

**Fairfax County Employees'
Retirement System
Actuarial Valuation
as of June 30, 2016**

Produced by Cheiron

October 2016

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October 19, 2016

Board of Trustees
Fairfax County Employees'
Retirement System
10680 Main Street, Suite 280
Fairfax, Virginia 22030-3812

**Re: *Fairfax County Employees' Retirement System
Actuarial Valuation as of June 30, 2016***

Dear Members of the Board:

At your request, we have conducted our annual actuarial valuation of the Fairfax County Employees' Retirement System as of June 30, 2016. The results of the valuation are contained in this report. The purpose of this report is to present the annual actuarial valuation of the Fairfax County Employees' Retirement System. This report is for the use of the Fairfax County Employees' Retirement System Board of Trustees and its auditors in preparing financial reports in accordance with applicable law and accounting requirements.

Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions on which our findings are based. Those comments are the basis for our certification that this report is complete to the best of our knowledge and belief. The results of this report are only applicable to the employer contribution for Fiscal Year 2018 and rely on future plan experience conforming to the underlying assumptions. To the extent that actual plan experience deviates from the underlying assumptions, the results would vary accordingly.

In preparing our report, we relied on information (some oral and some written) supplied by the Retirement System. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice Number 23.

This report was prepared exclusively for the Fairfax County Employees' Retirement System for the purpose described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

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 assumptions, changes in assumptions, and changes in plan provisions or applicable law.

We hereby certify that, to the best of our knowledge, this report and its contents, have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards

Board of Trustees
Fairfax County Employees' Retirement System
October 19, 2016
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of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinions contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Sincerely,
Cheiron


Fiona E. Liston, FSA, EA
Principal Consulting Actuary


Coralie A. Milligan, FSA, EA
Associate Actuary

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

FOREWORD

Cheiron has performed the actuarial valuation of the Fairfax County Employees' Retirement System as of June 30, 2016. The purpose of this report is to:

- 1) **Measure and disclose**, as of the valuation date, the financial condition of the System;
- 2) **Indicate trends** in the financial progress of the System;
- 3) **Determine the contribution rate** to be paid by the employer for Fiscal Year 2018; and
- 4) **Provide specific information** and documentation required for the System's financial reporting.

An actuarial valuation establishes and analyzes system assets and liabilities on a consistent basis and traces the progress of both from one year to the next. It includes measurement of the system's investment performance as well as an analysis of actuarial liability gains and losses.

Section I presents a summary containing our findings and disclosing important trends experienced by the System in recent years.

Section II contains details on various asset measures, together with pertinent performance measurements.

Section III shows similar information on System liabilities, measured for actuarial, accounting, and governmental reporting purposes.

Section IV develops the employer contribution rate, determined using actuarial techniques and compares that to the rate developed using the corridor method of funding.

Section V includes the required items to be included in the System's Comprehensive Annual Financial Report (CAFR).

The appendices to this report contain a summary of the System's membership at the valuation date, a summary of the major provisions of the System, and the actuarial methods and assumptions used in the valuations.

In preparing our report, we relied on information (some oral and some written) supplied by the System's staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice Number 23.

The actuarial assumptions reflect our understanding of the likely future experience of the System, and the assumptions taken individually represent our best estimate for the future experience of the System. The results of this report are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the System could vary from our results.

Finally, in preparing this report, we have conformed to generally accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

General Comments

The employer's annual contribution to this System is determined by using a corridor funding method. Under this funding approach, the employer contribution rate base rate consists of the normal cost rate plus expense rate plus certain amortization UAL bases. The UAL base rates are summarized in Section IV. The normal cost rate and actuarial accrued liability will be measured using the entry age funding method. If the corridor funded status falls outside the corridor, a credit (if above 120%) or charge (if below 90%) will be established based on a rolling 15-year amortization equal to the amount necessary to re-enter the corridor. The County is taking steps to increase the 90% corridor floor to 100%. Once this threshold is reached, the 15-year periods will become closed 15-year layers.

The employer contribution rate for FY 2018, as calculated under this method, increased from 18.23% for FY 2017 to 20.03% of payroll when using the 90% corridor floor. The County's FY 2017 contribution was actually based on a 97% corridor floor, and for FY 2018, we have also provided contribution rates for a 98% floor. On that basis, the contribution in FY 2017 was 22.90%, and for FY 2018, it will be in the range of 24.63% to 25.29%.

This valuation contains information reported in the June 30, 2016 Comprehensive Annual Financial Report (CAFR) of the System. Additional information regarding GASB Statement Number 67 can be found in a separate report.

Since the previous valuation, an experience study was performed to review the actuarial assumptions and methods. A description of the changes the Board has approved appears in Appendix B. The current results reflect these assumption changes which increased the liabilities by \$68.6 million. As part of the experience study, we revisited the collection and use of data in preparing these valuations. Prior to this valuation, active data was collected as of December 31 and inactive data as of June 30 with participants appearing in both files being removed from the active population. The age and service of the active population was also adjusted to account for the lack of new entrants into the System between December 31 and June 30. Starting with this valuation, the process has been changed to collect all data as of the prior December 31 and to perform the initial valuation runs as of that date. The resulting liabilities are then adjusted for six months to the June 30 valuation date. The adjustment takes into account the actual July 1 cost-of-living increase and any other changes that are known to have occurred in that six-month period.

Trends

The System underperformed the investment assumption during the fiscal year ending in 2016, causing an actuarial loss on the asset side of the System. The actual return on a market value basis was approximately -0.46%. On an actuarial value basis, the assets returned 4.26% compared with an assumed rate of return of 7.50%. The investment loss recognized for funding purposes was \$120.5 million.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

The measurement of liabilities produced a gain this year in the amount of \$34.3 million. This was due to experience compared to our assumptions about salary increases, retirement behavior, COLA, death, etc. Specific components of the gain include:

- The average salary increase was 4.2% for active participants who were in both the June 30, 2015 and June 30, 2016 valuations. This was about as expected based on the actuarial assumption.
- The valuation assumed a 2.50% cost-of-living adjustment in 2015 for benefits in pay status. The actual CPI-based COLA was 1.00% last year, creating a liability gain of \$39.0 million.
- An annual component of liability loss is the delayed recognition of new hires throughout the year. This does not contribute to an increase in the System's unfunded liability because both the member and the employer make contributions from the date of hire. However, when we look only at the liability side, they are a component of the annual liability loss. This year, they account for a \$5.9 million loss.
- There was a \$1.2 million liability gain component that is made up of various other causes such as members terminating, retiring, dying, or becoming disabled in a way contrary to the assumption.

This valuation report also reflects a plan change to reduce the Social Security offset applied to certain disability benefits which increased liabilities by \$0.8 million. The County will make an additional contribution in Fiscal Year 2017 to pay for this change.

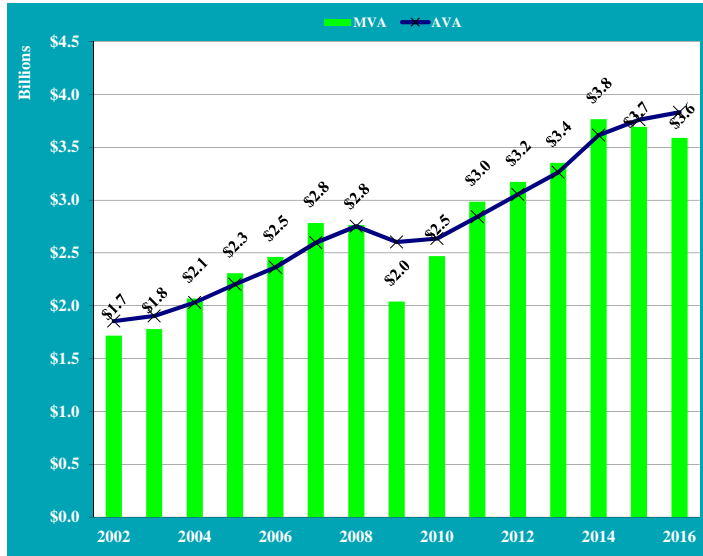
The combination of liability and investment experience, plan and assumption changes, together with County plus member contributions over the last year, led to the System's funding ratio (actuarial value of assets over actuarial accrued liability) decreasing from 76.6% at June 30, 2015 to 74.9% at June 30, 2016. For purposes of measuring whether the System remains within the funding corridor, an adjusted funding ratio is used. In this ratio, there is an additional asset recognized in the amount of the unfunded actuarial liability payments being made by the County to pay for benefit increases and assumption changes. On this basis, the System's actuarial funded ratio decreased from 79.2% at June 30, 2015 to 78.6% at June 30, 2016.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

It is important to take a step back from the latest results and view them in the context of the System's recent history. On the next three pages, we present a series of charts which display key factors in the valuations over the last 15 years. After the historical review, we present a few projection graphs, showing the possible condition of the System over the next 15 years under various market return scenarios.

Growth in Assets

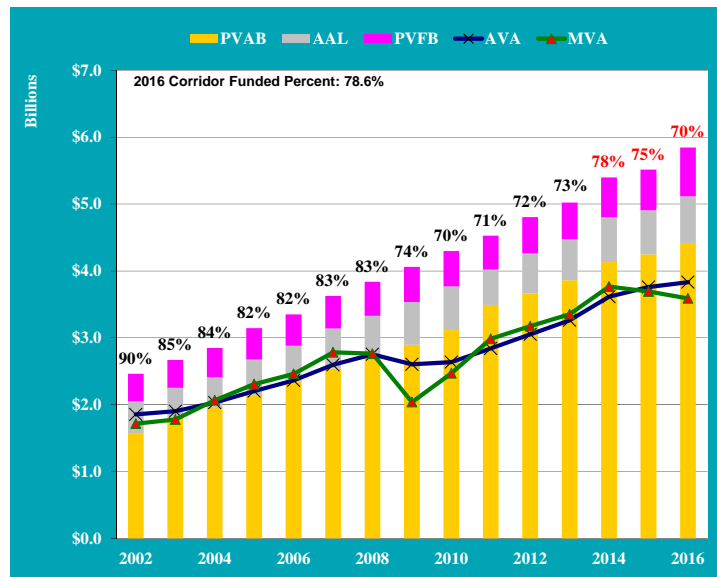


There was a decrease in the market value of assets (MVA) over last year due to a return of -0.5%. The actuarial value of assets (AVA) increased due to the continued recognition of past asset gains. The System recognized only a third of the asset loss this year and there remains \$241 million in unrecognized losses that will be phased in over the next few years.

Over the period July 1, 2002 to June 30, 2016, the System's assets returned approximately 7.60% per year measured at actuarial value, compared to the valuation assumption of 7.25% per year.

Assets and Liabilities

The three colored bars represent the three different measures of liability mentioned in this report. The amount represented by the top of the pink bars, the present value of future benefits (PVFB), is the amount needed to provide all benefits for the current participants and their beneficiaries. For funding purposes, the target amount is represented by the top of the gray bar. Through the 2013 valuation, we compare the actuarial value of assets to this measure of liability in developing the funded percent (black numbers). Starting in 2014, the comparison uses the market value of assets (red numbers). These are the percentages shown in the graph labels.

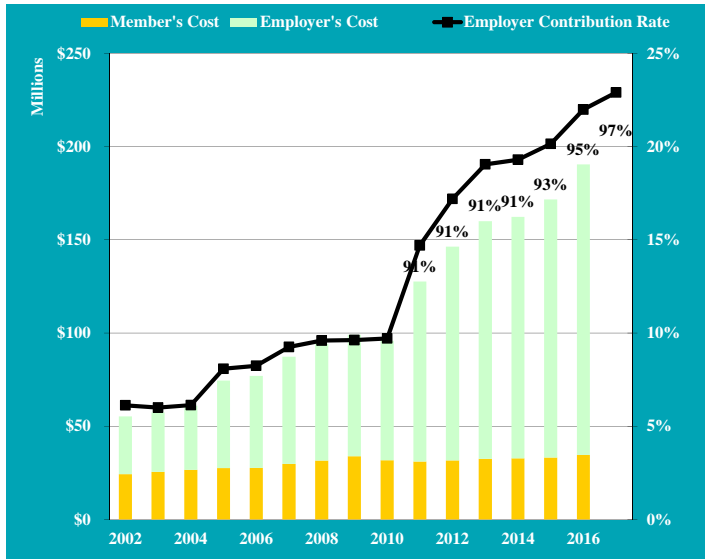


**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

Contribution Rates

The stacked bars in this graph show the contributions made by both the County and the members (left hand scale). The black line shows the County contribution rate as a percent of payroll (right hand scale).

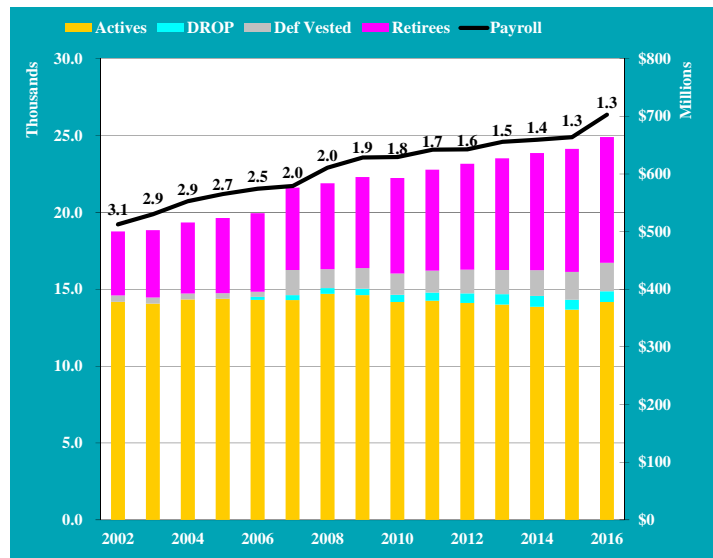


The member contribution rate is set by the County Ordinance. The County contribution rate is set by the actuarial process, as constrained by the corridor method. Note there is a lag in the rate shown. For example, the 2016 value is the rate prepared by the 2014 valuation and implemented for the period June 30, 2015 to June 30, 2016. Starting with FY 2011, the County contribution has been based on a corridor floor greater than 90%. The data labels show the change in this metric.

Participant Trends

As with many systems in this country, there has been a steady growth in the number of retired members as the System has matured. The active-to-inactive ratio has decreased from 3.1 actives to each inactive in 2002 to 1.3 actives for each inactive today. While this would be an alarming trend in a pay-as-you-go system, the pool of invested assets has been established in anticipation of this development.

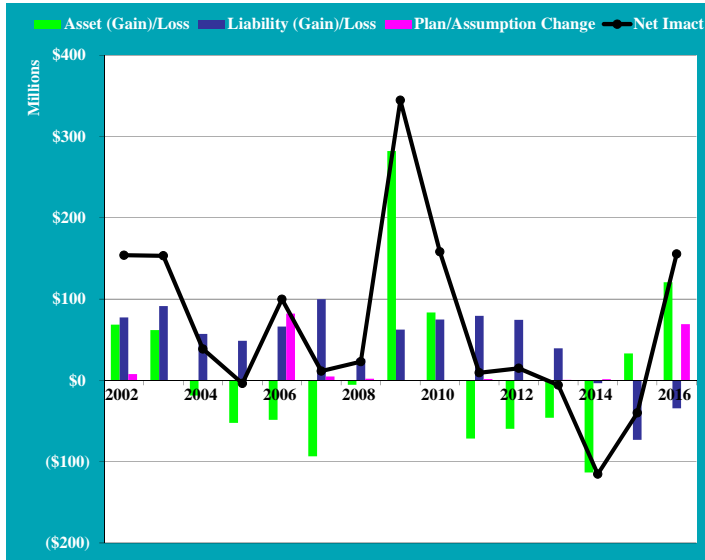
Starting in 2006, the chart also shows the number of DROP participants. Neither employer nor member contributions are made on their behalf, which leads to a slightly lower growth in effective covered payroll for this System.



**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

Gains and Losses



This graph shows the annual gains and losses experienced by the System, along with the change in unfunded actuarial liability (UAL) due to plan amendments and changes in assumptions. The black line shows the net impact of all such changes in a given year. Positive numbers represent increases in the UAL, while negative numbers show reductions.

Cash Flow

The graph shows the annual cash flows into and out of the System. The graph shows the magnitude of the investment returns on the market value (green bars) compared to the contributions (yellow bars). The net cash flow (line) is comparing the contributions to benefits and expenses (red bar). Negative cash flow is expected for a mature system such as this one. The implications of a system with negative cash flow are that the impact of market fluctuations can be more severe. This is because, as assets are being depleted to pay benefits in down markets, less principal is available to be reinvested during periods of favorable returns.



**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

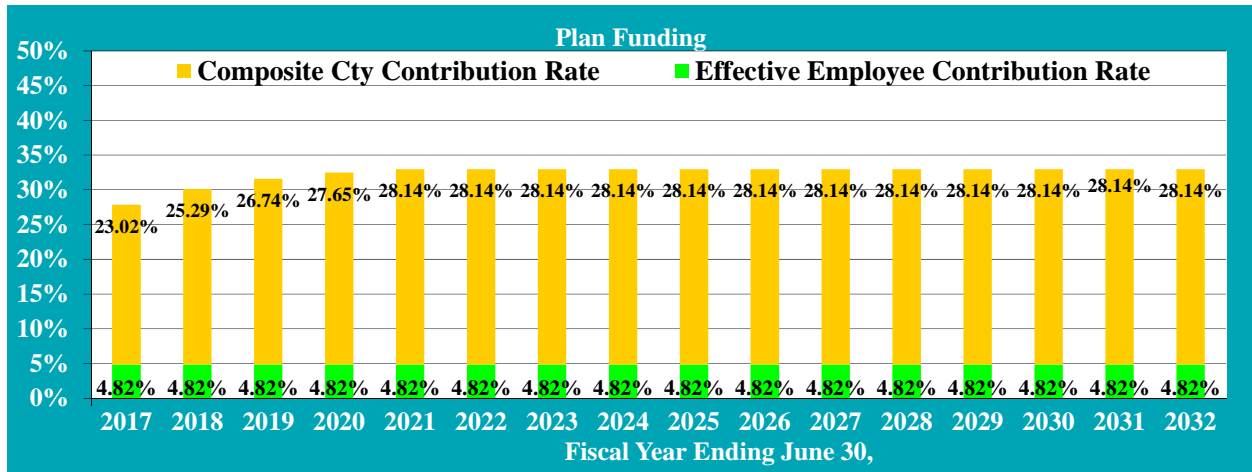
Future Outlook

Base-line Projections

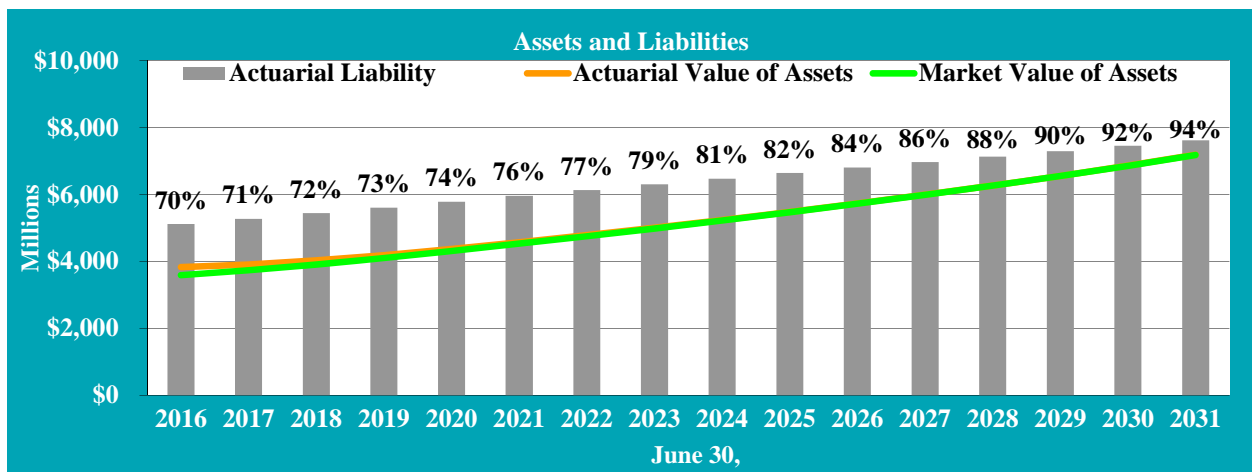
The two graphs below show the expected progress of the System over the next 15 years, assuming the System's assets earn 7.25% on their *market value*.

The floor of the County's corridor contribution calculation was increased to 97% for FY 2017. In FY 2018, the amortization target could range from 97 to 98% and continue increasing until the amortization target is 100%. In addition to the increasing corridor floor, the County does not intend to reduce the contribution rate until the System is 100% funded.

The graph entitled "Plan Funding" illustrates the FY 2018 floor at 98% with 1% annual increases thereafter.



The "Assets and Liabilities" graph shows the projected funding status over the next 15 years. The funded ratio gradually increases for the entire projection period ultimately reaching 94% funded as of 2031.



**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

The future funding status of this System will be influenced by the investment earnings. The prior projection assumed the System would earn 7.25% each and every year, which is extremely unlikely.

In the projections that follow, we show the risk to the System under volatile markets. Since 1980, the System has averaged a 9.80% return per year. In the following charts, we show results assuming returns over the next 15 years average 4.75%, 7.25%, and 9.75%. Different patterns of returns will produce different results from those shown here.

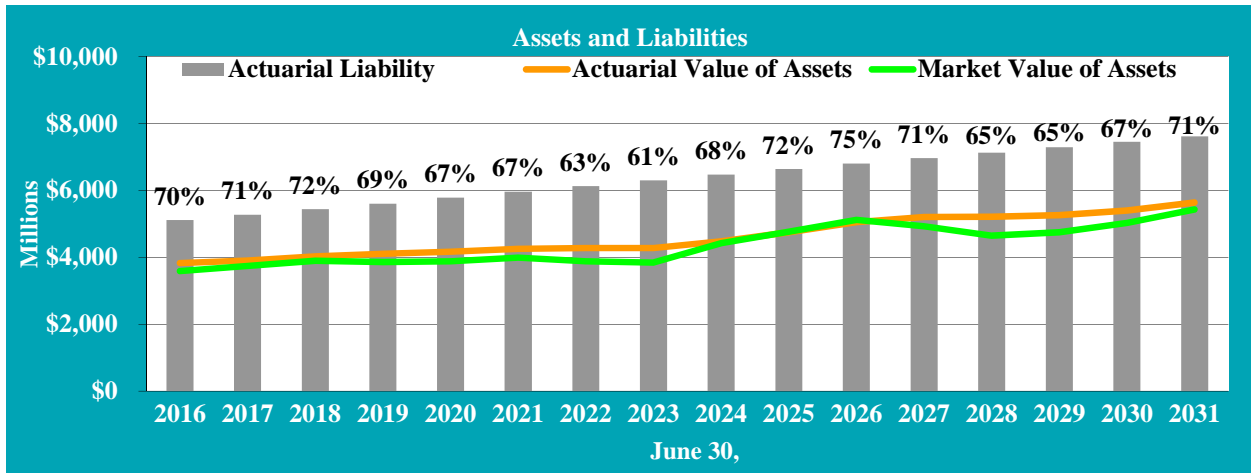
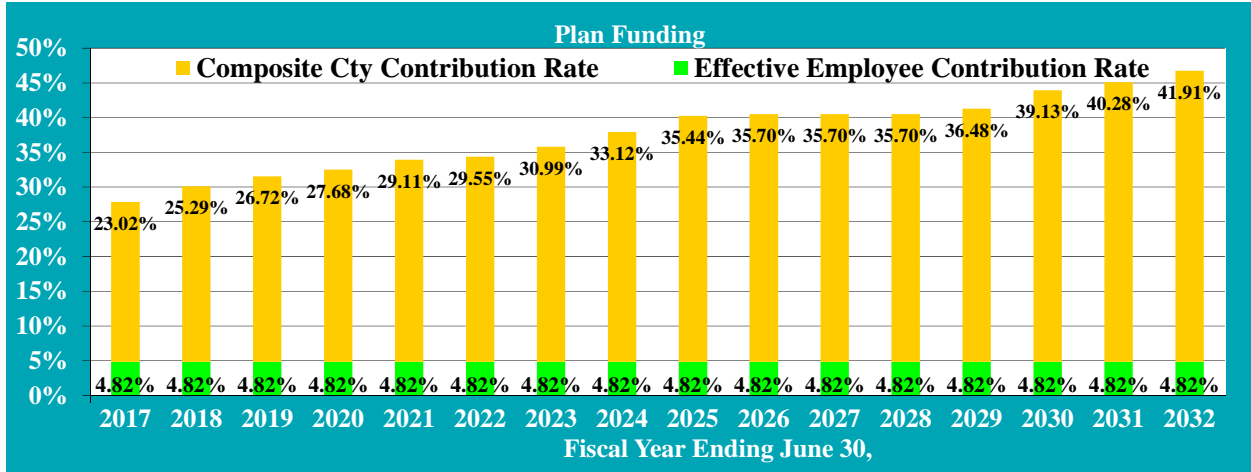
Table I-1			
Fiscal Year Ending June 30,	Average 4.75%	Average 7.25%	Average 9.75%
2015	7.42%	2.09%	-6.10%
2016	6.80	6.92	4.29
2017	1.42	17.47	17.90
2018	2.73	29.76	32.31
2019	4.91	19.17	-9.23
2020	-0.44	5.36	12.22
2021	1.23	10.78	17.56
2022	17.34	4.05	-14.20
2023	9.25	15.35	14.94
2024	9.00	-0.69	14.58
2025	-2.36	1.80	28.20
2026	-4.00	-8.62	24.67
2027	3.95	4.40	3.70
2028	7.02	-0.84	7.12
2029	8.92	7.58	9.97
Average	4.75%	7.25%	9.75%

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

Alternative Projection - with average return of 4.75% in the period

Under this scenario, the corridor contribution rate increases from 23% to near 42% of pay. The System's funding drops to as low as 61%, even with the ramping up of contributions.

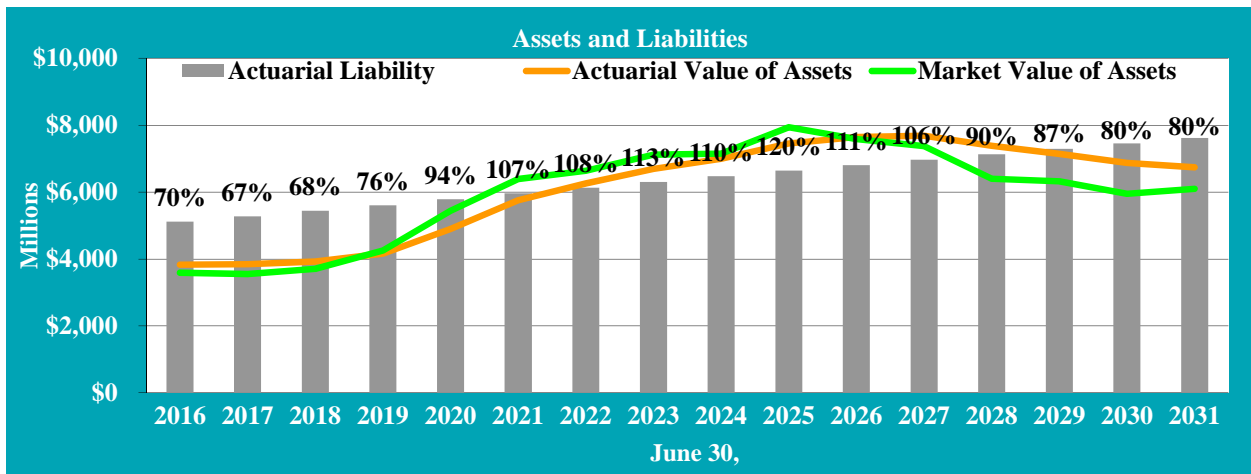
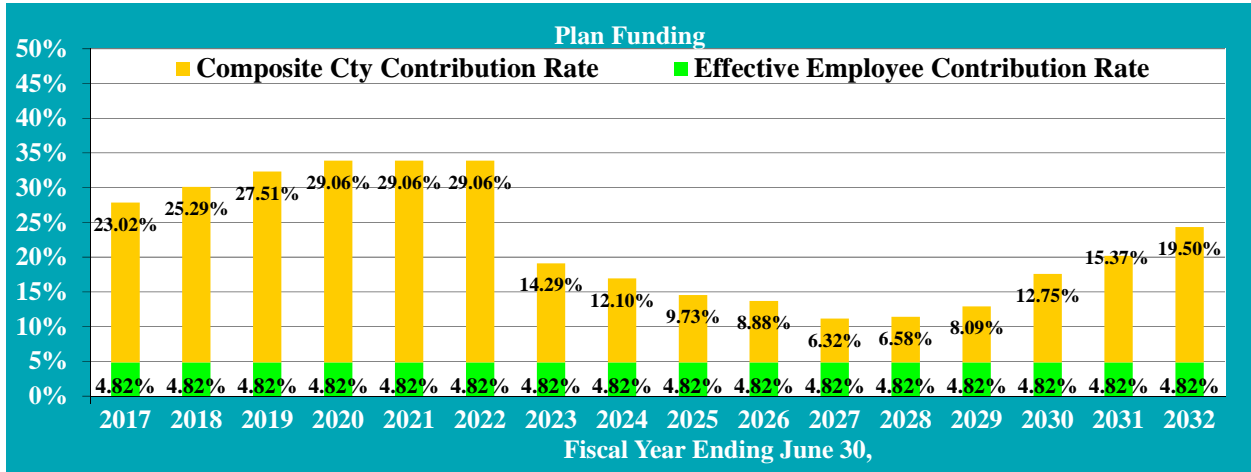


**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

Alternative Projection – with average return of 7.25% in the period

Under this scenario, in which the System is assumed to enjoy higher than average returns in the first few years, the corridor contribution rate increases over the next few years as the corridor floor is increased to 100%. After that time, the contribution drops dramatically as returns continue to push the funded percent near the 120% top of the corridor.

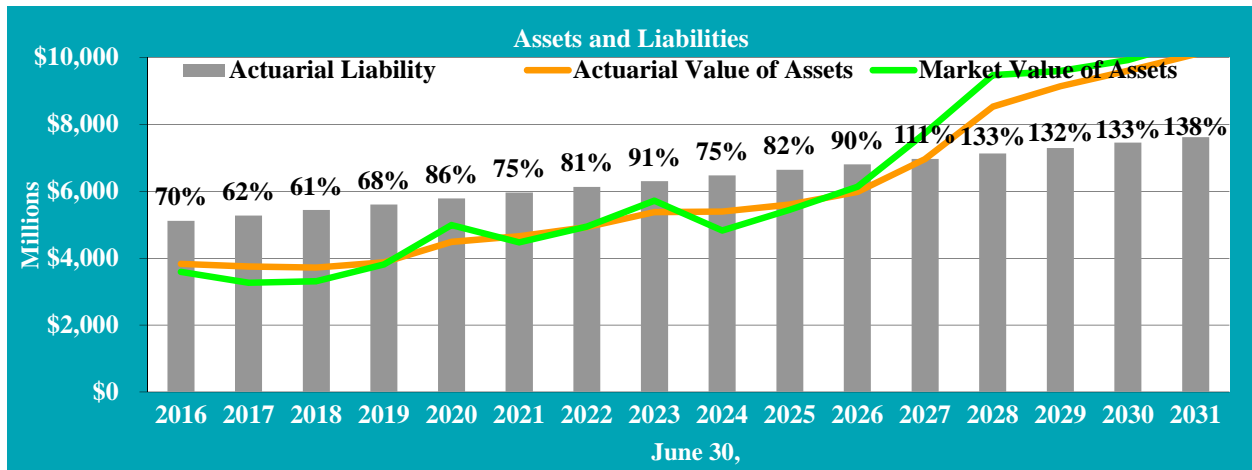
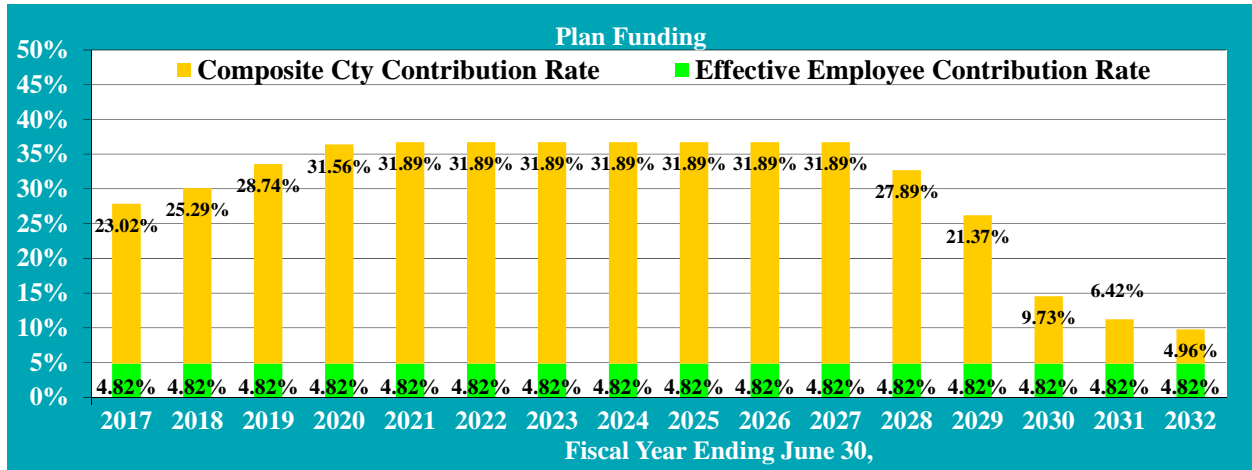


**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

Alternative Projection - with average return of 9.75% in the period

Under this scenario, in which the System is assumed to face lower returns in the first two years but significantly higher returns thereafter, the corridor contribution rate increases during the phase-up period, holds at 31.89% and then drops off once the System reaches 100% funding.



**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION I - BOARD SUMMARY

Table I-2 Summary of Principal Plan Results			
Valuation as of:	7/1/2015	6/30/2016	% Chg.
<u>Participant Counts</u>			
Actives (excluding DROP)	13,669	14,171	3.7%
DROPs	644	691	7.3%
Terminated Vesteds	1,810	1,858	2.7%
In Pay Status	<u>8,021</u>	<u>8,189</u>	2.1%
Total	24,144	24,909	3.2%
Annual Salaries of Active Members	\$ 663,896,916	\$ 702,787,358	5.9%
Annual Retirement Allowances for Retired Members and Beneficiaries (Base amount only – not supplements)	\$ 198,006,052	\$ 203,914,539	3.0%
<u>Assets and Liabilities</u>			
Actuarial Accrued Liability (AL)	\$ 4,906,531,692	\$ 5,116,417,171	4.3%
Assets for Valuation Purposes (AVA)	<u>3,759,611,811</u>	<u>3,831,179,295</u>	1.9%
Unfunded Actuarial Liability	\$ 1,146,919,881	\$ 1,285,237,876	12.1%
Actuarial Value Funding Ratio (AVA/AL)	76.6%	74.9%	
Market Value Funding Ratio (MVA/AL)	75.3%	70.2%	
Present Value of Accrued Benefits	\$ 4,245,707,514	\$ 4,419,589,670	4.1%
Market Value of Assets	<u>3,693,357,619</u>	<u>3,590,082,229</u>	-2.8%
Unfunded Accrued Liability (not less than \$0)	\$ 552,349,895	\$ 829,507,441	50.2%
Accrued Benefit Funding Ratio	87.0%	81.2%	
<u>Contributions as a Percentage of Payroll</u>			
	Fiscal Year 2017	Fiscal Year 2018	
<u>Corridor Method:</u>			
Normal Cost Contribution	8.17%	8.74%	
Increase Due to Amortized Changes	2.67%	3.55%	
Administrative Expense	<u>0.20%</u>	<u>0.25%</u>	
Base Rate	11.04%	12.54%	
Amortize to 97%	22.90% ¹	24.63%	
Amortize to 98%	23.56%	25.29%	

¹ The contribution rate currently being paid by the County in FY 2017 is 23.02%, which is based on the amortize to 97% amount shown above, with an additional amount to pay for the disability change.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION II - ASSETS

Pension system assets play a key role in the financial operation of the System and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on System assets including:

- **Disclosure** of System assets at June 30, 2015 and June 30, 2016,
- Statement of the **changes** in market values during the year,
- Development of the **actuarial value of assets**,
- An assessment of **investment performance**, and
- A projection of the System's expected **cash flows** for the next 10 years.

Disclosure

The market value of assets represents "snap-shot or cash-out" values which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not suitable for long-range planning.

The actuarial values are market values which have been smoothed; they are used for evaluating the System's ongoing liability to meet its obligations.

Current methods employed by this system set the actuarial value equal to the expected value plus 33 $\frac{1}{3}$ % of the difference between the expected value of assets and the actual market value, where the expected value is equal to the prior year's actuarial value, rolled forward with actual contributions, benefit payments, and administrative expenses plus interest imputed at the prior year investment return assumption of 7.50%.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION II - ASSETS

Table II-1		
Statement of Assets at Market Value		
	6/30/2015	6/30/2016
<u>Assets</u>		
Equity in County's Pooled Cash,		
Contributions Receivable and Other Assets	\$ 12,388,986	\$ 12,384,373
Accrued Interest and Dividends Receivable	12,922,379	9,797,444
Receivable from Sale of Investments	135,188,685	120,841,193
US Government Obligations	111,393,309	106,026,000
Asset-Backed Securities	203,674,859	160,353,573
Other Bonds and Notes	442,394,323	373,891,983
Common and Preferred Stock	1,162,158,227	1,143,663,759
Pooled and Mutual Funds	1,599,534,009	1,603,601,463
Short-Term Investments	189,194,158	236,842,762
Cash Collateral Received Under		
Securities Lending Agreements	<u>259,247,449</u>	<u>301,316,481</u>
Total Assets	\$ 4,128,096,384	\$ 4,068,719,031
<u>Liabilities</u>		
Payable for Collateral Received Under		
Securities Lending Agreements	\$ 259,247,449	\$ 301,316,481
Payable for Purchase of Investments	168,142,424	169,419,443
Accounts Payable and Accrued Expenses	<u>7,348,892</u>	<u>7,900,878</u>
Total Liabilities	\$ 434,738,765	\$ 478,636,802
Net Assets Available for Benefits	\$ 3,693,357,619	\$ 3,590,082,229

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION II - ASSETS

Table II-2	
Changes in Market Values	
Value of Assets – July 1, 2015	\$ 3,693,357,619
<u>Additions</u>	
Contributions:	
Employer Contributions	\$ 155,780,373
Employee Contributions	<u>34,627,061</u>
Total Contributions	\$ 190,407,434
Investment Income:	
Net Appreciation (Depreciation) in Fair Value of Investments	\$ (65,935,675)
Interest	33,891,343
Dividends	<u>28,398,477</u>
Total Investment Income	\$ (3,645,855)
Investment Activity Expenses:	
Management Fees	\$ (12,308,034)
Custodian Fees	(141,336)
Consulting Expense	(257,313)
Allocated Administrative Expenses	<u>(983,255)</u>
Total Investment Activity Expenses	\$ (13,689,938)
From Securities Lending Activities:	
Securities Lending Income	\$ 1,084,468
Securities Lending Expenses	
Borrowers Rebates	0
Management Fees	<u>(416,962)</u>
Net Income from Securities Lending Activities	\$ 667,506
Net Investment Income	\$ (16,668,287)
Total Additions	\$ 173,739,147
<u>Deductions</u>	
Annuity Benefits	\$ (257,182,159)
Disability Benefits	(7,854,392)
Survivor Benefits	(5,764,080)
Refunds and Other Expenses	(4,101,311)
Administrative Expenses	<u>(2,112,595)</u>
Total Deductions	\$ (277,014,537)
<u>Total</u>	
Net Increase (Decrease)	\$ (103,275,390)
Value of Assets – June 30, 2016	\$ 3,590,082,229

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION II - ASSETS

Actuarial Value of Assets

The actuarial value of assets represents a “smoothed” value developed by the actuary to reduce, or eliminate, erratic results which could develop from short-term fluctuations in the market value of assets. For this system, the actuarial value has been calculated by adding 33⅓% of the difference between market value and expected value to the expected value. The following table illustrates the calculation of actuarial value of assets for the June 30, 2016 valuation.

Table II-3 Development of Actuarial Value of Assets as of June 30, 2016		
1.	Actuarial Value of Assets at July 1, 2015	\$ 3,759,611,811
2.	Amount in (1) with Interest to June 30, 2016	4,041,582,697
3.	Employer and Member Contributions for the Plan Year Ended June 30, 2016	190,407,434
4.	Interest on Contributions Assuming Received Uniformly Throughout the Year to June 30, 2016	7,140,279
5.	Disbursements from Trust Except Investment Expenses, July 1, 2015 Through June 30, 2016	(277,014,537)
6.	Interest on Disbursements Assuming Payments Made Uniformly Throughout the Year to June 30, 2016	(10,388,045)
7.	Expected Value of Assets at June 30, 2016 = (2) + (3) + (4) + (5) + (6)	3,951,727,828
8.	Market Value of Assets at June 30, 2016	<u>3,590,082,229</u>
9.	Excess of (8) Over (7)	\$ (361,645,599)
10.	Actuarial Value of Assets at June 30, 2016 = (7) + 33-1/3% of (9)	\$ 3,831,179,295

** All interest adjustments are made using the 7 ½% per annum actuarial assumed interest rate that was in effect in the prior year.*

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION II - ASSETS

Investment Performance

The market value of assets (MVA) returned -0.46% during 2016, which is less than the assumed 7.50% return. A return of 4.26% on the actuarial value of assets (AVA) is primarily the result of the asset smoothing method being utilized for the calculation of the actuarial value of assets. Since only 33⅓% of the gain or loss from the performance of the System is recognized in a given year, in periods of very good performance, the AVA can lag significantly behind the MVA. In a period of negative returns, the AVA does not decline as rapidly as the MVA.

Year Ending June 30,	Table II-4 Annual Rates of Return			
	Market Value	Actuarial Value	Total Return Standard & Poor's 500 Index	Barclays Global Aggregate Index ¹
1992	14.4%	10.7%	13.5%	14.2%
1993	15.7%	11.7%	13.6%	13.2%
1994	5.8%	8.9%	1.3%	-1.5%
1995	13.1%	10.7%	26.1%	12.8%
1996	15.9%	25.0% ²	26.0%	4.7% ³
1997	20.1%	10.2%	34.7%	8.2%
1998	17.2%	7.7%	30.2%	10.5%
1999	8.5%	16.0%	22.8%	3.1%
2000	5.8%	12.2%	7.2%	4.6%
2001	-0.5%	7.6%	-14.8%	11.2%
2002	-4.2%	3.7%	-18.0%	8.6%
2003	5.2%	4.1%	0.3%	10.4%
2004	18.2%	8.5%	19.1%	0.3%
2005	13.2%	10.1%	6.3%	6.8%
2006	8.4%	9.7%	8.6%	-0.8%
2007	14.7%	11.5%	20.6%	6.1%
2008	0.8%	7.7%	-13.1%	7.1%
2009	-24.0%	-2.9%	-26.2%	5.5%
2010	25.3%	4.3%	14.4%	9.5%
2011	23.7%	10.3%	30.8%	3.9%
2012	8.3%	9.6%	5.4%	7.5%
2013	7.8%	9.0%	20.6%	-0.1%
2014	14.8%	10.9%	24.6%	4.4%
2015	0.4%	6.6%	7.4%	1.8%
2016	-0.5%	4.3%	4.0%	6.0%

¹ Formerly the Lehman Global Aggregate Bond Index.

² The actuarial return in 1996 reflects the adjustment to a revised actuarial valuation method.

³ Figures shown prior to 1997 are Shearson Lehman Government/Corporate Bond Index.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION II - ASSETS

Expected benefit payments are projected for the closed group valued at June 30, 2016. Projecting any further than 10 years using a closed group would not yield reliable predictions due to the omission of new hires.

Expected employer contributions are projected based on the current County contribution rate of 23.02% for FY 2017, and then using the amortize to 98% rate for FY 2018, amortize to 99% for FY 2019 and so on increasing to 100%. This projection assumes no further gains or losses, a 2.75% annual increase in the total covered payroll and models the anticipated impact of new hires coming in with altered plan provisions.

Table II-5			
Projection of System's Benefit Payments and County Contributions			
Year Beginning	Expected	Expected	
July 1,	Benefit Payments	County Contributions	
2016	\$ 278,898,000	\$ 161,782,000	
2017	300,261,000	182,645,000	
2018	304,228,000	192,565,000	
2019	320,749,000	202,816,000	
2020	336,556,000	208,393,000	
2021	355,814,000	214,124,000	
2022	376,011,000	220,012,000	
2023	392,062,000	226,063,000	
2024	407,150,000	232,279,000	
2025	423,452,000	238,667,000	

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION III - LIABILITIES

In this section, we present detailed information on system liabilities including:

- **Disclosure** of system liabilities at June 30, 2015 and June 30, 2016,
- Statement of **changes** in these liabilities during the year, and
- A **projection** of future liabilities.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of Benefits:** Used for analyzing the financial outlook of the System, this represents the amount of money needed today to fund all future benefits and expenses of the System, assuming participants continue to accrue benefits and all assumptions are met.
- **Actuarial Accrued Liability:** Used for funding calculations and GASB disclosures, this liability is calculated taking the present value of benefits above and subtracting the present value of future member contributions and future employer normal costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal** funding method.
- **Present Value of Accrued Liabilities:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully pay off the current accrued obligations of the System, assuming no future accruals of benefits and that all assumptions are met, including the 7.25% investment return. These liabilities are also used to assess whether the System can meet its current benefit commitments.

None of the liability figures disclosed in this report is meant to be a measure of the System's settlement liability.

The following table discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of System assets yields, for each respective type, a **net surplus** or an **unfunded liability**.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION III - LIABILITIES

Table III-1		
Liabilities/Net (Surplus)/Unfunded		
	July 1, 2015	June 30, 2016
Present Value of Future Benefits		
Active Participant Benefits (excluding DROP)	\$ 2,629,571,995	\$ 2,858,861,955
DROP Participant Benefits	434,190,108	470,992,431
Retiree Benefits	2,368,491,190	2,416,039,673
Terminated Vested and Inactive Members	<u>82,225,383</u>	<u>100,068,748</u>
Present Value of Benefits (PVB)	\$ 5,514,478,676	\$ 5,845,962,807
Market Value of Assets (MVA)	\$ 3,693,357,619	\$ 3,590,082,229
Future Employee Contributions	222,163,564	250,941,517
Future County Contributions	<u>1,598,957,493</u>	<u>2,004,939,061</u>
Total Resources	\$ 5,514,478,676	\$ 5,845,962,807
Actuarial Accrued Liability		
Present Value of Benefits (PVB)	\$ 5,514,478,676	\$ 5,845,962,807
Present Value of Future Normal Costs (PVFNC)		
County Portion	385,783,420	478,604,119
Employee Portion	<u>222,163,564</u>	<u>250,941,517</u>
Actuarial Accrued Liability (AAL = PVB - PVFNC)	\$ 4,906,531,692	\$ 5,116,417,171
Actuarial Value of Assets (AVA)	<u>\$ 3,759,611,811</u>	<u>\$ 3,831,179,295</u>
Net (Surplus)/Unfunded (AAL – AVA)	\$ 1,146,919,881	\$ 1,285,237,876
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	\$ 5,514,478,676	\$ 5,845,962,807
Present Value of Future Benefit Accruals (PVFBA)	<u>1,268,771,162</u>	<u>1,426,373,137</u>
Present Value of Accrued Benefits (PVAB = PVB – PVFBA)	\$ 4,245,707,514	\$ 4,419,589,670
Market Value of Assets (MVA)	<u>\$ 3,693,357,619</u>	<u>\$ 3,590,082,229</u>
Net Unfunded, not less than \$0 (PVAB – MVA)	\$ 552,349,895	\$ 829,507,441

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION III - LIABILITIES

Changes in Liabilities

Each of the liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- Plan amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above and also due to changes in System assets resulting from the following:

- Employer contributions less than the full actuarial contribution
- Investment earnings different than expected
- A change in the method used to measure System assets

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the System. Below we present key changes in liabilities since the last valuation.

Table III-2			
	Present Value of Benefits	Actuarial Accrued Liability	Present Value of Accrued Benefits
Liabilities 7/1/2015	\$ 5,514,478,676	\$ 4,906,531,692	\$ 4,245,707,514
Liabilities 6/30/2016	<u>5,845,962,807</u>	<u>5,116,417,171</u>	<u>4,419,589,670</u>
Liability Increase (Decrease)	\$ 331,484,131	\$ 209,885,479	\$ 173,882,156
Change Due to:			
Plan Amendment	\$ 887,376	\$ 773,066	\$ 826,599
Actuarial (Gain)/Loss	<i>Not Calculated</i>	(34,314,735)	<i>Not Calculated</i>
Method and Assumption Changes	173,992,717	68,573,373	51,800,587
Benefits Accumulated and Other Sources	156,604,038	174,853,775	121,254,970

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION IV - CONTRIBUTIONS

In the process of evaluating the financial condition of any pension system, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the system. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that is both stable and predictable.

For this system, the funding method employed is the **Entry Age Actuarial Cost Method**. Under this method, there are three components to the total contribution: the **normal cost rate**, the **unfunded actuarial liability rate** (UAL rate), and the **administrative expense rate**. The normal cost rate is determined in the following steps. First, an individual normal cost rate is determined by taking the value, as of entry age into the System, of each member's projected future benefits. This value is then divided by the value, also at entry age, of the member's expected future salary. Second, the normal cost rate is multiplied by current salary and added together to obtain the total System normal cost. This is divided by total salary to convert it to the total System normal cost rate. Finally, the total normal cost rate is reduced by the average member contribution rate to produce the County's normal cost rate.

Budgeted Rate (Based on Corridor Method)

The employer's total contribution rate is equal to the normal cost rate plus rate changes due to amendments passed or assumption changes adopted since July 1, 2001 plus the expense rate, as long as the System's actuarial funded status remains within a corridor of 90% to 120%. The normal cost rate and actuarial accrued liability will continue to be measured using the entry age funding method. If the funded status falls outside the corridor, a credit (if above 120%) or charge (if below 90%) will be established based on a 15-year amortization equal to the amount necessary to re-enter the corridor.

Table IV-1	
Changes Since 2001	Impact on UAL Rate
2002 ad-hoc COLA	+ 0.13%
2005 Assumption Changes	+ 1.23%
2006 DROP Implementation	+ 0.10%
2006 DPSC Conversion	- 0.04%
2007 Reduce Disability Offset to 40%	+ 0.03%
2008 Reduce Disability Offset to 30%	+ 0.02%
2010 Assumption Changes	+ 0.02%
2013 Reduce Disability Offset to 25%	+ 0.01%
2014 Assumption Changes	+ 1.15%
2014 Reduce Disability Offset to 15%	+ 0.02%
2016 Assumption Changes	+ 0.88%
Total Increase	+ 3.55%

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION IV - CONTRIBUTIONS

The table below presents and compares the budgeted rate for the System for this valuation and the prior one. In both cases, the amortization follows the corridor amortization to Total County Rate using 90%.

Table IV-2		
Actuarially Determined Rate (for Corridor Contribution)		
Valuation Date	July 1, 2015	June 30, 2016
Fiscal Year	2017	2018
Normal Cost Rate	8.17%	8.74%
UAL Rate	2.67%	3.55%
Amortization of Amount Outside Corridor (90%)	7.19%	7.49%
Expense Rate	0.20%	0.25%
Total County Rate	18.23%	20.03%
Total Rate with Alternative Amortization Targets of		
97%	22.90% ¹	24.63%
98%	23.56%	25.29%

¹ The actual contribution rate being paid by the County in FY 2017 is 23.02%, which is based on the amortize to 97% amount shown above with an additional amount to pay for the disability change.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION IV - CONTRIBUTIONS

Table IV-3		
Development of Corridor Contribution Rate		
	July 1, 2015 (for FY 2017)	June 30, 2016 (for FY 2018)
1. Present Value of Future Benefits		
a. Active Employees	\$ 2,629,571,995	\$ 2,858,861,955
b. DROP	434,190,108	470,992,431
c. Retired Members	2,368,491,190	2,416,039,673
d. Vested Terminated and Inactive Members	<u>82,225,383</u>	<u>100,068,748</u>
e. Total Present Value	\$ 5,514,478,676	\$ 5,845,962,807
2. Present Value of Future Normal Costs		
a. County Portion	\$ 385,783,420	\$ 478,604,119
b. Employee Portion	<u>222,163,564</u>	<u>250,941,517</u>
c. Total Present Value	\$ 607,946,984	\$ 729,545,636
3. Actuarial Accrued Liability (1) – (2)	\$ 4,906,531,692	\$ 5,116,417,171
4. Actuarial Value of Assets for Corridor Purposes		
a. Actuarial Assets	\$ 3,759,611,811	\$ 3,831,179,295
b. Outstanding Balance of Plan and Assumption Changes	<u>126,502,796</u>	<u>189,824,854</u>
c. Adjusted Assets (a) + (b)	\$ 3,886,114,607	\$ 4,021,004,149
5. Funding Ratio for Corridor Test	79.2%	78.6%
6. Liability to be Amortized if outside Corridor		
a. [97% or 98%]x(3) - (4)(c)	\$ 873,221,134	\$ 993,084,678
b. (4)(c) - 120%x(3)	0	0
7. Active Member Payroll	\$ 663,896,916	\$ 702,787,358
8. Unfunded Liability Amortization Factor	11.0918	11.0842
9. Amortization as a % of Payroll (6)/(7)/(8)	11.86%	12.75%
10. County Contribution Results (Corridor)		
a. Normal Cost Rate	8.17%	8.74%
b. Administrative Expense Rate	0.20%	0.25%
c. Plan Change Amortizations	2.67%	3.55%
d. Amortization Outside Corridor (9)	<u>11.86%</u>	<u>12.75%</u>
e. Total County Contribution Rate June 30	22.90%	25.29%

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION V - ACCOUNTING STATEMENT INFORMATION

ASC Topic 960 of the Financial Accounting Standards Board (FASB) describes certain disclosures regarding a plan's funded status.

The FASB ASC Topic 960 disclosures provide a quasi "snap shot" view of how the System's assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the System were to terminate.

FASB ASC Topic 960 specifies that a comparison of the present value of accrued (accumulated) benefits with the market value of the assets as of the valuation date must be provided. The relevant amounts as of June 30, 2015 and June 30, 2016 are exhibited in Table V-1, which also includes a reconciliation of liabilities determined as of the prior valuation, July 1, 2015 to the liabilities as of June 30, 2016.

Table V-2 is a history of gains and losses in Accrued Liability, and Table V-3 is the Solvency Test which shows the portion of Accrued Liability covered by Assets. See our report dated October 3, 2016 for the required disclosures under GASB Statement Number 67.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION V - ACCOUNTING STATEMENT INFORMATION

Table V-1		
Accounting Statement Information		
	July 1, 2015	June 30, 2016
A. FASB ASC Topic 960 Basis		
1. Present Value of Benefits Accrued and Vested to Date		
a. Members Currently Receiving Payments	\$ 2,368,491,190	\$ 2,416,039,673
b. Vested Terminated and Inactive Members	82,225,383	100,068,748
c. DROP	434,190,108	470,992,431
d. Active Members	<u>779,435,620</u>	<u>867,096,663</u>
e. Total PVVB	\$ 3,664,342,301	\$ 3,854,197,515
2. Present Value of Non-Vested Accrued Benefits for Active Members	<u>581,365,213</u>	<u>565,392,155</u>
3. Total Present Value of Accrued Benefits	\$ 4,245,707,514	\$ 4,419,589,670
4. Assets at Market Value	<u>3,693,357,619</u>	<u>3,590,082,229</u>
5. Unfunded Present Value of Accrued Benefits, But Not Less Than Zero	\$ 552,349,895	\$ 829,507,441
6. Ratio of Assets to Value of Benefits (4) / (3)	87.0%	81.2%
B. Statement of Changes in Present Value of Accrued Benefits		
Actuarial Present Value of Accrued Benefits as of July 1, 2015		\$ 4,245,707,514
Increase (Decrease) During Years Attributable to:		
Passage of Time		\$ 312,066,280
Benefit Paid – FY 2016		(274,901,942)
Assumption Change		51,800,587
Plan Amendment		826,599
Benefits Accrued, Other Gains/Losses		<u>84,090,632</u>
Net Increase (Decrease)		\$ 173,882,156
Actuarial Present Value of Accrued Benefits as of June 30, 2016		\$ 4,419,589,670

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

SECTION V - ACCOUNTING STATEMENT INFORMATION

Table V-2 Analysis of Financial Experience Gains and Losses in Accrued Liability During Years Ended June 30 Resulting from Differences Between Assumed Experience and Actual Experience						
Type of Activity	<i>Gain (or Loss) for Year ending June 30,</i>					
	2011	2012	2013	2014	2015	2016
Investment Income	\$ 71,698,746	\$ 59,620,255	\$ 46,004,262	\$ 113,443,149	\$ (33,127,096)	\$ (120,548,533)
Combined Liability Experience	<u>(79,444,131)</u>	<u>(74,547,089)</u>	<u>(39,401,877)</u>	<u>3,445,687</u>	<u>73,129,057</u>	<u>34,314,735</u>
Gain (or Loss) During Year from Financial Experience	\$ (7,745,385)	\$ (14,926,834)	\$ 6,602,385	\$ 116,888,836	\$ 40,001,961	\$ (86,233,798)
Non-Recurring Items	<u>(1,602,061)</u>	<u>0</u>	<u>(727,193)</u>	<u>(1,462,698)</u>	<u>0</u>	<u>(69,346,439)</u>
Composite Gain (or Loss) During Year	\$ (9,347,446)	\$ (14,926,834)	\$ 5,875,192	\$ 115,426,138	\$ 40,001,961	\$ (155,580,237)

Table V-3 Solvency Test							
Aggregate Accrued Liabilities For							
Valuation Date June 30,	(1) Active Member Contributions	(2) Retirees Vested Terms, Beneficiaries & DROP	(3) Active Members (Employer Financed Portion)	Reported Assets*	Portion of Accrued Liabilities by Reported Assets		
						(1)	(2)
2011	\$ 339,170,151	\$ 2,177,027,867	\$ 1,502,726,115	\$ 2,841,466,151	100%	100%	22%
2012	332,723,684	2,411,862,623	1,519,589,131	3,053,412,085	100%	100%	20%
2013	355,254,873	2,587,007,980	1,531,567,801	3,261,923,577	100%	100%	21%
2014	363,335,228	2,769,188,984	1,668,195,558	3,614,067,515	100%	100%	29%
2015	372,037,954	2,884,906,681	1,649,587,057	3,759,611,811	100%	100%	30%
2016	396,434,811	2,987,100,852	1,732,881,508	3,831,179,295	100%	100%	26%

* Reported Assets are the actuarial value of assets in this demonstration.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

The data for this valuation was provided electronically by the Fairfax County Retirement System staff. Cheiron did not perform a formal audit on the data. However, we did perform checks of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice Number 23 – Data Quality. The data was collected as of December 31, 2015.

Data reported in this Appendix is as of the December 31, 2015 data collection date. Covered payroll and benefits in pay status reported elsewhere in this report have been adjusted to approximate the June 30, 2016 values.

For inactive participants given with a Joint and Survivor form of benefit and no continuation percentage provided, a survivor percentage of 100% is assumed.

Summary of Membership Data as of June 30, 2016

		Active Members *		
		Count	Average Age	Average Salary
School	Plan A	2,150	52.17	\$ 31,412
	Plan B	2,387	53.03	36,637
	Plan C	931	44.77	19,422
	Plan D	459	45.71	22,576
	Total	5,927	50.85	\$ 30,949
County	Plan A	2,376	48.76	\$ 62,209
	Plan B	4,036	48.14	63,126
	Plan C	537	37.09	46,104
	Plan D	1,295	39.01	55,330
	Total	8,244	46.17	\$ 60,528
Total Systems	Plan A	4,526	50.38	\$ 47,579
	Plan B	6,423	49.96	53,282
	Plan C	1,468	41.96	29,182
	Plan D	1,754	40.77	46,758
	Total	14,171	48.13	\$ 48,156

* Excludes DROP participants.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

	Inactive Members		Total
	School	County	
Service Retirement			
Count	2,935	4,365	7,300
Annual Basic Benefit	\$ 50,395,558	\$ 137,057,415	\$ 187,452,974
Annual Supplements	8,279,858	24,295,202	32,575,060
Service – Connected Disability			
Count	75	74	149
Annual Basic Benefit ¹	\$ 1,687,940	\$ 2,326,059	\$ 4,013,999
Ordinary Disability			
Count	212	147	359
Annual Basic Benefit	\$ 1,978,352	\$ 2,299,082	\$ 4,277,434
Beneficiaries			
Count	28	353	381
Annual Basic Benefit	\$ 356,382	\$ 5,784,319	\$ 6,140,701
DROP			
Count	157	534	691
Annual Basic Benefit	\$ 4,015,791	\$ 20,504,196	\$ 24,519,988
Annual Supplements	2,000,171	8,877,886	10,878,057
Vested Former Members			
Count			1,858
Annual Basic Benefit ²			\$ 12,761,711

¹ Benefits are net of offsets for Workers' Compensation and Social Security.

² Benefits are payable at age 65.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Membership Statistics						
The number of retired members, beneficiaries, and disabled members can be analyzed as follows:						
	<u>July 1, 2015</u>		<u>July 1, 2016</u>		<u>% Change</u>	
		Average Monthly Benefit		Average Monthly Benefit		Average Monthly Benefit
Inactive Members	Count		Count		Count	
Service Retirement						
Basic Benefit	7,139	\$ 2,148	7,300	\$ 2,167	2.3%	0.9%
Supplement	1,938	1,318	1,811	1,427	-6.6%	8.3%
Service-Connected Disability	149	2,148	149	2,272	0.0%	5.7%
Ordinary Disability	368	988	359	1,005	-2.4%	1.8%
Beneficiaries	<u>365</u>	<u>1,323</u>	<u>381</u>	<u>1,360</u>	<u>4.4%</u>	<u>2.8%</u>
Total/Average (Basic Benefit)	8,021	2,057	8,189	2,080	2.1%	1.1%

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Data Reconciliation from July 1, 2015 to June 30, 2016								
	Active	DROP	Terminated Vested	Retired	Service- Connected Disability	Ordinary Disability	Beneficiary	Total
Participant count as of July 1, 2015	13,669	644	1,810	7,139	149	368	365	24,144
New Hires / Re-hires	1,549		(22)					1,527
Terminated Vested	(145)		145					0
DROP	(153)	153						0
Retired	(134)	(97)	(31)	262				0
Deceased with beneficiary	(6)	(5)	(4)	(16)			31	0
Deceased without beneficiary	(71)	(5)	(56)	(92)	(1)	(15)	(15)	(255)
Benefits Expired								0
Ordinary Disability	(6)					6		0
Service-Connected Disability								0
Terminated Not Vested	(532)							(532)
Corrections		<u>1</u>	<u>16</u>	<u>7</u>	<u>1</u>			<u>25</u>
Change	502	47	48	161	0	(9)	16	765
Participant count as of June 30, 2016	14,171	691	1,858	7,300	149	359	381	24,909

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan A

COUNTS BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	0	2	0	0	0	0	0	0	0	2
25 to 29	0	49	21	0	0	0	0	0	0	70
30 to 34	2	71	118	21	0	0	0	0	0	212
35 to 39	1	34	100	101	20	0	0	0	0	256
40 to 44	0	30	64	71	67	16	4	0	0	252
45 to 49	0	32	71	56	77	85	82	8	8	411
50 to 54	1	41	62	55	93	80	135	20	20	487
55 to 59	1	32	65	61	68	59	63	27	27	376
60 to 64	1	24	36	49	39	26	24	13	13	212
65 & up	2	15	19	19	14	9	15	5	5	98
Total	8	330	556	433	378	275	323	73	73	2,376

TOTAL SALARY BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	\$ 0	\$ 65,053	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 65,053
25 to 29	0	1,943,170	887,717	0	0	0	0	0	0	2,830,887
30 to 34	13,783	3,327,479	5,617,268	1,059,675	0	0	0	0	0	10,018,205
35 to 39	11,648	1,533,100	5,455,540	5,810,886	1,154,735	0	0	0	0	13,965,909
40 to 44	0	1,516,540	3,548,286	4,202,445	4,546,264	1,210,410	279,452	0	0	15,303,397
45 to 49	0	1,517,632	3,618,257	3,120,496	5,346,108	6,621,203	6,467,699	538,494	538,494	27,229,889
50 to 54	1,980	1,604,903	3,020,435	3,271,606	6,355,923	6,239,774	11,467,123	1,742,531	1,742,531	33,704,275
55 to 59	15,965	1,260,952	3,460,837	3,416,385	4,572,719	4,546,959	5,373,312	2,531,713	2,531,713	25,178,842
60 to 64	7,587	984,207	1,736,502	2,672,963	2,478,990	1,995,046	2,152,170	1,655,347	1,655,347	13,682,812
65 & up	16,224	468,865	991,552	909,795	836,663	597,252	1,198,819	809,245	809,245	5,828,415
Total	\$ 67,187	\$ 14,221,901	\$ 28,336,394	\$ 24,464,251	\$ 25,291,402	\$ 21,210,644	\$ 26,938,575	\$ 7,277,330	\$ 7,277,330	\$ 147,807,684

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan B

COUNTS BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	0	4	0	0	0	0	0	0	0	4
25 to 29	0	121	51	1	0	0	0	0	0	173
30 to 34	0	158	203	66	5	0	0	0	0	432
35 to 39	0	98	165	122	28	1	0	0	0	414
40 to 44	0	98	162	118	78	12	2	0	0	470
45 to 49	3	98	179	151	107	48	55	4	4	645
50 to 54	0	94	182	169	123	65	80	14	14	727
55 to 59	0	96	169	137	121	51	31	10	10	615
60 to 64	0	53	120	120	90	15	10	6	6	414
65 & up	0	14	39	35	35	6	6	7	7	142
Total	3	834	1,270	919	587	198	184	41	41	4,036

TOTAL SALARY BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	\$ 0	\$ 148,843	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 148,843
25 to 29	0	5,685,605	2,352,582	37,419	0	0	0	0	0	8,075,606
30 to 34	0	8,054,167	10,340,465	3,406,825	229,512	0	0	0	0	22,030,969
35 to 39	0	5,725,572	9,854,320	6,696,263	1,739,204	65,337	0	0	0	24,080,696
40 to 44	0	5,488,985	10,201,501	7,777,245	5,389,912	877,426	134,865	0	0	29,869,934
45 to 49	55,228	5,070,752	11,489,797	10,262,440	8,120,815	3,932,208	4,208,486	446,013	446,013	43,585,739
50 to 54	0	4,533,858	11,227,125	10,796,312	8,927,532	5,528,303	6,359,167	1,175,283	1,175,283	48,547,580
55 to 59	0	5,449,244	10,307,616	9,302,142	8,936,024	4,078,416	2,773,610	905,911	905,911	41,752,963
60 to 64	0	2,993,644	7,772,255	7,591,588	6,754,623	1,013,156	919,725	619,334	619,334	27,664,325
65 & up	0	625,621	2,243,475	2,224,700	2,433,361	470,008	396,932	624,734	624,734	9,018,831
Total	\$ 55,228	\$ 43,776,291	\$ 75,789,136	\$ 58,094,934	\$ 42,530,983	\$ 15,964,854	\$ 14,792,785	\$ 3,771,275	\$ 3,771,275	\$ 254,775,486

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan C

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	39	15	0	0	0	0	0	0	54
25 to 29	73	59	0	0	0	0	0	0	132
30 to 34	55	49	0	0	0	0	0	0	104
35 to 39	36	27	0	0	0	0	0	0	63
40 to 44	29	25	0	0	0	0	0	0	54
45 to 49	13	25	0	0	0	0	0	0	38
50 to 54	20	25	0	1	0	0	0	0	46
55 to 59	13	12	0	0	0	0	0	0	25
60 to 64	6	10	0	0	0	0	0	0	16
65 & up	4	1	0	0	0	0	0	0	5
Total	288	248	0	1	0	0	0	0	537

TOTAL SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 1,372,043	\$ 635,799	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,007,842
25 to 29	2,723,740	2,832,275	0	0	0	0	0	0	5,556,015
30 to 34	2,513,613	2,540,364	0	0	0	0	0	0	5,053,977
35 to 39	1,437,711	1,446,535	0	0	0	0	0	0	2,884,246
40 to 44	1,316,818	1,251,911	0	0	0	0	0	0	2,568,729
45 to 49	699,354	1,449,625	0	0	0	0	0	0	2,148,979
50 to 54	971,542	1,354,245	0	73,975	0	0	0	0	2,399,762
55 to 59	501,799	803,196	0	0	0	0	0	0	1,304,995
60 to 64	128,640	587,238	0	0	0	0	0	0	715,878
65 & up	67,162	50,406	0	0	0	0	0	0	117,568
Total	\$ 11,732,422	\$ 12,951,594	\$ 0	\$ 73,975	\$ 0	\$ 0	\$ 0	\$ 0	\$ 24,757,991

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan D

COUNTS BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	42	37	0	0	0	0	0	0	0	79
25 to 29	110	151	0	0	0	0	0	0	0	261
30 to 34	98	144	0	0	0	0	0	0	0	242
35 to 39	77	112	0	0	0	0	0	0	0	189
40 to 44	51	69	0	0	0	0	0	0	0	120
45 to 49	60	81	1	0	0	0	0	0	0	142
50 to 54	44	75	0	0	0	0	0	0	0	119
55 to 59	33	60	0	1	0	0	0	0	0	94
60 to 64	12	28	0	0	0	0	0	0	0	40
65 & up	1	7	0	0	1	0	0	0	0	9
Total	528	764	1	1	1	0	0	0	0	1,295

TOTAL SALARY BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	\$ 1,532,121	\$ 1,559,688	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 3,091,809
25 to 29	5,038,543	7,254,102	0	0	0	0	0	0	0	12,292,645
30 to 34	5,224,707	7,856,411	0	0	0	0	0	0	0	13,081,118
35 to 39	4,359,608	6,863,213	0	0	0	0	0	0	0	11,222,821
40 to 44	3,186,008	4,110,687	0	0	0	0	0	0	0	7,296,695
45 to 49	2,751,820	4,914,914	29,818	0	0	0	0	0	0	7,696,552
50 to 54	2,218,428	4,934,161	0	0	0	0	0	0	0	7,152,589
55 to 59	2,032,127	4,062,065	0	175,361	0	0	0	0	0	6,269,553
60 to 64	729,325	1,983,594	0	0	0	0	0	0	0	2,712,919
65 & up	79,212	667,785	0	0	88,098	0	0	0	0	835,095
Total	\$ 27,151,899	\$ 44,206,620	\$ 29,818	\$ 175,361	\$ 88,098	\$ 0	\$ 0	\$ 0	\$ 0	\$ 71,651,796

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan A

COUNTS BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	0	3	0	0	0	0	0	0	0	3
25 to 29	1	10	7	0	0	0	0	0	0	18
30 to 34	6	38	22	7	0	0	0	0	0	73
35 to 39	7	89	47	21	4	0	0	0	0	168
40 to 44	7	105	71	61	16	0	0	0	0	260
45 to 49	3	139	93	51	27	7	11	2	2	333
50 to 54	3	135	143	66	37	11	13	10	10	418
55 to 59	1	125	141	69	40	16	8	7	7	407
60 to 64	4	70	106	66	25	11	4	1	1	287
65 & up	2	56	81	26	11	2	2	3	3	183
Total	34	770	711	367	160	47	38	23	23	2,150

TOTAL SALARY BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	\$ 0	\$ 63,340	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 63,340
25 to 29	5,450	327,265	280,562	0	0	0	0	0	0	613,277
30 to 34	114,716	1,112,159	727,845	295,418	0	0	0	0	0	2,250,138
35 to 39	98,275	2,600,474	1,532,991	1,010,704	222,850	0	0	0	0	5,465,294
40 to 44	118,454	2,641,716	2,209,845	2,407,052	911,554	0	0	0	0	8,288,621
45 to 49	39,316	3,339,621	2,812,627	2,012,472	1,264,226	393,115	717,591	125,476	125,476	10,704,444
50 to 54	35,050	2,606,625	4,405,784	2,739,822	1,697,686	565,413	812,420	672,107	672,107	13,534,907
55 to 59	13,760	2,639,134	4,054,882	2,548,336	1,818,069	958,979	541,401	495,985	495,985	13,070,546
60 to 64	52,884	1,381,645	2,864,057	2,438,054	1,070,757	542,711	239,907	63,688	63,688	8,653,703
65 & up	29,659	1,083,121	2,155,875	841,456	416,401	89,067	106,400	169,409	169,409	4,891,388
Total	\$ 507,564	\$ 17,795,100	\$ 21,044,468	\$ 14,293,314	\$ 7,401,543	\$ 2,549,285	\$ 2,417,719	\$ 1,526,665	\$ 1,526,665	\$ 67,535,658

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan B

COUNTS BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	0	7	0	0	0	0	0	0	0	7
25 to 29	0	12	13	0	0	0	0	0	0	25
30 to 34	1	20	24	15	0	0	0	0	0	60
35 to 39	1	39	42	26	9	2	0	0	0	119
40 to 44	2	67	66	53	27	8	3	0	0	226
45 to 49	1	105	95	83	52	19	28	2	2	385
50 to 54	3	139	136	92	81	51	22	8	8	532
55 to 59	0	91	133	132	79	39	4	6	6	484
60 to 64	2	93	108	89	46	12	5	5	5	360
65 & up	0	30	76	51	22	2	6	2	2	189
Total	10	603	693	541	316	133	68	23	23	2,387

TOTAL SALARY BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	\$ 0	\$ 215,809	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 215,809
25 to 29	0	328,875	509,888	0	0	0	0	0	0	838,763
30 to 34	15,301	593,306	982,968	671,363	0	0	0	0	0	2,262,938
35 to 39	7,522	1,291,409	1,656,218	1,211,138	446,454	107,832	0	0	0	4,720,573
40 to 44	38,258	1,647,048	2,476,793	2,270,808	1,540,200	515,476	257,933	0	0	8,746,516
45 to 49	6,167	2,258,383	3,038,183	3,366,296	2,783,931	1,183,713	1,908,992	185,885	185,885	14,731,550
50 to 54	32,448	2,408,258	4,187,906	3,999,021	4,412,448	2,982,436	1,715,646	621,555	621,555	20,359,718
55 to 59	0	1,991,045	4,055,659	5,568,638	3,791,614	2,274,565	272,727	344,128	344,128	18,298,376
60 to 64	21,149	1,734,885	2,931,550	3,297,777	2,174,610	611,411	391,390	388,028	388,028	11,550,800
65 & up	0	561,189	1,901,232	1,761,017	941,352	128,330	316,377	118,628	118,628	5,728,125
Total	\$ 120,845	\$ 13,030,207	\$ 21,740,397	\$ 22,146,058	\$ 16,090,609	\$ 7,803,763	\$ 4,863,065	\$ 1,658,224	\$ 1,658,224	\$ 87,453,168

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan C

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	33	6	0	0	0	0	0	0	39
25 to 29	54	18	0	0	0	0	0	0	72
30 to 34	93	20	0	0	0	0	0	0	113
35 to 39	75	24	0	0	0	0	0	0	99
40 to 44	117	31	0	0	0	0	0	0	148
45 to 49	97	33	0	0	0	0	0	0	130
50 to 54	98	39	0	0	0	0	0	0	137
55 to 59	71	24	0	0	0	0	0	0	95
60 to 64	58	15	0	0	0	0	0	0	73
65 & up	20	5	0	0	0	0	0	0	25
Total	716	215	0	0	0	0	0	0	931

TOTAL SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 471,293	\$ 155,285	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 626,578
25 to 29	861,272	524,246	0	0	0	0	0	0	1,385,518
30 to 34	1,718,650	542,336	0	0	0	0	0	0	2,260,986
35 to 39	1,290,495	655,723	0	0	0	0	0	0	1,946,218
40 to 44	1,856,030	856,877	0	0	0	0	0	0	2,712,907
45 to 49	1,556,349	938,001	0	0	0	0	0	0	2,494,350
50 to 54	1,427,987	1,071,778	0	0	0	0	0	0	2,499,765
55 to 59	1,200,646	895,699	0	0	0	0	0	0	2,096,345
60 to 64	1,068,551	427,182	0	0	0	0	0	0	1,495,733
65 & up	464,191	98,953	0	0	0	0	0	0	563,144
Total	\$ 11,915,464	\$ 6,166,080	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 18,081,544

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan D

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	11	12	0	0	0	0	0	0	23
25 to 29	8	19	0	0	0	0	0	0	27
30 to 34	20	8	0	0	0	0	0	0	28
35 to 39	27	20	0	0	0	0	0	0	47
40 to 44	47	24	0	0	0	0	0	0	71
45 to 49	54	39	0	0	0	0	0	0	93
50 to 54	34	43	0	0	0	0	0	0	77
55 to 59	27	26	0	0	0	0	0	0	53
60 to 64	15	19	0	0	0	0	0	0	34
65 & up	2	4	0	0	0	0	0	0	6
Total	245	214	0	0	0	0	0	0	459

TOTAL SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 166,019	\$ 321,314	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 487,333
25 to 29	147,893	629,514	0	0	0	0	0	0	777,407
30 to 34	387,345	229,658	0	0	0	0	0	0	617,003
35 to 39	474,477	645,678	0	0	0	0	0	0	1,120,155
40 to 44	765,220	703,610	0	0	0	0	0	0	1,468,830
45 to 49	821,650	1,191,709	0	0	0	0	0	0	2,013,359
50 to 54	482,566	1,344,375	0	0	0	0	0	0	1,826,941
55 to 59	405,412	728,631	0	0	0	0	0	0	1,134,043
60 to 64	239,970	552,762	0	0	0	0	0	0	792,732
65 & up	41,504	83,065	0	0	0	0	0	0	124,569
Total	\$ 3,932,056	\$ 6,430,316	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 10,362,372

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - Total

COUNTS BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	125	86	0	0	0	0	0	0	0	211
25 to 29	246	439	92	1	0	0	0	0	0	778
30 to 34	275	508	367	109	5	0	0	0	0	1,264
35 to 39	224	443	354	270	61	3	0	0	0	1,355
40 to 44	253	449	363	303	188	36	9	0	0	1,601
45 to 49	231	552	439	341	263	159	176	16	16	2,177
50 to 54	203	591	523	383	334	207	250	52	52	2,543
55 to 59	146	466	508	400	308	165	106	50	50	2,149
60 to 64	98	312	370	324	200	64	43	25	25	1,436
65 & up	31	132	215	131	83	19	29	17	17	657
Total	1,832	3,978	3,231	2,262	1,442	653	613	160	160	14,171

TOTAL SALARY BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	\$ 3,541,476	\$ 3,165,131	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 6,706,607
25 to 29	8,776,898	19,525,052	4,030,749	37,419	0	0	0	0	0	32,370,118
30 to 34	9,988,115	24,255,880	17,668,546	5,433,281	229,512	0	0	0	0	57,575,334
35 to 39	7,679,736	20,761,704	18,499,069	14,728,991	3,563,243	173,169	0	0	0	65,405,912
40 to 44	7,280,788	18,217,374	18,436,425	16,657,550	12,387,930	2,603,312	672,250	0	0	76,255,629
45 to 49	5,929,884	20,680,637	20,988,682	18,761,704	17,515,080	12,130,239	13,302,768	1,295,868	1,295,868	110,604,862
50 to 54	5,170,001	19,858,203	22,841,250	20,880,736	21,393,589	15,315,926	20,354,356	4,211,476	4,211,476	130,025,537
55 to 59	4,169,709	17,829,966	21,878,994	21,010,862	19,118,426	11,858,919	8,961,050	4,277,737	4,277,737	109,105,663
60 to 64	2,248,106	10,645,157	15,304,364	16,000,382	12,478,980	4,162,324	3,703,192	2,726,397	2,726,397	67,268,902
65 & up	697,952	3,639,005	7,292,134	5,736,968	4,715,875	1,284,657	2,018,528	1,722,016	1,722,016	27,107,135
Total	\$ 55,482,665	\$ 158,578,109	\$ 146,940,213	\$ 119,247,893	\$ 91,402,635	\$ 47,528,546	\$ 49,012,144	\$ 14,233,494	\$ 14,233,494	\$ 682,425,699

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

A. Long-Term Assumptions Used to Determine System Costs and Liabilities

1. Demographic Assumptions

a. Healthy Mortality

Annual Deaths Per 10,000 Members Mortality Projected to 2016		
Age	Male	Female
20	6	2
25	6	2
30	5	2
35	6	3
40	8	5
45	13	8
50	52	29
55	67	38
60	90	59
65	139	98
70	223	156
75	364	251
80	605	414
85	1,032	726
90	1,768	1,281
95	2,720	2,072
100	3,788	3,022

110% and 100% of the RP-2014 Healthy Annuitant Mortality Table for males and females, respectively, projected using the RPEC-2015 model, with an ultimate rate of 0.75% for ages 20-85 grading down to an ultimate rate of 0% for ages 115-120 and convergence to the ultimate rate in the year 2015. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

5% of pre-retirement deaths are assumed to be service-connected.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

b. Disabled Mortality

Annual Deaths Per 1,000 Members Mortality Projected to 2016			
Age	Male	Female	
45	19	11	
50	22	14	
55	23	15	
60	25	19	
65	31	25	
70	42	34	
75	58	50	
80	82	74	

100% and 115% of the RP-2014 Disabled Annuitant Mortality Table for males and females, respectively, projected using the RPEC-2015 model, with an ultimate rate of 0.75% for ages 20-85 grading down to an ultimate rate of 0% for ages 115-120 and convergence to the ultimate rate in the year 2015. The valuation uses fully generational projection of mortality improvements. Sample rates shown are projected through the valuation date.

c. Termination of Employment (Prior to Normal Retirement Eligibility)

Annual Termination Rates Per 1,000 Members – County	
Service	Termination
0	176
5	72
10	39
15	19
20	10
25	4
30	0

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

Annual Termination Rates Per 1,000 Members – Schools	
Service	Termination
0	250
5	45
10	28
15	18
20	12
25	10
30	0

It is assumed that members who terminate before the earlier of age 45 or with age plus service equal to 60 elect to receive a refund of contributions instead of vested benefits. Termination rates drop to zero three years prior to approaching Rule of 80 (or Rule of 85 for Plans C and D) retirement.

d. Disability

Annual Disabilities Per 10,000 Members*		
Age	Male	Female
25	2	1
30	2	1
35	2	1
40	3	2
45	7	6
50	14	11
55	21	17
60	27	21

* 30% of disabilities are assumed to be service-connected. Of these, 5% are assumed to receive Social Security benefits and 31% are assumed to receive Workers' Compensation benefits.

No disability is assumed to occur once members reach eligibility for retirement.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

e. Retirement/DROP

Annual Retirements/DROPs Per 1,000 Eligible Members (Male and Female)	
Age	Normal
50	190
51	200
52	200
53	230
54	240
55	275
56	250
57	300
58	250
59	250
60	250
61	275
62	300
63	250
64	350
65	400
66	250
67	250
68	200
69	250
70	250
71	250
72	250
73	250
74	250
75	1,000

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

f. Deferred Retirement Option Program (DROP)

Retirees are assumed to enter DROP instead of immediate retirement in accordance with the rates below. DROP participants are assumed to remain in DROP for three years and receive interest at 5% per annum on their DROP deferrals.

Annual DROP entrances per 100 Eligible Members (Male and Female)	
Age	DROP
50	70
55	68
60	63
65	30
70	30
75	30

g. Merit/Seniority Salary Increase (in Addition to Across-the-Board Increase)

County	
Service	Merit/Seniority Increases
0	4.00%
5	1.55
10	1.30
15	1.05
20	0.80
25	0.55
30	0.50

Schools	
Service	Merit/Seniority Increases
0	5.20%
5	2.10
10	1.50
15	1.10
20	0.80
25	0.60
30	0.60

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

h. Family Composition

For purposes of valuing the pre-retirement death benefit, an assumption is made that 80% of employees are married at death while active and that the female spouse is three years younger than the male spouse.

i. Sick Leave Credit

Unused sick leave balances as reported for each active member are used as of the valuation date. Future sick leave accruals are assumed to accrue at 100% of each participant's annual average but are capped at 124 hours per year for members hired on or after January 1, 2013.

2. Economic Assumptions

a. Rate of Investment Return:	7.25%
b. Rate of General Wage Increase:	2.75%*
c. Rate of Increase in Cost of Living:	2.50%**
d. Rate of Increase in Total Payroll (for Amortization):	2.75%
e. Administrative Expenses as a Percentage of Payroll:	0.25%

* General Wage Increase assumption applies for projecting contributions and developing Social Security benefits.

** Benefit increases are limited to 4% per year.

3. Rationale for Assumptions

The actuarial assumptions were adopted by the Board of Trustees upon the recommendation of the actuary, based on an experience study performed in 2016. The results of this study were presented in a report dated June 2016 and are incorporated into this report by reference.

4. Changes Since Last Valuation

All of the assumptions were reviewed as part of the experience study performed in early 2016. The assumptions that were changed since the last valuation include healthy and disabled mortality rates, termination, disability, retirement and DROP rates, salary increases, sick leave credit, investment return, general wage increase, cost-of-living adjustments, total payroll increase, and administrative expenses as a percentage of payroll.

The data collection and valuation processes were also changed to use a data collection and measurement date of December 31, 2015 and roll-forward the resulting liabilities to the June 30, 2016 valuation date.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

The Entry Age Normal Cost method is used to determine costs. Under this method, the employer contribution has three components: the normal cost, the payment toward the unfunded actuarial liability, and the expense rate.

The normal cost is a level percent of pay cost which, along with the member contributions, will pay for projected benefits at retirement for each plan participant.

The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and funds accumulated as of the same date is referred to as the unfunded actuarial liability.

The expense rate is added to cover the System's administrative expenses.

Under the Corridor Funding Method, the employer's total contribution rate is equal to the normal cost rate plus the UAL amortization rates for changes due to assumption changes or amendments passed since July 1, 2001 plus the expense rate as long as the System's actuarial funded status remains within a corridor of 90% to 120%. If the funded status falls outside the corridor, a credit (if above 120%) or charge (if below 90%) will be established based on a 15-year amortization equal to the amount necessary to re-enter the corridor.

The 90% corridor floor is being increased to 100% by 2020. As of the 2015 valuation, the floor had reached 97%. Amortization is currently performed using an open 15-year period (with the exception of prior changes identified in Section IV). Once the corridor floor reaches 100% the 15-year period will be closed. Continued use of an open amortization period would result in the System's UAL never being fully exhausted.

2. Actuarial Value of Assets

For purposes of determining the County contribution to the System, we use an actuarial value of assets. The asset adjustment method dampens the volatility in asset values that could occur because of fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process.

In determining the actuarial value of assets, we calculate an expected actuarial value based on cash flow for the year and imputed returns at the actuarial assumption. This expected value is compared to the market value, and one-third of the difference is added to the preliminary actuarial value to arrive at the final actuarial value.

3. Valuation Timing

All participant data is collected as of the December 31 prior to the valuation date. Initial valuation runs are performed as of December 31, and the resulting liabilities are then

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

adjusted for six months to the June 30 valuation date. The adjustment takes into account the actual July 1 cost-of-living increase and any other changes that are known to have occurred in that six-month period.

4. Changes Since Last Valuation and Rationale for Changes

As a result of an experience study, changes were made to the data collection timing, and a revised process is used to run valuation liabilities as of the December 31 prior to the valuation date and then adjust those liabilities to June 30. This change was made to better align the data sources and to allow for use of the same valuation liability for funding and GASB 67 disclosures.

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX C - SUMMARY OF PLAN PROVISIONS

1. Membership

The Plan covers full-time and certain part-time County and School Board employees who are not covered by the Fairfax County Police Officers Retirement System, the Uniformed Retirement System, or the VRS. In order to join, the eligible employee must agree to make the required contributions.

Members hired prior to January 1, 2013 could elect to join Plan A or Plan B. Members hired on or after January 1, 2013 may elect to join Plan C or Plan D.

2. Member Contributions

Plans A and C: 4% of compensation up to Social Security wage base and 5-1/3% of compensation in excess of wage base

Plans B and D: 5-1/3% of compensation

Interest is credited at the rate of 5% per year.

Member contributions are made through an “employer pick-up” arrangement which results in deferral of the taxes on these contributions.

3. Credited Service

All service as a member plus certain purchased prior service is credited. For members who have at least five years of service, credit is allowed at the rate of one month for 172 hours of accrued unused sick leave. For those hired on or after January 1, 2013, the amount of unused sick leave that may be used is capped at 2,080 hours.

4. Average Final Compensation

Base pay and roll call pay are credited, including the “pay” at the rate of final salary during the unused sick leave period. Average Final Compensation is the average over the high 36 consecutive months (or shorter period of total service).

5. Social Security Wage Base

The amount of wages subject to Social Security (FICA) taxes (\$118,500 in 2016).

6. Social Security Breakpoint

The Social Security breakpoint is the 35-year average of Social Security wage bases ending with the year the employee attains Social Security Retirement Age.

FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016

APPENDIX C - SUMMARY OF PLAN PROVISIONS

7. Normal Retirement

Eligibility

For those hired before January 1, 2013:

- (i) Age 65 with five years of service, or
- (ii) Age 50 with age plus service greater than or equal to 80

For those hired on or after January 1, 2013:

- (i) Age 65 with five years of service, or
- (ii) Age 55 with age plus service greater than or equal to 85

Benefit

Plan A and C Benefits: The sum of 1.8% of average final compensation up to the Social Security breakpoint plus 2% of average final compensation in excess of the breakpoint, all multiplied by credited service, and increased by 3%.

Plan B and D Benefits: 2% of average final compensation multiplied by credited service, increased by 3%.

All Plans: Pre-Social Security Retirement Age (SSRA) supplement of 1% of average final compensation up to the Social Security breakpoint times credited service, and increased by 3%. This benefit is payable from normal retirement age until the participant reached his/her SSRA (age 65, 66, or 67).

8. Early Retirement

Eligibility

- (i) Age 50 with 25 years of service, or
- (ii) 10 years of service with age plus service greater than or equal to 75

Benefit

Normal retirement benefit calculated using average final compensation and service at early retirement, actuarially reduced.

No pre-SSRA supplement benefit is payable.

FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016

APPENDIX C - SUMMARY OF PLAN PROVISIONS

9. DROP (Deferred Retirement Option Program)

Eligibility

All members are eligible for DROP participation upon attaining eligibility for normal service retirement. Members can only participate in DROP once, and their election is irrevocable.

Benefit

The benefit scheduled to begin at normal retirement will be credited to a separate DROP account within the Retirement System, accumulating with interest while the member continues to work for a period of 36 months. Upon completion of the three-year period, DROP participation ends, and participants must terminate employment. At that time, the participant will receive payment of the accumulated DROP benefits and begin receiving his or her monthly retirement benefit (in the same amount as determined at commencement of DROP participation, plus annual cost-of-living increases).

For those hired on or after January 1, 2013, the amount credited to the DROP account will exclude the Pre-Social Security Supplement described in item 7.

The DROP account will be credited with interest at an annual rate of 5%, compounded monthly.

Death or Disability during DROP

Non Service-Connected: The effective date of the death or disability will be treated as the end of the DROP participation.

Service-Connected Disability: The member may elect either (1) to receive the service-connected disability benefits to which he or she would otherwise be entitled (forfeiture of DROP balance) or (2) the normal retirement benefit plus the DROP account balance.

Service-Connected Death: The beneficiary will receive payment of the accumulated DROP benefits and the regular service-connected benefit.

FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016

APPENDIX C - SUMMARY OF PLAN PROVISIONS

10. Service-Connected Disability

Eligibility

No age or service requirement

Benefit

66-2/3% of average final compensation less 10% of any primary Social Security benefit to which the member is entitled and less 100% of Virginia Workers' Compensation benefit.

11. Ordinary Disability

Eligibility

Five years of credited service

Benefit

2% of average final compensation times years of credited service, increased by 3%; maximum is 60% of average final compensation; minimum is \$300 per year, increased by 3%

12. Service - Connected Death

Eligibility

No age or service requirement

Benefit

Lump sum payment of \$10,000 plus ordinary death benefit

13. Ordinary Death

Eligibility

Less than 15 years of service

Benefit

Return of employee contributions with interest, payable in lump sum

Eligibility

15 or more years of service

FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016

APPENDIX C - SUMMARY OF PLAN PROVISIONS

Benefit

Spouse Allowance: In lieu of the refund of contributions, the spouse of the deceased member may elect an allowance of 50% of the normal retirement benefit, based on average final compensation and service as of the date of the member's death. The allowance is payable for the life of the spouse but ceases upon the spouse's remarriage, if such remarriage occurs prior to the spouse's attainment of age 60.

14. Vesting

Eligibility

Five years of service

Benefit

Normal retirement benefit based on average final compensation and service at date of termination. Benefit is payable in full at age 65 or actuarially reduced and payable at early retirement age.

A member may withdraw his contributions with interest at termination, in which case no vested benefit is payable.

15. Withdrawal

Eligibility

Not eligible for other benefits

Benefit

Contributions with interest

**FAIRFAX COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

APPENDIX C - SUMMARY OF PLAN PROVISIONS

16. Form of Payment

The normal form of payment is a life annuity with a guarantee that at least the amount of member contributions with interest will be paid to the retiree or beneficiaries.

A member may elect an actuarially equivalent "pop-up" Joint and Survivor benefit with choice of 50%, 66 ²/₃%, 75%, or 100% continuation to the spouse.

17. Cost-of-Living Adjustment

Each July 1, benefits are increased by the lesser of 4% or the increase in the cost-of-living index. The increase is prorated for those who have not been retired for a full year.

Cost-of-living adjustments do not apply to the pre-SSRA supplement or to deferred vested benefits prior to benefit commencement.

In addition to automatic adjustments, benefits may be further increased on an ad hoc basis, if actuarial experience has been favorable.

18. Changes Since Last Valuation

The service-connected disability benefit offset was reduced from 15% to 10% of any primary Social Security benefit.



Classic Values, Innovative Advice