20+	3.5%

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, 2012 through June 30, 2017.



Inflation

2.60%.

This assumption is consistent with the Social Security Administration's best estimate of the ultimate long-term (75-year horizon) annual percentage increase in CPI, as published in the 2019 OASDI Trustees Report.

Mortality

Class A (Non-Disabled): RP-2014 Adjusted to 2006 Total Dataset Mortality Table, projected to the valuation date with Scale MP-2019.

Class B (Non-Disabled): RP-2014 Adjusted to 2006 Total Dataset Mortality Table, projected to the valuation date with Scale MP-2019, set forward 2 years.

Class A and B (Disabilities): RP-2014 Adjusted to 2006 Disabled Mortality Table, projected to the valuation date with Scale MP-2019.

Prior: Class A (Non-Disabled): RP-2014 Adjusted to 2006 Total Dataset Mortality Table, projected to the valuation date with Scale MP-2018.

Class B (Non-Disabled): RP-2014 Adjusted to 2006 Total Dataset Mortality Table, projected to the valuation date with Scale MP-2018, set forward 2 years.

Class A and B (Disabilities): RP-2014 Adjusted to 2006 Disabled Mortality Table, projected to the valuation date with Scale MP-2018.

Mortality Improvement

Projected to date of decrement using Scale MP-2019 (generational).

Prior: Projected to date of decrement using Scale MP-2018 (generational).

We have selected this mortality assumption because it is based on a recently published pension mortality study released by the Society of Actuaries.

The mortality improvement assumption was updated to better reflect anticipated experience.



Retirement age

Class A

Completed Years of Service	Rate
<15	0%
15-18	5%
19	15%
20-23	25%
24	30%
25	75%
26-29	50%
30-34	75%
35+	100%

Compulsory retirement is assumed at age 60.

Class B

Age	Rate
55-59	5.0%
60	7.5%
61	12.5%
62	18.0%
63	22.5%
64-65	25.0%
66-69	30.0%
70-74	50.0%
75+	100.0%

Termination prior to retirement

Class A

Completed Years of Service	Rate
<1	8.0%
1	7.0%
2	6.0%
7	5.0%
8	4.5%
9	4.0%
10+	0.0%



Termination prior to retirement (continued)

Class B: 100% of the Vaughn Select & Ultimate Withdrawal Table for service prior to 3 years, and 130% of the Vaughn Select & Ultimate Withdrawal Table thereafter.

Sample rates

Completed Years of Service				
Age	0	1	2	3+
20	29.8%	25.0%	21.0%	24.18%
25	27.8%	22.5%	18.5%	17.68%
30	25.8%	20.0%	16.0%	13.13%
35	23.8%	17.8%	13.8%	10.27%
40	21.8%	15.8%	11.8%	8.45%
45	19.8%	14.1%	10.1%	7.15%
50	17.8%	12.6%	8.6%	5.85%
55	0.0%	0.0%	0.0%	0.00%

Disability

Class A: 1985 Pension Disability Study Class 2 Table for Males and Females.

Class B: 1985 Pension Disability Study Class 1 Table for Males and Females.

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, 2012 through June 30, 2017.

Administrative expenses

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

Cost of living increases

2.60%.

Accrual rate election

Class A: 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.

Class B: 75% of retiring members are assumed to elect the no COLA accrual rate and 25% of retiring members are assumed to elect the full COLA accrual rate.

Payroll growth

3.00% per year.

Percent of active employees married

80%.

Spouse's age

Husbands are assumed to be 3 years older than wives.

The assumption changes increased liabilities by about 0.8%.



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.

Plan identification

Single-employer pension plan

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 5.00% of AFC times creditable service between 20 and 25 years. For Fire employees hired after January 10, 2011, 3.00% 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 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. Any Fire employee hired after October 5, 2015 cannot receive a pension that exceeds 90% of the employee's average final compensation.

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 January 10, 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 January 10, 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.



Service retirement (continued)

Class B

For employees hired prior to July 1, 2006 (on or before May 4, 2008 for IBEW): 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.

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 (on or before May 4, 2008 for IBEW) for the first 25 years, an accrual rate of 1.80% for all years of service on or after July 1, 2006 (after May 4, 2008 for IBEW) 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 (on or before May 4, 2008 for IBEW) for the first 25 years, an accrual rate of 2.00% for all years of service on or after July 1, 2006 (after May 4, 2008 for IBEW) 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.

For employees hired on or after July 1, 2006 (after May 4, 2008 for IBEW): 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.

An employee hired on or after July 1, 2006 (after May 4, 2008 for IBEW) may only select a benefit with a full 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 IBEW employees hired before May 4, 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 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 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 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 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 Fire employees retiring after October 5, 2015, Class A Police employees retiring after August 29, 2016, Class B AFSCME employees retiring after October 30, 2015, Class B IBEW employees retiring after March 9, 2016, and Class B Non-Union and Burlington School District employees retiring after July 1, 2017, 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%. Class B employees that retire after July 1, 2018 will not receive a cost of living adjustment prior to age 65 unless the BERS is at least 81% funded. For Class A Police employees who retire after February 1, 2019 and Fire employees who retire after March 28, 2019, the retirement COLA will be determined annually by the BERS Board equal to the CPI-U Northeast Region, with a maximum COLA of 2.75%, except that if the Class A funding level of the BERS falls below 73%, the BERS Board may reduce or vote for no COLA for the upcoming year.

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.

Vesting percentage.

100% after 5 years.

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 A employees shall contribute to the BERS a percentage of their salary. The total contribution required from both the City and employees will be based on the annual system valuation prepared by the City's actuaries. Effective retroactive to July 1, 2018, employees shall contribute a percentage so that all employees are contributing 28% (and the City is contributing 72%) of the total contribution required. For Fiscal Year 2019, this means that each Class A employee contributes 12.69% of the employee's base pay. The individual employee contribution for each subsequent fiscal year will be determined prior to the beginning of the fiscal year.

Effective July 1, 2020, employees shall contribute a percentage so that all employees are contributing 29% (and the City is contributing 71%) of the total contribution required.

Effective July 1, 2021, employees shall contribute a percentage so that all employees are contributing 30% (and the City is contributing 70%) of the total contribution required.

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.

Class B employees shall contribute to the BERS a percentage of their annual salary. The total contribution required from both the City and employees will be based on the annual system valuation prepared by the City's actuaries.

Effective retroactive to July 1, 2018, employees shall contribute a percentage so that all employees are contributing 28% (and the City is contributing 72%) of the total contribution required. For Fiscal Year 2019, this shall mean that the contribution rate for a Class B employee is 4.41% of the employee's base pay.



Contributions (continued)

Effective July 1, 2020, employees shall contribute a percentage so that all employees are contributing 29% (and the City is contributing 71%) of the total contribution required.

Effective July 1, 2021, employees shall contribute a percentage so that all employees are contributing 30% (and the City is contributing 70%) of the total contribution required.

Notwithstanding the above, an individual Class B employee's contribution shall not exceed 5.6% of their eligible wages in Fiscal Year 2019, 5.8% in Fiscal Year 2020, 6.2% in Fiscal Year 2021, or 7% in Fiscal Year 2022.