

# City of Fairfax Retirement Plan for General Employees

37th Actuarial Valuation Report  
June 30, 2019



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September 30, 2019

Administrative Committee  
City of Fairfax Retirement Plan  
for General Employees  
Fairfax, Virginia

**Re: City of Fairfax Retirement Plan for General Employees Actuarial Valuation as of *June 30, 2019*  
Actuarial Disclosures**

Ladies and Gentlemen:

The results of the June 30, 2019 Annual Actuarial Valuation of the City of Fairfax Retirement Plan for General Employees are presented in this report.

This report was prepared at the request of the City and is intended for use by the Retirement System and those designated or approved by the City. This report may be provided to parties other than the System only in its entirety and only with the permission of the City. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are to measure the System's funding progress and to determine the employer contribution rate for the fiscal year ending June 30, 2021. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in the appendix of this report. This report includes risk metrics on pages 42 and 43 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The findings in this report are based on data and other information through June 30, 2019. The valuation was based upon information furnished by the City concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the City.

This report was prepared using assumptions adopted by the City. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. Additional information about the actuarial assumptions is included in the appendix of this report.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the City of Fairfax Retirement Plan for General Employees as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Heidi G. Barry, Mark Buis and Stephanie Crawford are members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

Respectfully submitted,



Heidi G. Barry, ASA, FCA, MAAA



Mark Buis, FSA, EA, FCA, MAAA



Stephanie Crawford, ASA, MAAA

HGB/MB/SC:ah

## Comments and Recommendations

**General Financial Objective:** A sound general financial objective for any public employee retirement plan is to *establish and receive contributions which, expressed as percents of active member payroll, will remain approximately level from generation to generation of citizens.*

**Fairfax General Employee Plan Status:** Over the past decade the objective of level-contribution-percent financing has been difficult to achieve. Investment returns in excess of the assumed rate in the mid to late 90's acted as a credit against the ongoing annual cost of the Retirement Plan. This resulted in contribution rates declining to zero during this period, and remaining at zero for twelve years. Beginning with the required contribution for fiscal year beginning July 1, 2010, the contribution rate was no longer zero. The contribution rate was 9.12% based on the 2018 valuation and has increased to 9.82% of payroll based on the 2019 valuation.

As a by-product of achieving level contribution financing, actuarial accrued liabilities usually become more and more funded over a period of years. The funded ratio was adversely affected by the market downturn in late 2008 and early 2009 (as were virtually all other public employee retirement plans in the country). On a funding value of assets basis, the Plan has a 90.8% funded ratio. On a market value of assets basis, the Retirement Plan has a 88.7% funded ratio.

**Results from This Year:** Overall experience during the year ending June 30, 2019 was less favorable than projected. The primary cause for the loss was due to poor asset performance. The recognized rate of return was 3.4% compared to an assumed rate of 6.25%. Investment gains and losses that occur each year are smoothed in over a 5-year period. Although there were carryover gains from prior years that were recognized, the current and prior unfavorable losses more than offset those gains.

**Reserve Strength:** Member contributions and liabilities for present retired lives continue to be 100% covered by present Fund assets. The remainder of Fund assets covers 71% of member accrued liabilities, less than was covered in the prior year (see page 9). The funded status is normally expected to gradually trend towards 100% over time.

**Employer Contribution Rate:** The computed rate for the fiscal year ending June 30, 2021 is 9.82% of active member payroll in accordance with the current funding policy.

**Funding Value of Retirement Plan Assets:** The ratio of the funding value of Retirement Plan assets to the market value of Retirement Plan assets is currently 102%.

## Comments and Recommendations

**Assumptions and Methods:** There were no changes in assumptions or methods in the 2019 valuation.

**Benefit Provisions:** There were no changes in benefit provisions in the 2019 valuation.

**GASB Standards:** In June 2012, the Governmental Accounting Standards Board (GASB) issued new pension accounting Statements No. 67 and No. 68 for retirement plans and sponsoring governmental entities respectively. The information for GASB Statements No. 67 and No. 68 has been issued in a separate report.

## Other Observations

### General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the Plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the Plan earning 6.25% on the funding value of assets), it is expected that:

- (1) The employer normal cost as a percentage of pay will decrease to the level of the current new entrants (i.e., members hired after July 1, 2014) normal cost as time passes and the majority of the active population is comprised of members hired after this date; and
- (2) The funded status of the plan will increase gradually towards a 100% funded ratio.

### Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations, for example: transferring the liability to an unrelated third party in a market value type transaction.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the Plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. The current funded status is 90.8%. Even if the funded status measurement in this report was 100%, it would not be synonymous with no required future contributions. If the funded status were 100%, the Plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- (3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets.

## **ASSETS AND VALUATION RESULTS**

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# Computed Employer Contribution Rates

Contributions Computed as of June 30	Contributions Expressed as %s of Active Member Payroll	
	2019	2018
Contributions for Fiscal Year End	2021	2020
Normal Cost		
Age and service benefits	7.19 %	7.17 %
Deferred benefits	0.76 %	0.79 %
Disability benefits	0.34 %	0.35 %
Death-before-retirement benefits	0.41 %	0.41 %
Future refunds of member contributions	0.21 %	0.20 %
Total Normal Cost	8.91 %	8.92 %
Member Contributions	3.00 %	3.00 %
Employer Normal Cost	5.91 %	5.92 %
Unfunded Actuarial Accrued Liabilities (UAAL)		
Active Members	3.91 %	3.20 %
Total Computed Employer Contribution	9.82 %	9.12 %

## Computed Employer Contribution Rates Comparative Statement

Valuation Date June 30	Active Members in Valuation		Last Year's Change in		Employer Unfunded AAL		Computed Employer Rate
	Number	Average Pay \$	Average Pay %	Inflation (CPI)	Amount	Financing* Period	
2010	286	\$59,368	1.0 %	1.1 %	\$(5,908,073)	10 yrs.	1.80 %
2011	286	58,722	(1.1)%	3.6 %	(3,596,642)	10	3.52 %
2012 <sup>^</sup>	282	58,818	0.2 %	1.7 %	(247,626)	10	5.17 %
2013	279	63,692	8.3 %	1.8 %	2,258,512	10	6.62 %
2014 <sup>#</sup>	244	62,897	(1.2)%	2.1 %	(194,686)	10	4.62 %
2015	251	65,236	3.7 %	0.1 %	(1,041,854)	10	4.36 %
2016	254	66,283	1.6 %	1.0 %	(802,479)	10	4.55 %
2017	251	68,958	4.0 %	1.6 %	429,650	10	5.36 %
2018 <sup>^</sup>	254	70,720	2.6 %	2.9 %	4,761,682	10	9.12 %
<b>2019</b>	<b>254</b>	<b>72,484</b>	<b>2.5 %</b>	<b>1.6 %</b>	<b>6,230,648</b>	9-10	<b>9.82 %</b>

# Plan amendment.

<sup>^</sup> After assumption changes adopted following experience study.

\* 10-year layered amortization was implemented beginning with the June 30, 2018 valuation.

## Determination of Experience Gain (Loss) Year Ended June 30, 2019

(1) UAAL at start of year	\$ 4,761,682
(2) Employer normal cost for the year	1,063,406
(3) Actual employer contributions	932,247
(4) Net interest accrual on (1), (2) and (3)	301,662
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	5,194,503
(6) Change from benefit increases	0
(7) Change from revised actuarial assumptions or methods	0
(8) Expected UAAL after changes: (5) + (6) + (7)	5,194,503
(9) Actual UAAL at end of year	6,230,648
(10) Gain (Loss): (8) - (9)	(1,036,145)
(11) Actuarial Accrued Liabilities at start of year	66,162,452
(12) Gain (Loss) as a percent of Actuarial Accrued Liabilities at start of year: (10)/(11)	(1.57)%

### Layered Amortization Schedule

#### City of Fairfax Retirement Plan for General Employees

Type of UAAL*	Original Amortization Period (in years)	June 30, 2020 Outstanding UAAL Balance <sup>@</sup>	Amounts for Fiscal Year Ending June 30, 2021		
			Remaining Amortization Period (in years)	Annual Amortization Payment	% of Payroll Amortization Payment
Initial UAAL 6/30/2018 and prior	10	\$ 906,256	9	\$116,058	
Changes From Updated Actuarial Assumptions 6/30/2018	10	\$3,959,118	9	\$507,017	
(Gain) Loss From Experience 6/30/2019	10	\$1,132,369	10	\$132,310	
Changes From Updated Benefits					
<b>Totals</b>		<b>\$5,997,743</b>		<b>\$755,385</b>	<b>3.91%</b>

\* *Unfunded Actuarial Accrued Liability (UAAL).*

@ *This is the remaining balance as of the valuation date projected to the beginning of the fiscal year shown above.*

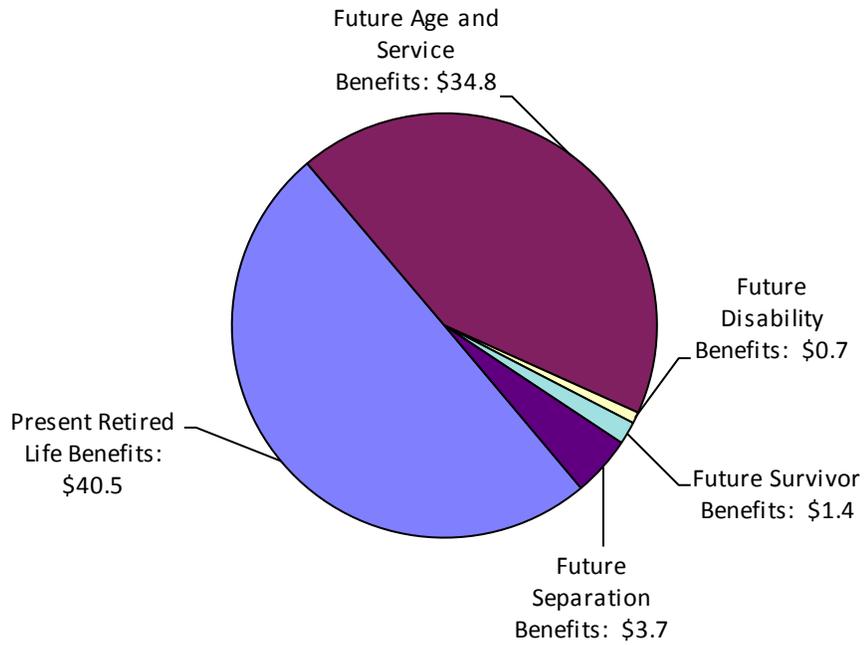
## Actuarial Accrued Liabilities June 30, 2019

Present Value at Valuation Date of	(1) Total Present Value	(2) Portion Covered by Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1) - (2)
Benefits to be paid to present retired lives	\$40,450,548	\$ 0	\$40,450,548
Age and service benefits likely to be paid to present active members	34,843,097	10,674,699	24,168,398
Disability benefits likely to be paid to present active members who become permanently disabled	661,282	613,751	47,531
Survivor benefits likely to be paid to beneficiaries of present active members who die before retiring	1,399,951	607,630	792,321
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	3,727,407	1,690,200	2,037,207
Computed Actuarial Liabilities	\$81,082,285	\$13,586,280	\$67,496,005
Total Applicable Assets			61,265,357
Employer Unfunded Actuarial Accrued Liability			\$6,230,648

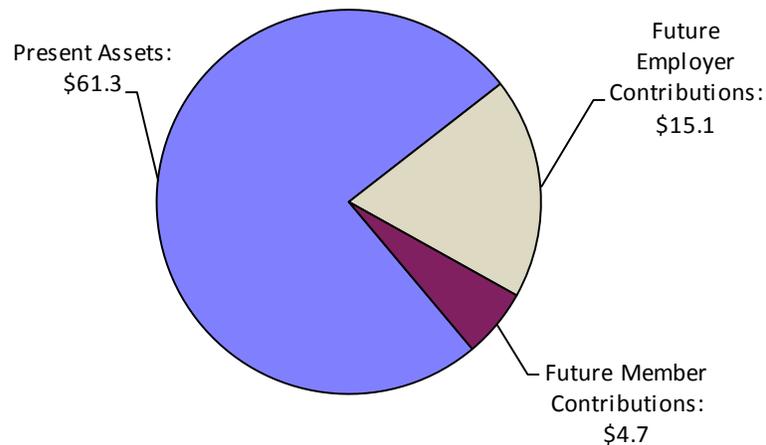
# Financing of Benefit Promises

## June 30, 2019

### 81.1 Million of Benefit Liabilities



### 81.1 Million of Present and Future Assets



## Short Condition Test - Comparative Statement

The Fairfax funding objective is to meet long term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the Plan are level in concept and soundly executed, the Plan will **pay all promised benefits when due -- the ultimate test of financial soundness**. Testing for level contribution rates is **the** long-term solvency test.

**A short condition test** is one means of checking a plan's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with:

- 1) Active member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives; and
- 3) The liabilities for service already rendered by active members.

In a plan that has been following the discipline of level percent-of-payroll financing, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the Plan.

The following schedule will show the history of the short condition test of the Plan.

June 30	Actuarial Accrued Liabilities (\$ Thousands) for				Portion of Liabilities Covered by Assets		
	(1)	(2)	(3)	Valuation Assets	(1)	(2)	(3)
	Member Contributions on Deposit	Retirants and Beneficiaries	Active and Inactive Members				
2004@	\$ 2,836	\$ 12,349	\$ 19,396	\$ 45,333	100 %	100 %	155 %
2005	3,208	13,531	21,237	47,138	100 %	100 %	143 %
2006	3,363	15,751	20,969	49,133	100 %	100 %	143 %
2007^	3,736	18,148	22,098	53,106	100 %	100 %	141 %
2008	4,140	19,619	22,558	55,727	100 %	100 %	142 %
2009	4,743	20,793	22,592	55,231	100 %	100 %	131 %
2010	5,300	21,017	22,562	54,938	100 %	100 %	127 %
2011	5,275	26,584	19,774	55,230	100 %	100 %	118 %
2012^	5,414	28,941	18,992	53,595	100 %	100 %	101 %
2013	5,447	29,191	21,226	53,606	100 %	100 %	89 %
2014@	4,470	34,663	16,909	56,236	100 %	100 %	101 %
2015#	4,478	35,728	17,329	58,577	100 %	100 %	106 %
2016	4,880	34,982	18,213	58,877	100 %	100 %	104 %
2017	4,837	37,799	18,221	60,427	100 %	100 %	98 %
2018^	5,095	40,194	20,873	61,401	100 %	100 %	77 %
<b>2019</b>	<b>5,365</b>	<b>40,451</b>	<b>21,680</b>	<b>61,265</b>	<b>100 %</b>	<b>100 %</b>	<b>71 %</b>

^ After assumption changes adopted following experience study.

@ After benefit change.

# New benefit tier added.

## Statement of Plan Assets as of June 30, 2018 and 2019

	2019	2018
Cash	\$ 0	\$ 104
Money market fund	485,672	369,961
Government and agency	0	0
Real estate	0	0
Corporate debt	0	0
Common stock	0	7
Foreign stock	0	0
Accrued income	685	402
Mortgages	0	0
Mutual funds	59,353,403	59,126,897
Subtotal	\$59,839,760	\$59,497,371
Other	0	164,047
Net assets held in trust for pension benefits (A schedule of funding progress for the plan is presented on page 14.)	\$59,839,760	\$59,661,418

Assets by category were provided by the Plan administrator in total for both the Public Safety Retirement Plan and the General Employees Retirement Plan. The numbers above were computed by taking the total amount provided and multiplying by the percent that the market value of the General Employees Plan bears to the total market value of both plans.

## Statement of Changes in Plan Assets for the Fiscal Years Ended June 30, 2018 and 2019

	Reconciliation as of June 30,	
	2019	2018
Additions		
Contributions		
Employer	\$ 932,247	\$ 796,752
Plan members	524,773	530,846
Other receipts	(7,568)	(5,035)
Total contributions	1,449,452	1,322,563
Investment return		
Net appreciation	768,082	2,005,267
Interest and dividends	761,034	637,383
Gain(loss) on sale of securities	1,213,839	1,366,503
Subtotal	2,742,955	4,009,153
Less investment expense	394,697	391,245
Net investment return	2,348,258	3,617,908
Total additions	3,797,710	4,940,471
Deductions		
Benefits	3,542,135	3,371,261
Refunds of contributions	77,233	88,412
Other	0	0
Total deductions	3,619,368	3,459,673
Net increase	178,342	1,480,798
Net assets held in trust for pension benefits		
Beginning of year	\$59,661,418	\$58,308,787
Beginning of year adjustment	0	(128,167)
End of year	\$59,839,760	\$59,661,418

## Development of Funding Value of Retirement Plan Assets (Market Related Value)

Year Ended June 30:	2016	2017	2018	2019	2020	2021	2022	2023
A. Funding Value Beginning of Year	\$58,577,163	\$58,877,340	\$60,427,095	\$61,400,770				
B. Market Value End of Year	54,097,439	58,308,787	59,661,418	59,839,760				
C. Market Value Beginning of Year	56,717,383	54,097,439	58,308,787	59,661,418				
D. Non-Investment Net Cash Flow	(1,758,170)	(1,931,558)	(2,265,277)	(2,169,916)				
E. Investment Return								
E1. Market Total: B-C-D	(861,774)	6,142,906	3,617,908	2,348,258				
E2. Assumed Rate of Return	6.75%	6.75%	6.75%	6.25%				
E3. Amount for Immediate Recognition	3,894,620	3,909,030	4,002,376	3,769,738				
E4. Amount for Phased-In Recognition: E1-E3	(4,756,394)	2,233,876	(384,468)	(1,421,480)				
F. Phased-In Recognition of Investment Return								
F1. Current Year: 0.20 x E4	(951,278)	446,775	(76,893)	(284,296)				
F2. First Prior Year	(869,542)	(951,278)	446,775	(76,893)	\$ (284,296)			
F3. Second Prior Year	687,513	(869,542)	(951,278)	446,775	(76,893)	\$ (284,296)		
F4. Third Prior Year	258,813	687,513	(869,542)	(951,278)	446,775	(76,893)	\$ (284,296)	
F5. Fourth Prior Year	(961,779)	258,815	687,514	(869,543)	(951,282)	446,776	(76,896)	\$(284,296)
F6. Total Recognized Investment Gain	(1,836,273)	(427,717)	(763,424)	(1,735,235)	(865,696)	85,587	(361,192)	(284,296)
G. Funding Value End of Year:								
G1. Preliminary Funding Value End of Year: A+D+E3+F6	58,877,340	60,427,095	61,400,770	61,265,357				
G2. Upper Corridor Limit: 120% X B			71,593,702	71,807,712				
G3. Lower Corridor Limit: 80% X B			47,729,134	47,871,808				
G4. Adjustment to Funding Value			0	0				
G5. Funding Value End of Year			61,400,770	61,265,357				
H. Difference Between Market & Funding Value	(4,779,901)	(2,118,308)	(1,739,352)	(1,425,597)	(559,901)	(645,488)	(284,296)	0
I. Market Rate of Return	(1.5)%	11.6 %	6.3 %	4.0 %				
J. Recognized Rate of Return	3.6 %	6.0 %	5.5 %	3.4 %				

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment return (line E4) are phased-in over a closed 5-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. The Funding Value of Assets is unbiased with respect to Market Value. At any time it may be either greater or less than Market Value. If assumed rates are exactly realized for 4 consecutive years, it will become equal to Market Value.

## Changes in Assets (Cash & Investments) Year Ended June 30, 2019

Financial activity during fiscal year 2018-2019 was reported as follows:

General	Police/Fire	TOTAL	Item
\$59,661,418	\$67,855,833	\$127,517,251	A1. Beginning Market
524,773	781,348	1,306,121	B1. Member Contributions
932,247	1,477,700	2,409,947	B2. Employer Contributions
(77,233)	(229,866)	(307,099)	B3. Refund of Member Contributions
(3,542,135)	(4,592,951)	(8,135,086)	B4. Retirement Benefits
(7,568)	(8,534)	(16,102)	B5. Other Receipts
(2,169,916)	(2,572,303)	(4,742,219)	B6. Net New Money: B1+B2+B3+B4+B5
761,034	858,187	1,619,221	C1. Ordinary Investment Return
(394,697)	(445,084)	(839,781)	C2. Investment Expense
1,213,839	1,368,800	2,582,639	C3. Realized Gains & Losses
768,082	866,135	1,634,217	C4. Unrealized Gains & Losses
2,348,258	2,648,038	4,996,296	C5. Net Investment Return (Market): C1+C2+C3+C4
59,839,760	67,931,568	127,771,328	D1. Ending Market A1+B6+C5

## Schedule of Funding Progress (Dollar Amounts in Millions)

Actuarial Valuation Date	Applicable Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Employer Unfunded AAL (UAAL) (b)-(a)	Funded Ratio (a)/(b)	Covered Payroll (c)	Employer UAAL as a Percent of Covered Payroll [(b)-(a)]/(c)
6/30/2010	\$54.94	\$49.03	\$ (5.91)	112.1 %	\$16.98	-
6/30/2011	55.23	51.63	(3.60)	107.0 %	16.79	-
6/30/2012	53.59	53.35	(0.24)	100.4 %	16.59	-
6/30/2013	53.61	55.86	2.25	96.0 %	17.77	12.7 %
6/30/2014	56.24	56.04	(0.20)	100.4 %	15.35	-
6/30/2015	58.58	57.54	(1.04)	101.8 %	16.37	-
6/30/2016	58.88	58.07	(0.81)	101.4 %	16.84	-
6/30/2017	60.43	60.86	0.43	99.3 %	17.31	2.5 %
6/30/2018	61.40	66.16	4.76	92.8 %	17.96	26.5 %
6/30/2019	61.27	67.50	6.23	90.8 %	18.41	33.8 %

# Schedule of Employer Contributions and Normal Costs

## Schedule of Employer Contributions

Fiscal Year Ended June 30	Actuarially Determined Employer Contribution		Percent Contributed
	As Percent of Payroll	As Dollar Amount	
2010	0.00%	\$ 0	100%
2011	1.21%	276,502	100%
2012	1.80%	298,073	100%
2013	3.52%	578,147	100%
2014	5.17%	876,511	100%
2015	6.62%	1,064,636	100%
2016	4.62%	758,268	100%
2017	4.36%	745,267	100%
2018	4.55%	796,752	100%
2019	5.36%	932,247	100%
2020	9.12%		
2021	9.82%		

## Schedule of Employer Normal Costs

Valuation Year Ended June 30	Employer Normal Cost
2010	5.42%
2011	5.61%
2012	5.16%
2013	5.10%
2014	4.97%
2015	5.07%
2016	5.04%
2017	5.01%
2018	5.92%
2019	5.91%

# **BENEFIT PROVISIONS AND VALUATION DATA**

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# General Employees Benefit Provisions Evaluated/Considered June 30, 2019

**Employees Hired  
Before 4/1/83**

**Employees Hired Between  
4/1/83 and 6/30/14**

**Employees Hired  
7/1/14 and Later**

## *Normal Age and Service Retirement*

The benefits are described in the terms of amounts payable to and after Social Security Full Retirement Age (SSFRA).

**Eligibility**

Age 60 with 5 years of service.

**Eligibility**

Age 60 with 5 years of service.

**Eligibility**

Age 62 with 7 years of service.

**Amount**

Straight life benefit equal to 1.8% of 3-year highest average earnings times total service not in excess of the maximum years. Total service includes credit for sick leave unused at retirement.

**Amount**

To SSFRA: Straight life benefit of 1.50% of 3-year highest average earnings times total service.

**Amount**

To SSFRA: Straight life benefit of 1.50% of 5-year highest average earnings times total service.

For retirements before January 1, 2004, the maximum number of years is 30. For retirements after January 1, 2004, the maximum is 30 plus years of creditable service attributable to eligible unused sick leave.

At SSFRA: 0.83% of 3-year highest average earnings times total service. (For participants without at least one month of "Qualified 2004 Service" the amount is 0.50% of 3-year highest average earnings times total service.)

At SSFRA: 0.83% of 5-year highest average earnings times total service. (For participants without at least one month of "Qualified 2004 Service" the amount is 0.50% of 5-year highest average earnings times total service.)

Total service includes credit for sick leave unused at retirement.

Total service includes credit for sick leave unused at retirement.

## *Early Retirement*

**Eligibility**

Age 50 with 5 years of service, or 25 years of service regardless of age.

**Eligibility**

Age 50 with 5 years of service, or 25 years of service regardless of age.

**Eligibility**

Age 50 with 7 years of service, or 25 years of service regardless of age.

**Amount**

Accrued normal retirement benefit reduced 1/6 of 1% for each month actual retirement precedes age 60.

**Amount**

Accrued normal retirement benefit reduced 5/12 of 1% for each month actual retirement precedes age 60.

**Amount**

Accrued normal retirement benefit reduced 5/12 of 1% for each month actual retirement precedes age 62.

Members age 50 with 30 or more years of credited service and "Qualified 2004 service" receive an amount equal to the accrued normal retirement benefit reduced 1/6 of 1% for each month actual retirement precedes age 60.

Members age 50 with 30 or more years of credited service and "Qualified 2004 service" receive an amount equal to the accrued normal retirement benefit reduced 1/6 of 1% for each month actual retirement precedes age 62.

# General Employees Benefit Provisions Evaluated/Considered June 30, 2019

## Employees Hired Before 4/1/83

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## Employees Hired Between 4/1/83 and 6/30/14

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## Employees Hired 7/1/14 and Later

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### *Deferred (Vested) Retirement*

**Eligibility**

5 years of service.

**Amount**

Accrued normal retirement benefit payable at age 60 (full benefit) or at 50 (reduced early benefit).

**Eligibility**

5 years of service.

**Amount**

Accrued normal retirement benefit payable at age 60 (full benefit) or at 50 (reduced early benefit).

**Eligibility**

7 years of service.

**Amount**

Accrued normal retirement benefit payable at age 62 (full benefit) or at 50 (reduced early benefit).

### *Disability Retirement*

**Eligibility**

5 years of service.

**Amount**

Computed in the same manner as normal retirement except that 'total service' is the smallest of:

- (i) twice the years of credited service.
- (ii) the years of credited service the participant would have had at normal retirement date.
- (iii) 30 years.

Benefit payable prior to Social Security age, when combined with worker's compensation, Social Security, VRS benefits, and any earned income may not exceed 75% of 3-year highest average earnings.

**Eligibility**

5 years of service.

**Amount**

Computed in the same manner as normal retirement except that 'total service' is:

- (i) actual accrued service if the disability is from non-duty related causes.
- (ii) the number of years of service the participant would have had at normal retirement date if the disability is from duty related causes.

Benefit payable prior to Social Security age, when combined with worker's compensation, Social Security, VRS benefits, and any earned income, may not exceed 75% of 3-year highest average earnings.

**Eligibility**

7 years of service.

**Amount**

Computed in the same manner as normal retirement except that 'total service' is:

- (i) actual accrued service if the disability is from non-duty related causes.
- (ii) the number of years of service the participant would have had at normal retirement date if the disability is from duty related causes.

Benefit payable prior to Social Security age, when combined with worker's compensation, Social Security, VRS benefits, and any earned income, may not exceed 75% of 5-year highest average earnings.

# General Employees Benefit Provisions Evaluated/Considered June 30, 2019

## Employees Hired Before 4/1/83

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## Employees Hired Between 4/1/83 and 6/30/14

---

## Employees Hired 7/1/14 and Later

---

### *Benefits for Death before Retirement*

#### **Eligibility**

5 years of service.

#### **Eligibility**

5 years of service.

#### **Eligibility**

7 years of service.

#### **Amount**

The spouse or parent receives the same monthly benefit that would have been payable if the member had retired at death, elected the joint and 100% survivor option and died immediately thereafter.

#### **Amount**

The spouse or parent receives the same monthly benefit that would have been payable if the member had retired at death, elected the joint and 100% survivor option and died immediately thereafter.

#### **Amount**

The spouse or parent receives the same monthly benefit that would have been payable if the member had retired at death, elected the joint and 100% survivor option and died immediately thereafter.

Minimum benefit is 15% of 3-year highest average earnings. Benefits for dependent children and parents may also be payable. Special rules apply if the spouse was less than 40 years old when the member died.

Minimum benefit is 15% of 3-year highest average earnings. Benefits for dependent children and parents may also be payable. Special rules apply if the spouse was less than 40 years old when the member died.

Minimum benefit is 15% of 5-year highest average earnings. Benefits for dependent children and parents may also be payable. Special rules apply if the spouse was less than 40 years old when the member died.

### *Benefit Increases after Retirement*

Monthly benefits are adjusted annually, to reflect changes in the Inflation Index (CPI) since retirement, with maximum increase of 5% in any year.

Monthly benefits are adjusted annually, to reflect changes in the Inflation Index (CPI) since retirement, with maximum increase of 5% in any year.

Monthly benefits are adjusted annually, to reflect changes in the Inflation Index (CPI) since retirement, with maximum increase of 3% in any year.

### *Member Contributions*

1.5% of member's pay. No contributions after 30 years credited service. Interest credited, based on actual investment return but not less than 4.0% annually until June 30, 2014. Starting July 1, 2014, interest credited at a rate of 3.0% annually.

3.0% of member's pay. Interest credited, based on actual investment return but not less than 4.0% annually until June 30, 2014. Starting July 1, 2014, interest credited at a rate of 3.0% annually.

3.0% of member's pay. Interest credited at the rate of 3.0% annually.

# General Employees Benefit Provisions Evaluated/Considered June 30, 2019

Employees Hired Before 4/1/83	Employees Hired Between 4/1/83 and 6/30/14	Employees Hired 7/1/14 and Later
<b>Optional Forms of Benefit Payment</b>		
<p><b>Option 1:</b> Reduced benefits are paid to the member for life. Upon death of the member a designated portion of the member's benefit is payable to the contingent annuitant for life. Upon death of the contingent annuitant, the member's benefit will revert to the unreduced straight life amount if the retiree is alive at that time.</p>	Same.	Same.
<p><b>Option 2:</b> Members retiring prior to eligibility for VRS or OASDI benefits may elect to receive a higher amount prior to commencement of those benefits and a lower amount later.</p>	Same.	Same.
<p><b>Option factors</b> are based upon the 1984 actuarial equivalent tables of the Virginia Retirement System.</p>	Same.	Same.
<b>Other</b>		
None.	None.	Part-Time members will not participate in the Defined Benefit Plan.

## Retired Lives Hired Before 4/1/83 by Type of Benefit as of July 1, 2019\*

Type of Benefit	Number	Monthly Amounts		
		Original		Current
		To Soc. Sec. Age #	After Soc. Sec. Age #	
Age and Service				
Single Life Benefit	47	\$99,625	\$ 64,777	\$ 101,685
Joint and Survivor	15	26,270	26,270	31,799
Survivor Beneficiaries	8	6,993	6,993	10,686
<b>Total Age and Service</b>	<b>70</b>	<b>132,888</b>	<b>98,040</b>	<b>144,170</b>
Disability				
Single Life Benefit	2	2,138	2,138	3,369
Joint and Survivor	0	0	0	0
Survivor Beneficiaries	2	939	939	1,982
<b>Total Disability</b>	<b>4</b>	<b>3,077</b>	<b>3,077</b>	<b>5,351</b>
Death-in-Service	1	60	60	165
<b>Grand Total</b>	<b>75</b>	<b>\$136,025</b>	<b>\$101,177</b>	<b>\$149,686</b>

# Benefits for beneficiaries of deceased members change when the member would have attained the age indicated.

Special rules apply to dependent children.

\* Includes July 1, 2019 COLA, if applicable.

## Retired Lives Hired Between 4/1/83 and 7/1/14 by Type of Benefit as of July 1, 2019\*

Type of Benefit	Number	Monthly Amounts		
		Original		Current
		To Soc. Sec. Age #	After Soc. Sec. Age #	
Age and Service				
Single Life Benefit	96	\$ 124,798	\$59,900	\$ 102,213
Joint and Survivor	26	34,273	20,598	31,414
Survivor Beneficiaries	4	4,209	2,682	2,980
<b>Total Age and Service</b>	<b>126</b>	<b>163,280</b>	<b>83,180</b>	<b>136,607</b>
Disability				
Single Life Benefit	14	15,064	8,084	15,262
Joint and Survivor	0	0	0	0
Survivor Beneficiaries	0	0	0	0
<b>Total Disability</b>	<b>14</b>	<b>15,064</b>	<b>8,084</b>	<b>15,262</b>
Death-in-Service	1	407	407	598
<b>Grand Total</b>	<b>141</b>	<b>\$178,751</b>	<b>\$91,671</b>	<b>\$152,467</b>

# Benefits for beneficiaries of deceased members change when the member would have attained the age indicated.

Special rules apply to dependent children.

\* Includes July 1, 2019 COLA, if applicable.

## Retirants and Beneficiaries Hired Before 4/1/83 by Age as of July 1, 2019\*

Ages	No.	Monthly Amounts		
		Original		Current
		To Soc. Sec. Age #	After Soc. Sec. Age #	
55	1	\$ 3,320	\$ 3,320	\$ 3,621
56	1	3,365	2,337	3,657
57	2	5,959	2,701	6,382
59	3	6,322	6,322	7,269
60	3	6,671	6,671	7,835
61	3	7,575	6,631	9,034
62	5	14,193	8,804	16,693
63	3	7,130	7,130	8,562
64	1	3,852	158	4,837
65	2	4,438	3,789	5,149
66	2	2,810	2,810	3,375
67	3	7,367	7,367	9,678
68	2	4,809	4,809	6,455
69	1	350	350	408
70	2	8,124	8,124	9,061
71	2	5,141	5,141	6,353
72	4	4,191	2,606	4,259
73	1	192	192	224
74	3	3,072	2,334	3,123
75	4	10,269	1,836	2,760
77	2	4,840	4,840	7,179
78	4	3,420	1,280	2,071
79	3	2,758	2,758	4,838
80	5	3,343	2,363	4,256
82	4	1,268	1,268	2,522
84	1	1,205	1,205	1,936
85	1	3,289	741	1,385
86	2	1,351	1,351	2,275
87	1	63	63	170
89	1	1,903	303	683
92	1	424	424	874
94	1	463	463	912
95	1	2,548	686	1,850
<b>Totals</b>	<b>75</b>	<b>\$136,025</b>	<b>\$101,177</b>	<b>\$149,686</b>

# Benefits for beneficiaries of deceased members change when the member would have attained the age indicated.

Special rules apply to dependent children.

\* Includes July 1, 2019 COLA, if applicable.

## Retirants and Beneficiaries Hired Between 4/1/83 and 7/1/14 by Age as of July 1, 2019\*

Ages	No.	Monthly Amounts		
		Original		Current
		To Soc. Sec. Age #	After Soc. Sec. Age #	
49	1	\$ 365	\$ 202	\$ 460
50	1	1,092	604	1,092
53	1	3,059	1,692	3,270
54	3	6,302	3,487	6,556
55	4	10,152	5,314	10,668
56	2	3,026	1,674	3,256
57	2	1,484	821	1,555
58	5	9,091	4,810	9,732
59	3	5,875	2,927	6,160
60	7	7,418	3,527	8,083
61	7	9,330	3,168	9,840
62	4	3,585	1,984	3,873
63	6	13,165	7,193	14,518
64	5	8,554	4,626	9,177
65	5	8,811	2,434	9,082
66	6	9,603	4,254	4,550
67	6	9,970	5,209	5,719
68	7	8,004	4,540	5,299
69	4	2,694	1,490	1,692
70	8	8,757	3,056	3,461
71	6	6,805	4,343	4,710
72	4	4,193	2,832	3,435
73	6	4,492	2,484	2,959
74	8	10,399	5,483	6,794
75	4	6,341	4,340	4,756
76	6	4,464	2,617	3,288
77	4	3,784	1,541	2,092
78	1	380	127	184
79	2	863	863	1,001
81	3	2,386	1,028	1,349
82	1	350	350	413
83	3	1,909	946	1,158
84	3	1,054	1,054	1,302
85	1	514	171	260
86	1	188	188	276
89	1	292	292	447
<b>Totals</b>	<b>141</b>	<b>\$178,751</b>	<b>\$91,671</b>	<b>\$152,467</b>

# Benefits for beneficiaries of deceased members change when the member would have attained the age indicated.

Special rules apply to dependent children.

\* Includes July 1, 2019 COLA, if applicable.

**Vested Former Members Hired Before 7/1/14  
Eligible for a Deferred Benefit  
by Ages – as of July 1, 2019**

Ages	No.	Monthly Amounts	
		Original	
		To Soc. Sec. Age	After Soc. Sec. Age
31	1	\$ 439	\$ 243
32	1	61	34
33	1	938	519
38	2	702	389
40	2	1,274	705
42	4	2,654	1,469
45	2	2,794	1,546
46	1	804	445
48	1	1,134	627
49	1	124	68
50	4	4,005	2,217
51	1	464	155
52	1	1,241	687
53	1	508	169
54	2	1,175	650
56	2	727	557
57	3	1,182	709
58	1	1,762	1,762
59	1	921	509
60	1	702	702
61	2	582	322
62	1	774	258
65	1	316	105
66	3	1,332	1,085
<b>Totals</b>	<b>40</b>	<b>\$26,615</b>	<b>\$15,932</b>

A vested former member is a member who terminated City employment with 5 or more years of service and did not withdraw his or her accumulated contributions. Such members are eligible for benefits at normal retirement age.

## Present Active Members by Age and Years of Service as of June 30, 2019

Ages	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	6							6	\$ 222,981
25-29	9	3						12	607,381
30-34	15	2	3					20	1,101,849
35-39	12	10	9	1				32	2,158,875
40-44	9	9	5	4	3			30	2,234,084
45-49	7	4	6	10	3	2		32	2,338,936
50-54	7	10	3	6	2	4	1	33	2,517,059
55-59	13	5	7	6	9	4		44	3,606,996
60	2		1	1	1			5	576,541
61	2	1	2			1		6	433,865
62	1	3		1	2	1	1	9	827,218
63		3	1		1			5	349,485
64	1	1		1				3	183,278
65				1				1	51,959
66			1	1				2	184,908
67			1					1	100,053
68	1					2		3	207,085
69			2			1		3	302,484
70				1				1	49,811
71		1						1	47,439
72				1				1	101,979
74			1			1		2	142,706
79+		1				1		2	64,019
<b>Totals</b>	<b>85</b>	<b>53</b>	<b>42</b>	<b>34</b>	<b>21</b>	<b>17</b>	<b>2</b>	<b>254</b>	<b>\$18,410,991</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

**Group Averages:**

**Age: 48.2 years**  
**Service: 10.6 years**  
**Annual Pay: \$72,484**

## Active Members in Actuarial Valuations Comparative Statement

June 30	Hired Before 4/1/83				Hired After 4/1/83 & Before 7/1/14				Hired After 7/1/14				General Plan Totals				
	No.	Group Averages			No.	Group Averages			No.	Group Averages			No.	Group Averages			% Inc.
		Age	Service	Pay		Age	Service	Pay		Age	Service	Pay		Age	Service	Pay	
2000	39	46.2	21.6	\$54,707	187	43.2	7.3	\$41,122					226	43.7	9.8	\$43,467	3.3 %
2001	37	46.9	22.3	56,309	197	43.9	7.4	43,604					234	44.4	9.7	45,613	4.9 %
2002	34	47.4	23.3	60,844	205	44.4	7.8	45,813					239	44.8	10.0	47,951	5.1 %
2003*	33	48.6	24.3	63,407	211	44.8	8.1	49,206					244	45.3	10.3	51,127	6.6 %
2004#	30	49.1	25.2	65,430	245	45.2	7.4	48,185					275	45.7	9.4	50,066	(2.1)%
2005	29	50.0	26.2	67,732	251	45.4	8.2	49,891					280	45.9	10.0	51,739	3.3 %
2006	24	50.0	26.9	70,730	252	45.6	8.4	52,648					276	46.0	10.0	54,220	4.8 %
2007	22	50.9	27.9	73,300	263	45.6	8.9	54,586					285	46.0	10.4	56,031	3.3 %
2008	19	51.7	28.3	75,478	271	45.5	9.3	56,532					290	45.9	10.5	57,774	3.1 %
2009	17	52.6	28.9	76,357	270	46.3	9.8	57,673					287	46.7	11.0	58,780	1.7 %
2010	15	52.8	29.5	79,359	271	47.0	10.3	58,262					286	47.3	11.3	59,368	1.0 %
2011	7	52.6	30.0	79,869	279	47.0	10.4	58,191					286	47.1	10.9	58,722	(1.1)%
2012	5	54.5	31.0	83,493	277	47.5	10.5	58,372					282	47.6	10.9	58,818	0.2 %
2013	5	55.5	32.0	88,544	274	47.4	10.8	63,239					279	47.5	11.2	63,692	8.3 %
2014**					244	47.7	11.0	62,897					244	47.7	11.0	62,897	(1.2)%
2015^					228	48.3	11.3	66,555	23	45.5	0.5	\$52,163	251	48.0	10.3	65,236	3.7 %
2016					214	49.1	12.4	68,361	40	41.6	1.0	55,168	254	47.9	10.6	66,283	1.6 %
2017					198	49.8	13.1	71,520	53	40.4	1.5	59,387	251	47.8	10.7	68,958	4.0 %
2018					186	50.5	13.8	74,779	68	40.5	1.8	59,619	254	47.8	10.6	70,720	2.6 %
<b>2019</b>					<b>169</b>	<b>51.3</b>	<b>14.9</b>	<b>78,290</b>	<b>85</b>	<b>41.9</b>	<b>2.2</b>	<b>60,941</b>	<b>254</b>	<b>48.2</b>	<b>10.6</b>	<b>72,484</b>	<b>2.5 %</b>

\* Method of reporting pay was changed for 2003.

\*\* After transfer of Water Plant employees.

# After Plan Amendment that involved both benefit changes and the inclusion of part-time employees.

^ After addition of new tier.

# FINANCIAL PRINCIPLES

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## Financial Principles and Operational Techniques

**Promises Made, and Eventually Paid.** As each year is completed, the plan in effect hands an “IOU” to each member then acquiring a year of service credit --- the “IOU” says: “The City of Fairfax Retirement Plan owes you one year’s worth of retirement benefits, payments in cash commencing when you qualify for retirement.”

The related *key financial questions* are:

**Which generation of taxpayers contributes the money to cover the IOU?**

*The present taxpayers*, who receive the benefit of the member’s present year of service?

*Or the future taxpayers*, who happen to be in Fairfax at the time the IOU becomes a cash demand?

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***The law governing plan financing intends that this year’s taxpayers contribute the money to cover the IOUs being handed out this year.*** By following this principle, ***the employer contribution rate will remain approximately level from generation to generation*** --- our children and our grandchildren will contribute the same percents of active payroll we contribute now.

(There are plans which have a design for deferring contributions to future taxpayers, lured by a lower contribution rate now and putting aside the consequence that the contribution rate must then relentlessly grow much greater over decades of time -- consume now, and let your children face higher taxes after you retire.)

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. ***Investment return*** becomes in effect the third contributor for benefits to employees, and is interlocked with the contribution amounts required from employees and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Normal Cost (the cost of members’ service being rendered this year)

. . . plus . . .

Interest on Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between (i) actuarial accrued liabilities and (ii) the accrued assets of the plan).

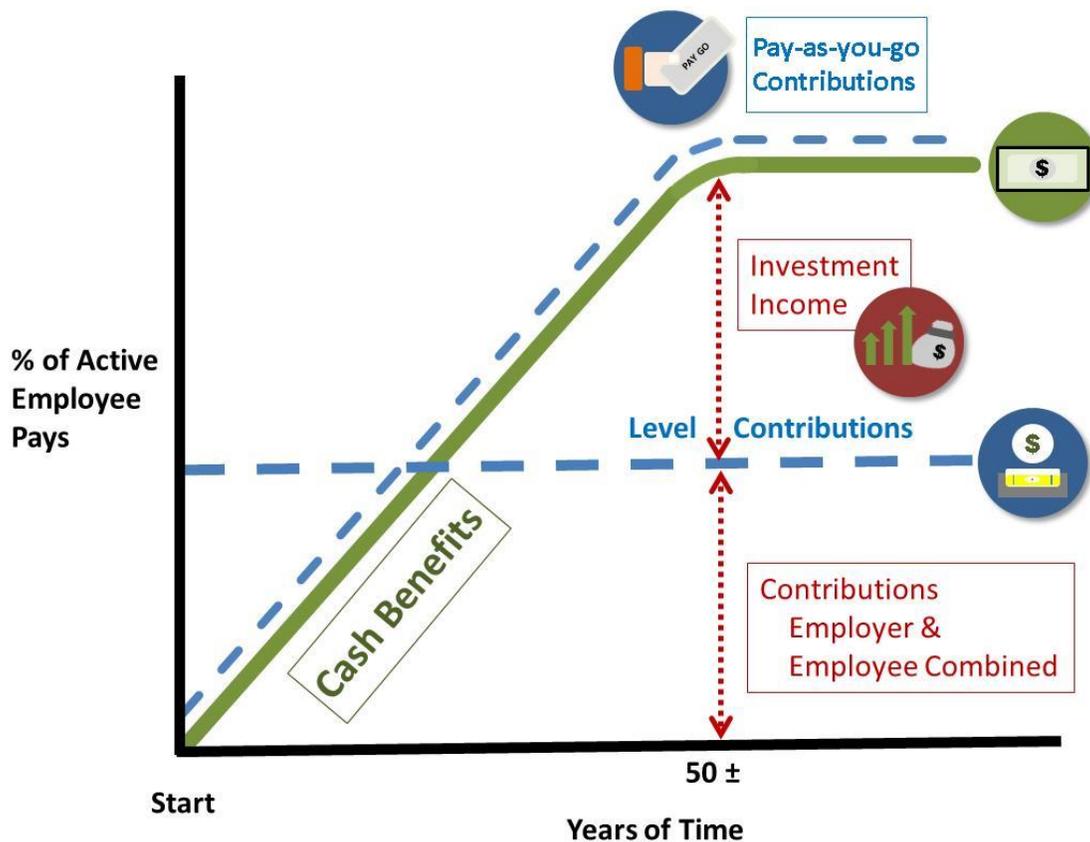
**Computing Contributions to Support Plan Benefits.** From a given schedule of benefits and from the employee data and asset data furnished, the actuary determines the contribution rates to support the benefits, by means of *an actuarial valuation and a funding method*.

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement.

In making an actuarial valuation, assumptions must be made as to what the above rates will be, for the next year and for decades in the future. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

**Reconciling Differences Between Assumed Experience and Actual Experience.** Except by coincidence, actual experience will not coincide exactly with assumed experience, regardless of the choice of the assumptions, the skill of the actuary, and the precision of the calculations. Some future events can be predicted with considerable precision. Others, such as economic activities tend to be volatile and *seem to defy reliable prediction*.

The plan copes with these continually changing differences by having periodic actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is *continuing adjustments in financial position*.



**CASH BENEFITS LINE.** This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

**LEVEL CONTRIBUTION LINE.** Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

- **Economic Risk Areas**
  - Rates of investment return
  - Rates of pay increase
  - Changes in active member group size
- **Non-Economic Risk Areas**
  - Ages at actual retirement
  - Rates of mortality
  - Rates of withdrawal of active members (turnover)
  - Rates of disability

## The Actuarial Valuation Process

*The financing diagram* on the previous page shows the relationship between the two fundamentally different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program) which is an **increasing contribution method**; and the **level contribution method** which equalizes contributions between the generations.

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*The actuarial valuation* is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

- Covered Person Data**, furnished by plan administrator
  - Retired lives now receiving benefits
  - Former employees with vested benefits not yet payable
  - Active employees
- + **Asset Data** (cash and investments), furnished by plan administrator
- + **Assumptions concerning future financial experiences in various risk areas**, which assumptions are established by the Administrative Committee after consulting with the actuary
- + **The funding method** for employer contributions (the long-term, planned pattern for employer contributions)
- + **Mathematically combining the assumptions, the funding method, and the data**
- = Determination of:
  - Plan Financial Position**
  - and/or **New Employer Contribution Rate**

## APPENDIX

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## Actuarial Cost Methods

**Age and Service and Casualty Benefits.** Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an individual **entry-age actuarial cost method** having the following characteristics:

- (i) the annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Differences in the past between assumed experience and actual experience (“actuarial gains and losses”) become part of actuarial accrued liabilities.

**Financing of Unfunded Actuarial Accrued Liability (UAAL).** Unfunded Actuarial Accrued Liabilities (the portion of total liabilities not covered by present assets or expected future normal cost contributions) were amortized as level (principal and interest combined) percent-of-payroll. The amortization period shall be decreased by one year annually beginning with a 10-year closed amortization period. A new 10-year amortization schedule will be created for unfunded liabilities arising during subsequent valuations (multiple layer amortizations) and preexisting unfunded liabilities will continue to be amortized based on their scheduled end date. The UAAL payment reflects payments expected to be made between the valuation date and the fiscal year for which the contributions in this report are scheduled to begin, which tends to smooth out changes in the contribution rates from year to year.

**Funding Value of Assets.** The valuation assets used for funding purposes is derived as follows: prior year valuation assets are increased by contribution and expected investment income and reduced by refunds, benefit payments and expenses. To this amount is added 20% of the difference between expected and actual investment income for each of the previous five years. Funding value of assets is limited to a 20% corridor around the Market Value. The application of the corridor was first implemented for purposes of the June 30, 2018 valuation.

**Minimum Employer Contribution.** The minimum employer contribution rate is equal to the normal cost, beginning with the June 30, 2018 valuation.

# Summary of Assumptions Used for Fairfax Actuarial Valuations

## Assumptions Adopted by Administrative Committee after Consulting with Actuary

*The actuarial assumptions used in performing the valuation are shown* in this section of the report. The assumptions were adopted by the administrative committee and established for the June 30, 2018 actuarial valuation, based upon a study of experience during the period July 1, 2011 to June 30, 2017.

### Economic Assumptions

*The investment return rate* used in making the valuation was 6.25% per year, compounded annually (net after administrative expenses). This rate of return is not the assumed real rate of return. The real rate of return over wages is the portion of investment return which is more than the wage inflation rate. Considering wage inflation recognition of 3.25%, the 6.25% investment return rate translates to **an assumed real rate of return of 3.00% over wages. The assumed real return over prices would be higher.**

*Pay increase assumptions* for individual active members are shown below. Part of the assumption for each age is for a merit and/or seniority increase, and the other 3.25% recognizes wage inflation. The assumptions were first used for the June 30, 2018 valuation.

<b>Pay Increase Assumptions for an Individual Employee</b>			
<b>Sample Ages</b>	<b>Merit &amp; Seniority</b>	<b>Base (Economy)</b>	<b>Increase Next Year</b>
20	4.50%	3.25%	7.75%
25	3.50	3.25	6.75
30	2.50	3.25	5.75
35	2.00	3.25	5.25
40	1.50	3.25	4.75
45	1.00	3.25	4.25
50	0.50	3.25	3.75
55	0.50	3.25	3.75
60	0.50	3.25	3.75
65	0.50	3.25	3.75
Ref	504		

*Total active member payroll* is assumed to increase 3.25% a year, which is the portion of the individual pay increase assumptions recognizing wage inflation.

*Price inflation* is assumed to be 2.50% per year. For all members hired prior to 7/1/2014, the 5% COLA cap was valued by assuming that the actual COLA paid would average 2.50% annually. For all members hired after 7/1/2014, the 3% COLA cap was valued by assuming that the actual COLA paid would average 2.25% annually.

*The number of active members* is assumed to continue at the present number.

## Non-Economic Assumptions

**The mortality table.** The mortality rates utilized are based upon the RP-2014 tables, as extended, and include a margin for future mortality improvements projected using a fully generational improvement scale. The tables used were as follows:

- **Pre-Retirement:** The RP-2014 Employee Generational Mortality Tables, with adjustments and extended via cubic spline. These tables are adjusted backwards to 2006 with the MP-2014 scale, resulting in a base year of 2006 with future mortality improvements assumed each year using scale MP-2017.
- **Healthy Post-Retirement:** The RP-2014 Healthy Annuitant Generational Mortality Tables, with adjustments and extended via cubic spline. These tables are adjusted backwards to 2006 with the MP-2014 scale, resulting in a base year of 2006 with future mortality improvements assumed each year using scale MP-2017.
- **Disability Retirement:** The RP-2014 Disabled Mortality Tables, with adjustments and extended via cubic spline. These tables are adjusted backwards to 2006 with the MP-2014 scale, resulting in a base year of 2006 with future mortality improvements assumed each year using scale MP-2017.

These tables were first used for the June 30, 2018 valuation. Related values for sample ages are as follows:

Sample Age Now	Pre-Retirement Future Life Expectancy (Years) <sup>^</sup>		Healthy Post-Retirement Future Life Expectancy (Years) <sup>^</sup>		Disabled Retirement Future Life Expectancy (Years) <sup>^</sup>	
	Men	Women	Men	Women	Men	Women
	55	31.2	35.4	29.6	32.0	21.2
60	26.2	30.4	25.1	27.3	18.2	21.4
65	21.6	25.5	20.8	22.8	15.4	18.0
70	17.3	20.7	16.7	18.4	12.6	14.7
75	13.4	16.2	13.0	14.4	10.0	11.5
80	9.8	11.9	9.6	10.8	7.6	8.8
85	6.8	8.1	6.8	7.7	5.6	6.5
Ref	#2133x1sb0	#2134x1sb0	#2135x1sb0	#2136x1sb0	#2137x1sb0	#2138x1sb0

<sup>^</sup> Applicable to calendar year 2019. Rates in future years are determined by the MP-2017 projection scale.

**The probabilities of retirement** for members eligible to retire are shown below:

Attained Ages	Percent of Eligible Members Retiring Within Next Year		
	All Members Eligible Under 50/30	Other Eligibility Conditions	
		Member Hired	
		After April 1, 1983 and Before July 1, 2014	After July 1, 2014
45		2%	2%
46		2	2
47		2	2
48		2	2
49		2	2
50	10%	2	2
51	10	2	2
52	10	2	2
53	10	2	2
54	10	2	2
55	10	2	2
56	10	2	2
57	10	2	2
58	10	2	2
59	10	2	2
60	30	7	5
61	30	7	5
62	60	33	38
63	30	13	13
64	40	13	13
65	100	18	18
66	100	18	18
67	100	18	18
68	100	8	8
69	100	8	8
70	100	100	100
Ref	1461	2794	2795

*The probabilities of withdrawal* from service and *disability* are shown for sample ages below:

Sample Ages	% of Active Members Separating Within Next Year			
	Disability*		Other	
	Men	Women	Men	Women
25	0.1275%	0.0510%	14.00%	13.10%
30	0.2100	0.0810	10.00	11.47
35	0.3075	0.1335	8.00	11.05
40	0.4050	0.1830	5.00	10.74
45	0.5850	0.4380	3.00	6.12
50	0.7650	0.6885	2.50	2.86
55	0.3825	0.3435	2.50	2.65
60	0.0000	0.0000	2.50	2.65
Ref	1131	1132	ab1442x1	ab1443x1

\* 80% of disabilities are assumed to be non-duty related.

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*A market related value of assets* was used for valuation purposes (see page 12).

*The data about persons now covered and about present assets* was furnished by the Plan's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

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The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA).

## Miscellaneous and Technical Assumptions

### June 30, 2019

<b>Marriage Assumption:</b>	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
<b>Pay Increase Timing:</b>	Reported pays were pay rates at July 1 including the COLA for the year. Other increases are assumed to occur uniformly throughout the year. This situation is approximated by assuming that pay increases occur six months after the beginning of the fiscal year.
<b>Decrement Timing:</b>	Decrements are assumed to occur mid-year (i.e., January 1).
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Decrement Relativity:</b>	Decrement rates are used directly from the experience study, without conversion for multiple decrement table effects.
<b>Decrement Operation:</b>	Disability and turnover do not operate during retirement eligibility.
<b>Service Credit Accruals:</b>	It is assumed that members employed on a full-time basis accrue one year of service credit per year. Part-time members earn service credit based on the number of hours they work per week divided by a standard 40-hour work week.
<b>Loads:</b>	The normal cost and actuarial accrued liability, for age and service benefits, were increased by 1.5% to account for inclusion of unused sick leave in the service used to calculate retirement benefits. Optional benefit factors are described in Sections 66-126 and 66-366 of the City of Fairfax Code of Ordinances. The factors used are not actuarially equivalent. Liabilities were increased 1.0% to reflect this.
<b>Incidence of Contributions:</b>	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
<b>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.
<b>Normal Form of Benefit:</b>	The assumed normal form of benefit is the straight life form.

## Definitions of Technical Terms

**Accrued Service:** Service credited under the plan which was rendered before the date of the actuarial valuation.

**Actuarial Accrued Liability:** The difference between the actuarial present value of plan benefits and the actuarial present value of future normal costs. Also referred to as “past service liability.”

**Actuary:** A person who is trained in the applications of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries. The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation ASA and ultimately to Fellowship with the designation FSA.

**Actuarial Assumptions:** Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment return and pay increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (pay increases and investment return) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

**Actuarial Cost Method:** A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future benefits” between future normal costs and actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

**Actuarial Equivalent:** One series of payments is said to be actuarially equivalent to another series of payments if the two series have the same actuarial present value.

**Actuarial Gain (Loss):** The difference between actual unfunded actuarial accrued liabilities and anticipated unfunded actuarial accrued liabilities -- during the period between two valuation dates. It is a measurement of the difference between actual and expected experience.

**Actuarial Present Value:** The single sum now which is equal to a payment or series of payments in the past or future. It is determined by adjusting payments by rates of interest and by probabilities of payment.

**Amortization:** Paying off a debt with periodic payments.

**Normal Cost:** The portion of the actuarial present value of future benefits that is assigned to the current year by the actuarial cost method. Sometimes referred to as “current cost.”

**Unfunded Actuarial Accrued Liabilities:** The difference between actuarial accrued liabilities and valuation assets. Sometimes referred to as “unfunded past service liability” or, strangely, “unfunded supplemental present value” or simply as “unfunded liability.”

# City of Fairfax Retirement Plans For General and Public Safety Employees Actuarial Funding Policy

## I. GENERAL

### A. Purpose

- (1) The purpose of this Actuarial Funding Policy is to record the funding objectives and policy set by the Administrative Committee for the City of Fairfax Retirement Plans. The Administrative Committee establishes this Funding Policy to help ensure the systematic funding of future benefit payments for members of the Retirement Plans.
- (2) In 2012, the Governmental Accounting Standards Board (GASB) approved two new financial reporting standards. GASB Statement No. 67, “Financial Reporting for Pension Plans” replaces the requirements of GASB Statement No. 25. GASB Statement No. 68, “Accounting and Financial Reporting for Pensions” replaces the requirements of GASB Statements No. 27 and No. 50. Prior to the changes, the Annual Required Contribution (ARC) rate was used as a basis for funding decisions. The new GASB statements separate accounting cost (expense) from funding cost (contributions), necessitating the creation of this funding policy.
- (3) This funding policy shall be reviewed by the Administrative Committee annually for several years following creation. Subsequently, it shall be reviewed every five years in conjunction with the experience study.

### B. Policy Objectives

- (1) Maintain adequate levels of assets sufficient to fund all benefits expected to be paid to members and beneficiaries when due.
- (2) Maintain stability of employer contributions rates, consistent with other funding objectives.
- (3) Support the public policy goals of accountability and transparency.
- (4) Monitor material risks to assist in any risk management strategies the Administrative Committee deems appropriate.
- (5) Promote intergenerational equity. Each generation of members and employers should incur the cost of benefits for the employees who provide services to them, rather than deferring costs to future members and employers.
- (6) Provide a reasonable margin for adverse experience to offset risk.
- (7) Review the Plans’ investment return assumption, potentially in conjunction with a periodic asset liability study and in consideration of the Administrative Committee’s risk profile.
- (8) Continue the systematic reduction of the Plans’ Unfunded Actuarial Accrued Liabilities (UAAL).

## **II. LEGAL**

### **A. Annual Actuarial Valuation**

- (1) Section 66-193(b) and Section 66-433(b) of the Fairfax, Virginia Code of Ordinances require the Retirement Plans to have an actuarial valuation performed annually.

### **B. Annual Employer Contribution**

- (1) The Administrative Committee is required, pursuant to Section 66-193 and Section 66-433 of the Fairfax, Virginia Code of Ordinances, to annually certify the annual required contribution to be made by the employer as follows:
  - (a) The cost of benefits under the plan, in excess of that portion of the cost provided through contributions by the participants, shall be borne by the city.
  - (b) The city shall retain an actuary, who by annual actuarial valuations shall determine the amount of the annual contributions by the city that are necessary to meet its obligations under the plan. The city shall transmit its contributions to the trustee each year, in such amounts and at such times as it may deem appropriate, in the aggregate amount actuarially determined as necessary to provide the benefits of the plan.
  - (c) All contributions by the city shall be irrevocable, and may be used only for the benefits of participants and their beneficiaries and contingent annuitants, except as otherwise provided in Section 66-232 or Section 66-472.

## **III. POLICY**

### **A. Actuarial Cost Method**

- (1) The individual entry age normal actuarial cost method of valuation shall be utilized in determining actuarial accrued liability and normal cost with the following characteristics:
  - (a) the annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement; and
  - (b) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.
- (2) Differences in the past between assumed experience and actual experience (actuarial gains and losses) shall be factored into the actuarial accrued liability.
- (3) The normal cost shall be determined on an individual basis for each active member.

### **B. Asset Smoothing Method**

- (1) The investment gains or losses of each valuation period, resulting from the difference between actual investment return and assumed investment return, shall be recognized annually in level amounts over a period determined by the Administrative Committee in consultation with its actuary, not to exceed five (5) years in calculating the funding value of assets.
- (2) Regardless of the results obtained from the smoothing method described in (1), the Funding Value of Assets shall not diverge from the Market Value of Assets by more than 20% (corridor). Based upon consultation with the Actuary, the Administrative Committee may combine bases (scheduled recognition of prior gains and losses) in order to reset the Funding Value of Assets to be equal to the Market Value of Assets when the difference between Market Value of Assets and Funding Value of Assets is 5% or less of Market Value of Assets.

**C. Amortization Method**

- (1) A level percent of payroll amortization method shall be used to systematically pay off the unfunded actuarial accrued liabilities over a closed amortization period not to exceed 20 years.
- (2) The amortization period for unfunded accrued liabilities shall be set in a manner to ensure that the plan will be 100% funded as soon as reasonably possible. Starting in conjunction with the actuarial valuation dated June 30, 2018 (determines contribution for Fiscal Year 2020), the amortization period shall be decreased by one (1) year annually beginning with a ten (10) year closed amortization period. The Administrative Committee may elect to create a new ten (10) year amortization schedule for unfunded liabilities arising during that valuation and subsequent valuations (multiple layer amortization), and to continue the amortization of preexisting unfunded liabilities to their scheduled end date.
- (3) Unfunded liabilities arising from benefit changes provided to retirees or in conjunction with early retirement incentive programs offered by the employer may be separately funded over a closed amortization period of 5 years at the discretion of the Administrative Committee.
- (4) In the event that the Retirement Plans' assets exceed its liabilities, all amortization schedules shall be considered completed, and employer contributions will be set based upon the normal cost, without regard to the overfunding status of the Retirement Plans.

**D. Assumptions**

- (1) The economic and demographic actuarial assumptions utilized to determine the contribution requirements and benefit values of the Retirement Plans shall be determined by the Administrative Committee in consultation with its actuary, subject to the following limitations:
  - (a) The assumed rate of investment return shall not exceed 8.0%, compounded annually.

**E. Funding Target**

- (1) The targeted funded ratio of the Retirement Plans shall be 100%.
- (2) The employer contribution rate shall at least be equal to the normal cost unless the funded ratio of the Retirement Plans exceeds 120%.
- (3) A funding plan shall be developed by the Administrative Committee in consultation with its actuary if the funded ratio of the Retirement Plans falls below 60%, which may include additional funding requirements.

**F. Risk Management**

- (1) Assumption Changes
  - (a) The actuarial assumptions utilized to determine the annual contribution requirements and valuations shall be those last adopted by the Administrative Committee based on the most recent experience study and upon the advice and recommendation of the Administrative Committee's actuary. The Administrative Committee's actuary shall conduct an experience study at least once every five years. The results of the experience study shall be the basis for the actuarial assumptions recommended to the Administrative Committee.
  - (b) The actuarial assumptions may be revised during the five-year period between experience studies if significant plan design changes or other significant events occur, as advised by the actuary.

- (2) Risk Measures. The following risk measures will be annually determined by the Retirement Plans' actuary to provide quantifiable measurements of risk as it applies to the Retirement Plans.
  - (a) Funded ratio;
  - (b) Unfunded actuarial accrued liabilities – the years required to pay down the unfunded liabilities of the Retirement Plans based upon the current funding schedule;
  - (c) Total unfunded actuarial accrued liabilities as a percentage of total payroll;
  - (d) Total market value of assets as a percentage of total payroll;
  - (e) Total actuarial accrued liabilities as a percentage of total payroll;
  - (f) Total retired to active life actuarial accrued liabilities; and
  - (g) Ratio of net cash flow to market value of assets.
- (3) Risk Control
  - (a) The Administrative Committee shall carefully monitor the risk measures identified above and shall consider steps to mitigate risk, particularly as the funded ratio increases.

#### **IV. REVIEW AND AMENDMENT**

##### **A. Periodic Review**

- (1) This Actuarial Funding Policy shall be reviewed no less frequently than once every five years in conjunction with the required experience study performed by the Administrative Committee's actuary, and may be reviewed at any time at the Administrative Committee's discretion.

##### **B. Amendment**

- (1) The Administrative Committee, in consultation with its Actuary and Legal Counsel, may amend this Actuarial Funding Policy at any time as deemed necessary to address changes in the makeup, benefit structure and/or funding status of the Retirement Plans.

# Risk Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

- 1. Investment risk** – actual investment returns may differ from the expected returns;
- 2. Asset/Liability mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
- 3. Contribution risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
- 4. Salary and Payroll risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
- 5. Longevity risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
- 6. Other demographic risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The computed contribution rate shown on page 4 may be considered as a minimum contribution rate that complies with City's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

## Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	<u>2019</u>	<u>2018</u>
Ratio of the market value of assets to total payroll	3.3	3.3
Ratio of actuarial accrued liability to payroll	3.7	3.7
Ratio of actives to retirees and beneficiaries	1.2	1.2
Ratio of net cash flow to market value of assets	-3.6%	-3.8%

### Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

### Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time. The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

### Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

### Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

### Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.



September 30, 2019

Mr. David Hodgkins  
Asst. City Manager/ City Finance Director  
City of Fairfax  
10455 Armstrong Street, Suite 312  
Fairfax, Virginia 22030

**Re: City of Fairfax Retirement Plan for General Employees Report of June 30, 2019  
Actuarial Valuation**

Dear Mr. Hodgkins:

Please find enclosed ten copies of the 37th Annual Actuarial Valuation for the City of Fairfax Retirement Plan for General Employees.

Sincerely,

A handwritten signature in black ink that reads "Heidi G. Barry". The signature is written in a cursive style with a small triangle symbol above the letter 'i' in "Barry".

Heidi G. Barry, ASA, FCA, MAAA

HGB:ah  
Enclosures