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**Report on the Actuarial Valuations of the
District of Columbia
Retirement Board**

**Teachers' Retirement Plan and
Police Officers & Firefighters'
Retirement Plan**

Prepared as of October 1, 2016





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

December 22, 2016

The Board of Trustees
District of Columbia Retirement Board
900 7th Street, NW, 2nd Floor
Washington, DC 20001

Dear Trustees:

We are pleased to submit the results of the annual actuarial valuations of the District of Columbia Retirement Board Teachers' Retirement Plan and Police Officers & Firefighters' Retirement Plan, prepared as of October 1, 2016.

The purpose of this report is to provide a summary of the funded status of each Plan as of October 1, 2016, and to recommend rates of contribution to be paid by the District in the 2018 fiscal year. The information needed for this Plan under the new Governmental Accounting Standards Board Statement No. 67 was provided in a separate report. However, for informational purposes only, we have also provided accounting information under GASB 25 and 27 in Section VII of the report. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

The promised benefits are included in the actuarially calculated contribution rates which are developed using the entry age normal cost method. Seven-year smoothed market value of assets is used for actuarial valuation purposes. The assumptions recommended by the actuary and adopted by the Board are reasonably related to the experience under the Fund and to reasonable expectations of anticipated experience under the Fund.

The funding policy adopted by the Board in 2012 includes the following funding goals:

- To maintain an increasing or stable ratio of Plan assets to actuarial accrued liabilities and reach a 100 percent minimum funded ratio;
- To develop a pattern of stable or declining contribution rates when expressed as a percentage of member payroll as measured by valuations prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board, with a minimum employer contribution equal to the lesser of the normal cost determined under the Entry Age Normal funding method or the current active member contribution rate.

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December 22, 2016
The Board of Trustees
Page 2

The funding policy not only states the overall funding goals and benchmarks for the Plan, but sets the methods and assumptions. The level dollar amortization period was set to 20 years in 2012 and will decline one year each year until a funded ratio of 100 percent is reached. Therefore, the amortization period this year is 16 years.

Future actuarial results may differ significantly from the current results 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; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

A handwritten signature in blue ink that reads "Edward J. Koebel".

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads "Jonathan T. Craven".

Jonathan T. Craven, ASA, EA, FCA, MAAA
Senior Actuary

EJK/JTC:kc



TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page No.</u>
I	Summary of Principal Results	1
II	Membership Data	6
III	Assets	9
IV	Comments on Valuation	10
V	§1-907.02(c) Adjustment to Fiscal Year 2018 District Payment	12
VI	Contributions Payable	13
VII	Accounting Information	14
VIII	Experience	17

Schedule

A	Valuation Balance Sheet and Solvency Test	19
B	Development of the Actuarial Value of Assets	22
C	Summary of Changes in Net Assets	24
D	Outline of Actuarial Assumptions and Methods	26
E	Summary of Main Plan Provisions as Interpreted For Valuation Purposes	32
F	Schedules of Member Data	42
G	Schedule of Retirees Added to and Removed from Rolls	54
H	Analysis of Financial Experience	56



SECTION I – SUMMARY OF PRINCIPAL RESULTS

- For convenience of reference, the principal results of the valuation and a comparison with the preceding year’s results for the Teachers’ Retirement Plan and Police Officers and Firefighters’ Retirement Plan are summarized below in the tables that follow.

**SUMMARY OF PRINCIPAL RESULTS FOR TEACHERS’ RETIREMENT PLAN
(\$ IN THOUSANDS)**

VALUATION DATE	October 1, 2016	October 1, 2015
Number of Active Members	5,141	4,866
Annual Covered Payroll	\$438,079	\$417,090
Number of Retired Members and Survivors	3,882	3,718
Annual Retirement Benefits	\$68,790	\$62,899
Assets:		
Actuarial Value	\$1,845,476	\$1,732,017
Market Value	\$1,822,113	\$1,670,976
Liabilities:		
Actuarial Accrued Liability	\$2,029,640	\$1,953,305
Unfunded Actuarial Accrued Liability (UAAL)	\$184,164	\$221,288
Funding Ratios:		
Based on Actuarial Value	90.93%	88.67 %
Based on Market Value	89.78%	85.55 %
Amortization Period:	16 years	17 years
CONTRIBUTION FOR FISCAL YEAR ENDING	09/30/2018	09/30/2017
Employer Normal Cost Rate*	7.47%	7.24%
Amortization of UAAL Rate	4.04	4.93
Actuarially Determined Contribution Rate (ADC)	11.51%	12.17%
Estimated Fiscal Year End Covered Payroll	\$456,697	\$434,816
Fiscal Year District Payment before 1-907.02(c)	\$52,566	\$52,917
Shortfall/(Overpayment)	6,480	3,864
Fiscal Year District Payment	\$59,046	\$56,781

*The normal cost rate includes the administrative expense rate of 1.20%.



**SUMMARY OF PRINCIPAL RESULTS FOR POLICE OFFICERS'
RETIREMENT PLAN
(\$ IN THOUSANDS)**

VALUATION DATE	October 1, 2016	October 1, 2015
Total Number of Active Members	3,651	3,829
Total Annual Covered Payroll	\$298,442	\$307,373
Number of Retired Members and Survivors	2,265	1,923
Annual Retirement Benefits	\$63,587	\$50,412
Total Assets:		
Actuarial Value	\$3,528,543	\$3,283,847
Market Value	\$3,503,500	\$3,177,374
Liabilities:		
Actuarial Accrued Liability	\$3,108,582	\$2,951,895
Unfunded Actuarial Accrued Liability (UAAL)	(\$419,961)	(\$331,952)
Funding Ratios:		
Based on Actuarial Value	113.51%	111.25 %
Based on Market Value	112.70%	107.64 %
Amortization Period:	16 years	17 years
CONTRIBUTION FOR FISCAL YEAR ENDING	09/30/2018	09/30/2017
Employer Normal Cost Rate*	34.22%	33.78 %
Amortization of UAAL Rate	(13.53)	(10.03)
Actuarially Determined Contribution Rate (ADC)	20.69%	23.75 %
Estimated Fiscal Year End Covered Payroll	\$311,126	\$320,436
Fiscal Year District Payment before 1-907.02(c)	\$64,372	\$76,104
Shortfall/(Overpayment)	(4,420)	591
Fiscal Year District Payment	\$59,952	\$76,695

*The normal cost rate includes the administrative expense rate of 1.20%.



**SUMMARY OF PRINCIPAL RESULTS FOR FIREFIGHTERS'
RETIREMENT PLAN
(\$ IN THOUSANDS)**

VALUATION DATE	October 1, 2016	October 1, 2015
Total Number of Active Members	1,708	1,708
Total Annual Covered Payroll	\$139,672	\$138,828
Number of Retired Members and Survivors	738	686
Annual Retirement Benefits	\$22,151	\$19,802
Total Assets:		
Actuarial Value	\$1,456,508	\$1,323,453
Market Value	\$1,450,964	\$1,284,854
Liabilities:		
Actuarial Accrued Liability	\$1,389,931	\$1,331,198
Unfunded Actuarial Accrued Liability (UAAL)	(\$66,577)	\$7,745
Funding Ratios:		
Based on Actuarial Value	104.79%	99.42 %
Based on Market Value	104.39%	96.52 %
Amortization Period:	16 years	17 years
CONTRIBUTION FOR FISCAL YEAR ENDING	09/30/2018	09/30/2017
Employer Normal Cost Rate*	38.84%	38.59%
Amortization of UAAL Rate	(4.58)	0.52
Actuarially Determined Contribution Rate (ADC)	34.26%	39.11%
Estimated Fiscal Year End Covered Payroll	\$145,608	\$144,728
Fiscal Year District Payment before 1-907.02(c)	\$49,885	\$56,603
Shortfall/(Overpayment)	(4,241)	12,333
Fiscal Year District Payment	\$45,644	\$68,936

*The normal cost rate includes the administrative expense rate of 1.20%.



**SUMMARY OF PRINCIPAL RESULTS FOR POLICE OFFICERS & FIREFIGHTERS'
RETIREMENT PLAN
(\$ IN THOUSANDS)**

VALUATION DATE	October 1, 2016	October 1, 2015
Number of Active Police Officers	3,651	3,829
Annual Covered Payroll	\$298,442	\$307,373
Number of Active Firefighters	1,708	1,708
Annual Covered Payroll	\$139,672	\$138,828
Total Number of Active Members	5,359	5,537
Total Annual Covered Payroll	\$438,114	\$446,201
Number of Retired Members and Survivors	3,003	2,609
Annual Retirement Benefits	\$85,738	\$70,214
Assets:		
Actuarial Value	\$4,985,051	\$4,607,300
Market Value	\$4,954,464	\$4,462,228
Liabilities:		
Actuarial Accrued Liability	\$4,498,513	\$4,283,093
Unfunded Actuarial Accrued Liability (UAAL)	(\$486,538)	(\$324,207)
Funding Ratios:		
Based on Actuarial Value	110.82%	107.57 %
Based on Market Value	110.14%	104.18 %
Amortization Period:	16 years	17 years
CONTRIBUTIONS FOR FISCAL YEAR ENDING	09/30/2018	09/30/2017
Employer Normal Cost Rate*	35.69%	35.28 %
Amortization of UAAL Rate	(10.68)	(6.75)
Actuarially Determined Contribution Rate (ADC)	25.01%	28.53 %
Estimated Fiscal Year End Covered Payroll	\$456,734	\$465,164
Fiscal Year District Payment before 1-907.02(c)	\$114,257	\$132,707
Shortfall/(Overpayment)	(8,661)	12,924
Fiscal Year District Payment	\$105,596	\$145,631

*The normal cost rate includes the administrative expense rate of 1.20%.



2. The valuation balance sheet showing the results is given in Schedule A.
3. Comments on the valuation results as of October 1, 2016 are given in Section IV and further adjustments of the contribution amounts are set out in Section V.
4. Schedule B of this report shows the development of the actuarial value of assets. Schedule D outlines the full set of actuarial assumptions and methods employed.
5. The funding policy adopted by the Board in 2012 includes the following funding goals:
 - To maintain an increasing or stable ratio of Plan assets to actuarial accrued liabilities and reach a 100 percent minimum funded ratio;
 - To develop a pattern of stable or declining contribution rates when expressed as a percentage of member payroll as measured by valuations prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board, with a minimum employer contribution equal to the lesser of the normal cost determined under the Entry Age Normal funding method and the current active member contribution rate.

The funding policy not only states the overall funding goals and benchmarks for the Plan, but sets the methods and assumptions. The level dollar amortization period was set to 20 years in 2012 and will decline one year each year until a funded ratio of 100 percent is reached. The amortization period this year is 16 years.

6. The valuation takes into account the effect of any amendments to the Plan through the valuation date. The Main Provisions of the Plans, as summarized in Schedule E, were taken into account in the current valuation. No changes were made to the main provisions since the previous valuation.
7. Membership and asset data was provided by the Plans staff and was reviewed for reasonableness and consistency with data from prior valuations. Where data was incomplete but thought to be credible, assumptions were made for missing items. The valuation results depend on the integrity of the data. If any of this information is inaccurate, our results may differ and our calculations may need to be revised. All membership data was collected as of July 1, 2016 but for valuation purposes (e.g. age, service) all members were treated as if remaining in the System as of October 1, 2016.



SECTION II – MEMBERSHIP DATA

- Data regarding the membership of the Plans for use as a basis of the valuation were furnished by the District Government and the U.S. Department of the Treasury. The following table shows the number of active members and their annual compensation as of October 1, 2016 on the basis of which the valuation was prepared.

TABLE 1

THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS AS OF OCTOBER 1, 2016 (\$ IN THOUSANDS)

GROUP	NUMBER	COMPENSATION
Teachers	5,141	\$438,079
Police Officers	3,651	298,442
Firefighters	<u>1,708</u>	<u>139,672</u>
Total	10,500	\$876,193

- The following table shows a five-year history of active member valuation data.

TABLE 2

SCHEDULE OF TOTAL ACTIVE MEMBER VALUATION DATA

VALUATION DATE	NUMBER	ANNUAL PAYROLL (\$ IN THOUSANDS)	ANNUAL AVERAGE PAY	% CHANGE IN AVERAGE PAY
10/01/2016	10,500	\$ 876,193	\$ 83,447	0.56 %
10/01/2015	10,403	863,291	82,985	2.04
10/01/2014	10,050	817,341	81,327	2.79
10/01/2013	9,889	782,451	79,123	(0.56)
10/01/2012	10,005	796,112	79,571	1.81



3. The following table shows the number and annual retirement benefits payable to retired members and survivors on the roll of DCRB as of the valuation date.

TABLE 3
THE NUMBER AND ANNUAL RETIREMENT BENEFITS
OF RETIRED MEMBERS AND SURVIVORS OF DECEASED MEMBERS*
ON THE ROLL AS OF OCTOBER 1, 2016
(\$ IN THOUSANDS)

DISTRICT ONLY

TYPE OF RETIREMENT	GROUP			
	TEACHERS	POLICE OFFICERS	FIREFIGHTERS	TOTAL
Service:				
Number	3,617	1,593	529	5,739
Annual Benefits	\$65,038	\$48,955	\$17,574	\$131,567
Disability:				
Number	116	310	84	510
Annual Benefits	\$2,666	\$9,103	\$2,186	\$13,955
Survivors:				
Number	149	362	125	636
Annual Benefits	\$1,086	\$5,529	\$2,391	\$9,006
Total:				
Number	3,882	2,265	738	6,885
Annual Benefits	\$68,790	\$63,587	\$22,151	\$154,528

*In addition, there are 1,469 deferred vested participants with annual deferred benefits of \$19,506,167.



TABLE 4
THE NUMBER AND ANNUAL RETIREMENT BENEFITS
OF RETIRED MEMBERS AND SURVIVORS OF DECEASED MEMBERS
ON THE ROLL AS OF OCTOBER 1, 2016
(\$ IN THOUSANDS)

FEDERAL PLUS DISTRICT

TYPE OF RETIREMENT	GROUP			
	TEACHERS	POLICE OFFICERS	FIREFIIGHTERS	TOTAL
Service:				
Number	5,431	3,682	1,114	10,227
Annual Benefits	\$251,380	\$220,261	\$77,828	\$549,469
Disability:				
Number	315	999	366	1,680
Annual Benefits	\$9,939	\$43,525	\$18,284	\$71,748
Survivors:				
Number	437	1,429	528	2,394
Annual Benefits	\$8,885	\$41,483	\$16,123	\$66,491
Total:				
Number	6,183	6,110	2,008	14,301
Annual Benefits	\$270,204	\$305,269	\$112,235	\$687,708

4. Tables 4 through 6 of Schedule F show the distribution by age and service of the number and annual compensation of active members for each plan included in the valuation. Tables 7 through 12 of Schedule F show the distribution by age of the number and annual benefits of retired members for each plan included in the valuation.



SECTION III - ASSETS

1. Schedule C shows the additions and deductions of DCRB for the year preceding the valuation date and a reconciliation of the fund balances at market value. As of October 1, 2016, the market value of assets used to determine the actuarial value of assets for each plan is shown below:

**TABLE 5
COMPARISON OF MARKET VALUE OF ASSETS AT
OCTOBER 1, 2016 AND OCTOBER 1, 2015
(\$ IN THOUSANDS)**

FUND	OCTOBER 1, 2016 MARKET VALUE	OCTOBER 1, 2015 MARKET VALUE
Teachers	\$1,822,113	\$1,670,976
Police Officers and Firefighters	<u>4,954,464</u>	<u>4,462,228</u>
Total Market Value of Assets	\$6,776,577	\$6,133,204

2. The seven-year market related actuarial value of assets used for the current valuation was \$6,830,527,332. Schedule B shows the development of the actuarial value of assets as of October 1, 2016. The following table shows the actuarial value of assets allocated among each plan.

**TABLE 6
COMPARISON OF ACTUARIAL VALUE OF ASSETS AT
OCTOBER 1, 2016 AND OCTOBER 1, 2015
(\$ IN THOUSANDS)**

FUND	OCTOBER 1, 2016 ACTUARIAL VALUE	OCTOBER 1, 2015 ACTUARIAL VALUE
Teachers	\$1,845,476	\$1,732,017
Police Officers and Firefighters	<u>4,985,051</u>	<u>4,607,300</u>
Total Actuarial Value of Assets	\$6,830,527	\$6,339,317



SECTION IV - COMMENTS ON VALUATION

Teachers' Retirement Plan

1. The total valuation balance sheet on account of benefits shows that the Teachers' Retirement Plan has total prospective benefit liabilities of \$2,591,123,217, of which \$980,894,546 is for the prospective benefits payable on account of present retired members and survivors of deceased members, \$127,137,589 is for the prospective benefits payable on account of present inactive members, and \$1,483,091,082 is for the prospective benefits payable on account of present active members. Against these benefit liabilities the Teachers' Retirement Plan has a total present actuarial value of assets of \$1,845,475,738 as of October 1, 2016. The difference of \$745,647,479 between the total liabilities and the total present actuarial value of assets represents the present value of contributions to be made in the future on account of benefits.
2. The contributions to the Plan consist of normal cost contributions and actuarial accrued liability contributions. The valuation indicates the normal contributions at a rate of 14.13% of payroll are required under the entry age method. Of this amount 7.86% will be paid by the members (at the rate of 7.0% of salary for members hired before November 1, 1996 and 8.0% of salary for members hired on or after November 1, 1996), in 2018 and the remaining 6.27% is payable by the District.
3. Beginning with the October 1, 2012 valuation, estimated budgeted administrative expenses are included in the normal rates. The expenses for the fiscal year ending September 30, 2018 are estimated to be 1.20% of payroll.
4. Prospective normal cost contributions (excluding administrative expenses) at the rate of 14.13% have a present value of \$561,483,480. When this amount is subtracted from \$745,647,479, which is the present value of total future contributions to be made, there remains \$184,163,999 as the amount of unfunded actuarial accrued liability contributions. The development of the unfunded actuarial accrued liability is shown in Schedule A.
5. The unfunded actuarial accrued liability (UAAL) decreased approximately \$37.1 million for the plan year ending September 30, 2016 and the funding ratio increased from 88.67% to 90.93%. This decrease in the UAAL was primarily due to lower salary increases for active members than was expected. In addition, there was a gain due to the COLA increases for retirees being less than expected. There were losses due to more new entrants than expected that partially offset these gains. See Schedule H for a complete breakdown of the experience of the Plan.



Police Officers and Firefighters' Retirement Plan

1. The total valuation balance sheet on account of benefits shows that the combined Police Officers and Firefighters' Retirement Plan has total prospective benefit liabilities of \$6,789,538,436, of which \$1,590,952,329 is for the prospective benefits payable on account of present retired members and survivors of deceased members, \$59,243,088 is for the prospective benefits payable on account of present inactive members, and \$5,139,343,019 is for the prospective benefits payable on account of present active members. Against these benefit liabilities the Police Officers and Firefighters' Retirement Plan has a total present actuarial value of assets of \$4,985,051,594 as of October 1, 2016. The difference of \$1,804,486,842 between the total liabilities and the total present actuarial value of assets represents the present value of contributions to be made in the future on account of benefits.
2. The contributions to the Plan consist of normal cost contributions and actuarial accrued liability contributions. The valuation indicates the normal contributions at a rate of 42.14% of payroll are required under the entry age method. Of this amount 7.65% will be paid by the members (at the rate of 7.0% of salary for members hired before November 10, 1996 and 8.0% of salary for members hired on or after November 10, 1996), in 2018 and the remaining 34.49% is payable by the District.
3. Beginning with the October 1, 2012 valuation, estimated budgeted administrative expenses are included in the normal rates. The expenses for the fiscal year ending September 30, 2018 are estimated to be 1.20% of payroll.
4. Prospective normal cost contributions (excluding administrative expenses) at the rate of 42.14% have a present value of \$2,291,024,645. When this amount is subtracted from \$1,804,486,842, which is the present value of total future contributions to be made, there remains a surplus of (\$486,537,803) as the amount of unfunded actuarial accrued liability contributions. The development of the unfunded actuarial accrued liability is shown in Schedule A.
5. The unfunded actuarial accrued liability (UAAL) decreased approximately \$162.3 million for the plan year ending September 30, 2016 and the funding ratio increased slightly from 107.57% to 110.82%. This decrease in the UAAL was primarily due to smaller pay increases than expected for active members. There was also a gain due to the COLA increases for retirees being less than expected. These gains were partially offset by a loss due to more new entrants than expected. See Schedule H for a complete breakdown of the experience of the Plan.



SECTION V - §1-907.02(c) ADJUSTMENT TO FISCAL YEAR 2018 DISTRICT PAYMENT

1. Beginning in fiscal year 2001, the District payment was adjusted pursuant to D.C. Code §1-907.02(c). This section stipulates that "...the enrolled actuary shall determine whether the amount appropriated for the applicable fiscal year resulted in an overpayment or a shortfall based upon the actual covered payroll."

2. The D.C. Code §1-907.02(c) adjustment to the fiscal year 2018 District payment is calculated by taking the actual fiscal year 2016 covered payroll for each employee class (which is provided by the District) and multiplying by the corresponding fiscal year 2016 contribution rates, which were determined as of October 1, 2014. This result is the fiscal year 2016 contribution that was required to be made by the District, based on actual payroll. The required contribution is then compared to the actual contribution that was paid by the District based on projected payroll. The difference between the required and actual contributions is the D.C. Code §1-907.02(c) adjustment. Any adjustment amount that cannot be used in a given year is carried forward to the next fiscal year.

**ADJUSTMENT TO DISTRICT PAYMENT
AS OF OCTOBER 1, 2016
(\$ IN THOUSANDS)**

	Teachers	Police	Fire
(1) Actual FY 2016 Covered Payroll	\$438,079	\$298,442	\$139,672
(2) FY 2016 Contribution Rate	11.63%	24.15%	39.65%
(3) Actual FY 2016 Contribution Required	\$50,949	\$72,074	\$55,380
(4) Actual FY 2016 Contribution Paid	\$44,469	\$76,494	\$59,621
(5) Preliminary D.C. Code §1-907.02(c) Adjustment to FY 2017 Payment [(3) - (4)]	\$6,480	(\$4,420)	(\$4,241)
(6) FY 2016 Unrecognized Amount	\$0	\$0	\$0
(7) Final D.C. Code §1-907.02(c) Adjustment to FY 2017 Payment [(5) + (6) if applicable]	\$6,480	(\$4,420)	(\$4,241)
(8) Applicable Adjustment	\$6,480	(\$4,420)	(\$4,241)
(9) Carryover Adjustment [(7) - (8)]	\$0	\$0	\$0



SECTION VI – CONTRIBUTIONS PAYABLE

1. The following tables summarize the employer contribution rates, which were determined by the October 1, 2016 valuation and recommended for use for the fiscal year ending September 30, 2018.

**TEACHERS' RETIREMENT PLAN
ACTUARIAL DETERMINED CONTRIBUTIONS (ADC)
FOR FISCAL YEAR ENDING SEPTEMBER 30, 2018**

	PERCENTAGE OF ACTIVE MEMBERS' COMPENSATION	EMPLOYER ACTUARIAL DETERMINED CONTRIBUTION (ADC)
Normal Cost	6.27%	\$28,635,000
Expense Load	1.20	5,480,000
Accrued Liability	<u>4.04</u>	<u>18,451,000</u>
Sub-Total	11.51%	\$52,566,000
DC Code Adjustment		<u>6,480,000</u>
Total		\$59,046,000

**POLICE OFFICERS AND FIREFIGHTERS' RETIREMENT PLAN
ACTUARIAL DETERMINED CONTRIBUTIONS (ADC)
FOR FISCAL YEAR ENDING SEPTEMBER 30, 2018**

	PERCENTAGE OF ACTIVE MEMBERS' COMPENSATION	EMPLOYER ACTUARIAL DETERMINED CONTRIBUTION (ADC)
Normal Cost	34.49%	\$157,541,000
Expense Load	1.20	5,481,000
Accrued Liability	<u>(10.68)</u>	<u>(48,765,000)</u>
Sub-Total	25.01%	\$114,257,000
DC Code Adjustment		<u>(8,661,000)</u>
Total		\$105,596,000



SECTION VII - ACCOUNTING INFORMATION

1. Governmental Accounting Standards Board Statements 67 and 68 are now used to determine the accounting results for the plans and are provided in a separate report. GASB 25 and 27 results are provided for informational purposes only. One such item is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ALL MEMBERS
AS OF OCTOBER 1, 2016**

GROUP	RETIREMENT PLAN			
	Teachers	Police Officers	Firefighters	Total
Retirees and survivors currently receiving benefits	3,882	2,265	738	6,885
Terminated employees entitled to benefits but not yet receiving benefits	1,176	197	96	1,469
Inactive Members	1,898	119	49	2,066
Active Members				
Vested	2,406	2,739	1,473	6,618
Non-vested	<u>2,735</u>	<u>912</u>	<u>235</u>	<u>3,882</u>
Total Active Members	5,141	3,651	1,708	10,500
Totals	12,097	6,232	2,591	20,920



2. Another such item is the schedule of funding progress as shown below.

**SCHEDULE OF FUNDING PROGRESS
(\$ IN THOUSANDS)**

Actuarial Valuation Date	Actuarial Value of Plan Assets (a)	Actuarial Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
TEACHERS' RETIREMENT PLAN						
10/1/2012	\$1,585,626	\$1,680,548	\$94,922	94.4 %	\$381,235	24.9 %
10/1/2013	1,585,775	1,759,043	173,268	90.1 %	369,071	46.9 %
10/1/2014	1,638,583	1,849,230	210,647	88.6 %	378,926	55.6 %
10/1/2015	1,732,017	1,953,305	221,288	88.7 %	417,090	53.1 %
10/1/2016	1,845,476	2,029,640	184,164	90.9 %	438,079	42.0 %
POLICE OFFICERS AND FIREFIGHTERS' RETIREMENT PLAN						
10/1/2012	\$3,804,853	\$3,456,976	(\$347,877)	110.1 %	\$414,877	(83.9)%
10/1/2013	4,013,534	3,644,085	(369,449)	110.1 %	413,380	(89.4)%
10/1/2014	4,288,727	3,998,537	(290,190)	107.3 %	438,415	(66.2)%
10/1/2015	4,607,300	4,283,093	(324,206)	107.6 %	446,201	(72.7)%
10/1/2016	4,985,051	4,498,513	(486,538)	110.8 %	438,114	(111.1)%
TOTAL						
10/1/2012	\$5,390,479	\$5,137,524	(\$252,955)	104.9 %	\$796,112	(31.8)%
10/1/2013	5,599,309	5,403,128	(196,181)	103.6 %	782,451	(25.1)%
10/1/2014	5,927,310	5,847,767	(79,543)	101.4 %	817,341	(9.7)%
10/1/2015	6,339,317	6,236,398	(102,918)	101.7 %	863,291	(11.9)%
10/1/2016	6,830,527	6,528,153	(302,374)	104.6 %	876,193	(34.5)%



3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at October 1, 2016.

	Teachers	Police Officers & Firefighters
Valuation Date	10/1/2016	10/1/2016
Actuarial cost method	Entry Age Normal	Entry Age Normal
Amortization method	Level Dollar Closed	Level Dollar Closed
Remaining amortization period	16 years	16 years
Asset valuation method	7 year smoothed Market	7 year smoothed Market
Actuarial assumptions:		
Investment rate of return*	6.50%	6.50%
Projected salary increases**	4.45 – 8.25%	4.25 – 9.25%
Cost of living adjustments:	3.50% (COLA limited to 3.00% for those hired after 11/1/1996)	3.50% (COLA limited to 3.00% for those hired after 11/10/1996)

* Includes inflation of 3.50%.

** Includes wage inflation of 4.25%.



SECTION VIII – EXPERIENCE

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain/(loss) for the year ended September 30, 2016 is shown below.

Teachers' Retirement Plan

		<u>\$ Thousands</u>
(1)	UAAL* as of October 1, 2015	\$ 221,288
(2)	Total normal cost from last valuation	62,844
(3)	Total actual contributions	78,061
(4)	Interest accrual: $[(1) + (2)] \times .065 - [(3) \times .0325]$	<u>15,932</u>
(5)	Expected UAAL before changes: (1) + (2) – (3) + (4)	\$ 222,002
(6)	Change due to plan amendments	0
(7)	Change due to actuarial assumptions or methods	<u>0</u>
(8)	Expected UAAL after changes: (5) + (6) + (7)	\$ 222,002
(9)	Actual UAAL as of October 1, 2016	\$ 184,164
(10)	Gain/(loss): (8) – (9)	\$ 37,838
(11)	Gain/(loss) as percent of actuarial accrued liabilities at start of year (\$1,953,305)	1.9%

*Unfunded actuarial accrued liability.

Valuation Date September 30	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2013	(2.2)%
2014	(2.3)
2015	(0.5)
2016	1.9



Police Officers and Firefighters' Retirement Plan

		<u>\$ Thousands</u>
(1)	UAAL* as of October 1, 2015	\$ (324,206)
(2)	Total normal cost from last valuation	191,288
(3)	Total actual contributions	168,900
(4)	Interest accrual: $[[(1) + (2)] \times .065] - [(3) \times .0325]$	<u>(14,129)</u>
(5)	Expected UAAL before changes: (1) + (2) – (3) + (4)	\$ (315,947)
(6)	Change due to plan amendments	0
(7)	Change due to actuarial assumptions or methods	<u>0</u>
(8)	Expected UAAL after changes: (5) + (6) + (7)	\$ (315,947)
(9)	Actual UAAL as of October 1, 2016	\$ (486,538)
(10)	Gain/(loss): (8) – (9)	\$ 170,590
(11)	Gain/(loss) as percent of actuarial accrued liabilities at start of year (\$4,283,094)	4.0%

*Unfunded actuarial accrued liability.

Valuation Date September 30	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2013	1.4%
2014	(2.2)
2015	1.9
2016	4.0



SCHEDULE A

**VALUATION BALANCE SHEET
SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF
THE DISTRICT OF COLUMBIA RETIREMENT BOARD
AS OF OCTOBER 1, 2016**

TEACHERS' RETIREMENT PLAN

PRESENT AND PROSPECTIVE ASSETS		
Actuarial Value of Present Assets		1,845,475,738
Present value of future members' contributions		278,851,221
Present value of future employer contributions		
Normal contributions	\$282,632,259	
Unfunded accrued liability contributions	<u>184,163,999</u>	
Total prospective employer contributions		<u>466,796,258</u>
Total Present and Prospective Assets		<u>\$2,591,123,217</u>
ACTUARIAL LIABILITIES		
Present value of benefits payable on account of retired members and survivors of deceased members now drawing retirement benefits		\$980,894,546
Present value of prospective benefits payable on account of inactive members		127,137,589
Present value of prospective benefits payable on account of present active members:		
Service retirement benefits	\$1,269,384,848	
Disability retirement benefits	42,883,670	
Survivor benefits	28,400,528	
Separation benefits	<u>142,422,036</u>	
Total		<u>1,483,091,082</u>
Total Actuarial Liabilities		<u>\$2,591,123,216.81</u>



SCHEDULE A

(Continued)

**VALUATION BALANCE SHEET
SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF
THE DISTRICT OF COLUMBIA RETIREMENT BOARD
AS OF OCTOBER 1, 2016**

POLICE OFFICERS & FIREFIGHTERS' RETIREMENT PLAN

PRESENT AND PROSPECTIVE ASSETS		
Actuarial Value of Present Assets		4,985,051,594
Present value of future members' contributions		381,990,428
Present value of future employer contributions		
Normal contributions	\$1,909,034,217	
Unfunded accrued liability contributions	<u>(486,537,803)</u>	
Total prospective employer contributions		<u>1,422,496,414</u>
Total Present and Prospective Assets		<u>\$6,789,538,436</u>
ACTUARIAL LIABILITIES		
Present value of benefits payable on account of retired members and survivors of deceased members now drawing retirement benefits		\$1,590,952,329
Present value of prospective benefits payable on account of inactive members		59,243,088
Present value of prospective benefits payable on account of present active members:		
Service retirement benefits	\$4,674,658,483	
Disability retirement benefits	305,383,679	
Survivor benefits	86,427,666	
Separation benefits	<u>72,873,191</u>	
Total		<u>5,139,343,019</u>
Total Actuarial Liabilities		<u>\$6,789,538,436</u>



SCHEDULE A

(continued)

**SOLVENCY TEST
(\$ IN THOUSANDS)**

Valuation Date	Aggregate Accrued Liabilities For			Reported Assets	Portion of Accrued Liabilities Covered by Reported Asset		
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)		(1)	(2)	(3)
TEACHERS' RETIREMENT PLAN							
10/1/2012	\$137,698	\$819,842	\$723,008	\$1,503,346	100%	100.0%	75.5%
10/1/2013	141,792	883,495	733,756	1,622,376	100%	100.0%	81.4%
10/1/2014	141,943	968,446	738,841	1,746,030	100%	100.0%	86.0%
10/1/2015	144,927	1,053,078	755,300	1,670,976	100%	100.0%	62.6%
10/1/2016	152,459	1,108,032	769,149	1,822,113	100%	100.0%	73.0%
POLICE OFFICERS AND FIREFIGHTERS' RETIREMENT PLAN							
10/1/2012	\$235,924	\$849,982	\$2,371,070	\$3,681,526	100%	100.0%	100.0%
10/1/2013	247,202	966,862	2,430,021	4,168,457	100%	100.0%	100.0%
10/1/2014	255,735	1,149,515	2,593,287	4,588,319	100%	100.0%	100.0%
10/1/2015	262,674	1,388,908	2,631,511	4,462,228	100%	100.0%	100.0%
10/1/2016	260,786	1,650,195	2,587,532	4,954,464	100%	100.0%	100.0%



SCHEDULE B

**DEVELOPMENT OF THE OCTOBER 1, 2016
ACTUARIAL VALUE OF ASSETS**

TEACHERS' RETIREMENT PLAN

(1)	Actuarial Value Beginning of Year*	\$	1,732,017,312
(2)	Market Value End of Year	\$	1,822,113,000
(3)	Market Value Beginning of Year	\$	1,670,976,000
(4)	Cash Flow		
	a. Contributions	\$	78,061,000
	b. Benefit Payments, Refunds, and Transfers		(75,298,000)
	c. Administrative Expenses		(4,811,000)
	d. Net Cash Flow: [(4)a + (4)b + (4)c]	\$	(2,048,000)
(5)	Investment Income		
	a. Market total: (2) – (3) – (4)d	\$	153,185,000
	b. Assumed Rate		6.50%
	c. Amount of Immediate Recognition	\$	108,546,880
	d. Amount for Phased-in Recognition: (5)a – (5)c	\$	44,638,120
(6)	Phased-In Recognition of Investment Income		
	a. Current Year: (1/7) x (5)d	\$	6,376,874
	b. First Prior Year		(26,487,916)
	c. Second Prior Year		3,896,963
	d. Third Prior Year		10,404,433
	e. Fourth Prior Year		13,523,532
	f. Fifth Prior Year		(6,589,080)
	g. Sixth Prior Year		5,834,740
	h. Total Recognized Investment Gain	\$	6,959,546
(7)	Preliminary Actuarial Value End of Year: (1) + (4)d + (5)c + (6)h	\$	1,845,475,738
(8)	Actuarial Value End of Year with 20% Corridor Applied:	\$	1,845,475,738
(9)	Rate of Return on Actuarial Value of Assets		6.67%

*Prior to any corridor restraints.



SCHEDULE B

(Continued)

**DEVELOPMENT OF THE OCTOBER 1, 2016
ACTUARIAL VALUE OF ASSETS**

POLICE OFFICERS & FIREFIGHTERS' RETIREMENT PLAN

(1)	Actuarial Value Beginning of Year*	\$	4,607,300,443
(2)	Market Value End of Year	\$	4,954,464,000
(3)	Market Value Beginning of Year	\$	4,462,228,000
(4)	Cash Flow		
	a. Contributions	\$	168,900,000
	b. Benefit Payments, Refunds, and Transfers		(81,316,000)
	c. Administrative Expenses		(12,853,000)
	d. Net Cash Flow: [(4)a + (4)b + (4)c]	\$	74,731,000
(5)	Investment Income		
	a. Market total: (2) – (3) – (4)d	\$	417,505,000
	b. Assumed Rate		6.50%
	c. Amount of Immediate Recognition	\$	292,473,578
	d. Amount for Phased-in Recognition: (5)a – (5)c	\$	125,031,422
(6)	Phased-In Recognition of Investment Income		
	a. Current Year: (1/7) x (5)d	\$	17,861,632
	b. First Prior Year		(69,501,417)
	c. Second Prior Year		9,469,805
	d. Third Prior Year		26,331,813
	e. Fourth Prior Year		32,104,476
	f. Fifth Prior Year		(18,159,945)
	g. Sixth Prior Year		12,440,209
	h. Total Recognized Investment Gain	\$	10,546,573
(7)	Preliminary Actuarial Value End of Year: (1) + (4)d + (5)c + (6)h	\$	4,985,051,594
(8)	Actuarial Value End of Year with 20% Corridor Applied:	\$	4,985,051,594
(9)	Rate of Return on Actuarial Value of Assets		6.52%

*Prior to any corridor restraints.



SCHEDULE C

**SUMMARY OF CHANGES IN NET ASSETS
FOR THE YEAR ENDING OCTOBER 1, 2016**

TEACHERS' RETIREMENT PLAN

Additions for the Year

Contributions:

Members (including purchased service)	\$	33,592,000
Employers		<u>44,469,000</u>

Total \$ 78,061,000

Net Investment Income 153,185,000

TOTAL \$ 231,246,000

Deductions for the Year

Benefit Payments (including refunds and transfers)	\$	(75,298,000)
Administrative Expenses		<u>(4,811,000)</u>

TOTAL \$ (80,109,000)

Excess of Additions Over Deductions \$ 151,137,000

Reconciliation of Asset Balances

Market Value of Assets as of 9/30/2015	\$	1,670,976,000
Excess of Additions over Deductions		<u>151,137,000</u>
Market Value of Assets as of 9/30/2016*	\$	<u>1,822,113,000</u>

Rate of Return on Market Value of Assets 9.17%

* The Market Value of Assets shown above is used in the determination of the Actuarial Value of Assets (Schedule B).



SCHEDULE C
(Continued)

**SUMMARY OF CHANGES IN NET ASSETS
FOR THE YEAR ENDING OCTOBER 1, 2016**

POLICE OFFICERS & FIREFIGHTERS' RETIREMENT PLAN

Additions for the Year

Contributions:		
Members (including purchased service)	\$	32,785,000
Employers		<u>136,115,000</u>
Total	\$	168,900,000
Net Investment Income		<u>417,505,000</u>
TOTAL	\$	586,405,000

Deductions for the Year

Benefit Payments (including refunds and transfers)	\$	(81,316,000)
Administrative Expenses		<u>(12,853,000)</u>
TOTAL	\$	<u>(94,169,000)</u>

Excess of Additions Over Deductions \$ 492,236,000

Reconciliation of Asset Balances

Market Value of Assets as of 9/30/2015	\$	4,462,228,000
Excess of Additions over Deductions		<u>492,236,000</u>
Market Value of Assets as of 9/30/2016*	\$	<u>4,954,464,000</u>

Rate of Return on Market Value of Assets 9.28%

* The Market Value of Assets shown above is used in the determination of the Actuarial Value of Assets (Schedule B).



SCHEDULE D

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS (DEMOGRAPHIC ASSUMPTIONS ADOPTED ON OCTOBER 20, 2011) (ECONOMIC ASSUMPTIONS ADOPTED ON NOVEMBER 15, 2012)

VALUATION DATE: All assets and liabilities are computed as of October 1, 2016. Demographic information was collected as of June 30, 2016.

INVESTMENT RATE OF RETURN: 6.50% per annum, compounded annually (net of investment expenses).

INFLATION ASSUMPTION: 3.50% per annum.

PAYROLL GROWTH ASSUMPTION: 4.25% per annum.

PERCENT MARRIED: 64% of Teachers are assumed to be married and 80% of Police Officers and Firefighters are assumed to be married, with the wife 3 years younger than the husband. Active members are assumed to have one dependent child aged 10.

ACTUARIAL METHOD: Entry Age Normal Cost Method. The amortization of the unfunded actuarial accrued liability uses a level dollar basis.

ASSETS: The method of valuing assets is intended to recognize a “smoothed” market value of assets. Under this method, the difference between actual return on market value from investment experience and the expected return on market value is recognized over a seven-year period. The actuarial value of assets is constrained to an 80% to 120% corridor around market value of assets.

WITHDRAWAL ASSUMPTION: For Teachers, it was assumed that 35% of the vested members who terminate elect to withdraw their contributions while the remaining 65% elect to leave their contributions in the plan in order to be eligible for a benefit at their retirement date. For Police Officers and Firefighters, it was assumed that 80% of the vested members who terminate elect to withdraw their contributions while the remaining 20% elect to leave their contributions in the plan.

OTHER ASSUMPTIONS: To value the pre-retirement death benefit for Police Officers and Firefighters, the benefit form for all retirements (normal or disabled) is assumed to be a 67.8% Joint and Survivor annuity for all participants (based on 40% of average pay survivor benefits). One-fourth of all Police Officers and Firefighter active deaths are assumed to occur in the line of duty.

COST OF LIVING ADJUSTMENT: The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 3.5% per year.

MILITARY SERVICE: All Police and Fire members assumed to have 0.40 years of military service at retirement.

ADMINISTRATIVE EXPENSES: Budgeted administrative expenses of 1.20% of payroll are added to the normal cost rate.



SCHEDULE D

(Continued)

TEACHERS

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include inflation at 4.25% per annum:

Pay Increase Assumptions for an Individual Member			
Years of Service	Merit & Seniority	Inflation & Productivity (Economy)	Total Increase (Next Year)
5	4.00%	4.25%	8.25%
10	3.00	4.25	7.25
15	0.50	4.25	4.75
20	0.20	4.25	4.45
25	0.20	4.25	4.45
30	0.20	4.25	4.45
35	0.20	4.25	4.45

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of withdrawal, service retirement, and disability are shown in the following tables:

Percent of Members Separating Within the Next Year						
Sample Ages	Withdrawal			Service Retirement		Disability Retirement
	0 to 3 yrs of service	4 to 9 yrs of service	10 & up yrs of service	Under 30 yrs service	30 & up yrs service	
20	25.0%	20.0%	0.00%			0.03%
25	23.5	20.0	0.00			0.03
30	22.0	16.0	3.75			0.05
35	20.5	14.0	3.75			0.07
40	19.0	12.0	3.75			0.09
45	17.5	10.0	3.75			0.15
50	16.0	10.0	3.75	2.5%	2.5%	0.22
55	14.5	10.0	3.75	6.0	33.0	0.32
60	13.0	10.0	3.75	27.0	25.0	0.40
62	0.0	0.0	0.00	25.0	25.0	
65				20.0	25.0	
70				30.0	30.0	
71				25.0	40.0	
75				100.0	100.0	

MORTALITY: The RP-2000 Combined Mortality Table projected with Scale AA to 2015, set back 3 years for females is used for healthy active members, retirees, and beneficiaries. The RP-2000 Disabled Mortality Table set back 1 year for males and set back 5 years for females is used for disabled retirees. Mortality improvement is anticipated under these assumptions as recent mortality experience shows actual deaths are approximately 7-8% greater for healthy lives and 9% greater for disabled lives than expected under the selected tables.



SCHEDULE D

(Continued)

POLICE OFFICERS

SALARY INCREASES: Police Officers are assumed to receive a longevity increase of 5%, 10%, 15%, and 20% applied to individual base pay after 15, 20, 25, and 30 years of service. These are approximated by increases of 3.5% to final average salary. Representative values of the assumed annual rates of future salary increases before longevity increases are as follows and include inflation at 4.25% per annum:

Pay Increase Assumptions for an Individual Member			
Years of Service	Merit & Seniority	Inflation & Productivity (Economy)	Total Increase (Next Year)
5	3.56%	4.25%	7.81%
10	2.58	4.25	6.83
15	2.31	4.25	6.56
20	2.50	4.25	6.75
25	1.10	4.25	5.35
30	0.50	4.25	4.75
35	0.00	4.25	4.25

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of withdrawal, service retirement, and disability are shown in the following tables:

Percent of Members Separating Within the Next Year						
Sample Ages	Withdrawal (3 years of service & up) ¹		Disability Retirement ²		Years of Service	Service Retirement ³
	Males	Females	Males	Females		
	20	6.00%	2.50%	0.02%		
25	6.00	2.50	0.05	0.08	25	22.0
30	4.25	3.50	0.10	0.12	30	15.0
35	2.50	2.00	0.22	0.28	35	20.0
40	1.75	1.50	0.25	0.40	40	20.0
45	1.25	1.25	0.30	0.62		
50	1.25	1.25	0.40	0.70		
55	1.25	1.25	0.60	0.75		
60	0.00	0.00	0.80	0.90		

¹ Members of any age with less than 3 years of service have a 10% withdrawal assumption.

² It is assumed that 75% of the disabilities are due to accidents in the line of duty and the "percent of disability" is assumed to be 100%.

³ 100% of active members are assumed to retire at age 65, regardless of service.



MORTALITY: The RP-2000 Combined Mortality Table projected with Scale AA to 2015 set forward 1 year for females is used for healthy active members, retirees and beneficiaries. The following disability mortality table is used for disabled retirees.

Disabled Retiree Mortality		
Sample Ages	Males	Females
20	0.80%	0.50%
30	0.80	0.50
40	0.80	0.50
50	0.80	0.50
60	1.16	0.74
70	2.35	1.55
80	5.78	3.76
90	13.95	10.87
100	51.48	49.93

Mortality improvement is anticipated under these assumptions as recent mortality experience shows actual deaths are approximately 7% greater for healthy lives and 6% greater for disabled lives than expected under the selected tables.



SCHEDULE D

(Continued)

FIREFIGHTERS

SALARY INCREASES: Firefighters are assumed to receive a longevity increase of 5%, 10%, 15%, and 20% applied to individual base pay after 15, 20, 25, and 30 years of service. These are approximated by increases of 3.5% to final average salary. Representative values of the assumed annual rates of future salary increases before longevity increases are as follows and include inflation at 4.25% per annum:

Pay Increase Assumptions for an Individual Member			
Years of Service	Merit & Seniority	Inflation & Productivity (Economy)	Total Increase (Next Year)
5	2.50%	4.25%	6.75%
10	2.50	4.25	6.75
15	2.50	4.25	6.75
20	2.50	4.25	6.75
25	2.50	4.25	6.75
30	2.50	4.25	6.75
35	2.50	4.25	6.75

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of withdrawal, service retirement, and disability are shown in the following tables:

Percent of Members Separating Within the Next Year				
Sample Ages	Withdrawal			
	(2 years of service & up) ¹	Disability Retirement ²	Years of Service	Service Retirement ³
20	3.50%	0.01%	20	12.5%
25	3.50	0.02	25	12.5
30	2.00	0.15	30	20.0
35	1.00	0.20	35	40.0
40	1.00	0.35	40	40.0
45	1.50	0.45		
50	1.50	0.52		
55	0.00	0.60		
60	0.00	0.70		

¹Members of any age with less than 2 years of service have a 9% withdrawal assumption.

²It is assumed that 75% of the disabilities are due to accidents in the line of duty and the "percent of disability" is assumed to be 100%.

³100% of active members are assumed to retire at age 60, regardless of service.





MORTALITY: The RP-2000 Combined Mortality Table projected with Scale AA to 2015 set forward 1 year for females is used for healthy active members, retirees and beneficiaries. The following disability mortality table is used for disabled retirees.

Disabled Retiree Mortality		
Sample Ages	Males	Females
20	0.59%	0.37%
30	0.59	0.37
40	0.59	0.37
50	0.59	0.37
60	0.85	0.54
70	1.72	1.13
80	4.22	2.75
90	10.19	7.94
100	37.60	36.47

Mortality improvement is anticipated under these assumptions as recent mortality experience shows actual deaths are approximately 7% greater for male and 1% greater for female healthy lives and 8% greater for disabled lives than expected under the selected tables. Police and Fire are combined in the valuation results and the female healthy life population is much greater for Police than Fire so the smaller margin under Fire is not an issue at this time.



SCHEDULE E

SUMMARY OF DISTRICT OF COLUMBIA TEACHERS' RETIREMENT PLAN PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

Effective Date Established on July 1, 1997. The U.S. Department of the Treasury is responsible for paying all benefits accrued before this date.

DEFINITIONS

Affiliated Employers District of Columbia Public Schools, Public Charter Schools

Covered Members Permanent, temporary, and probationary teachers for the District of Columbia public day schools become members automatically on their date of employment. Other employees covered by the Retirement of Public School Teachers Act – including librarians, principals, and counselors – also become members on their date of employment. Substitute teachers and employees of the Department of School Attendance and Work Permits are not covered. Some former D.C teachers working at charter schools are eligible to remain in the Program.

Service Credit One year of school service is given for each year of employment with DCPS. After five years of service are accrued, additional service may be purchased or credited for service outside of DCPS. For purposes of eligibility and benefit accrual, Federal service is included in the calculation of the normal retirement benefit.

Average Salary Highest 36 consecutive months of pay, divided by three.

Vested Members who accrue five or more years of Service Credit are vested for benefits. If these members leave service they may leave their Member Contribution Accounts with the Plan for a future benefit when reaching eligibility (deferred vested in this report).

CONTRIBUTIONS

Member Contributions Members hired before November 1, 1996 are required to contribute 7% of annual pay. Members hired on or after November 1, 1996 contribute 8% of annual pay. Interest is not credited to each Member's accumulated contributions.

Refund of Member Contributions In the event a member leaves service for a reason other than death or retirement, member contribution accounts are refunded upon request.



SERVICE RETIREMENT

Eligibility

The Age and Service Credit requirements to be eligible for a full Service Retirement are listed below:

- **Members hired before November 1, 1996**

Age	Service Credit
55	30, including 5 years school service
60	20, including 5 years school service
62	5 years school service

- **Members hired on and after November 1, 1996**

Age	Service Credit
Any Age	30, including 5 years school service
60	20, including 5 years school service
62	5 years school service

Benefit

For members hired before November 1, 1996:

- 1.5% of Average Salary times service up to 5 years, plus
- 1.75% of Average Salary times service between 5 and 10 years, plus
- 2.0% of Average Salary times service over 10 years.

For members hired on or after November 1, 1996:

- 2.0% of Average Salary times service.

All members receive a minimum benefit of 1.0% of Average Salary plus \$25 for each year of service.

INVOLUNTARY SERVICE RETIREMENT

Eligibility

The Age and Service Credit requirements to be eligible for a Reduced Service Retirement are listed below:

- **All Members, regardless of date of hire**

Age	Service Credit
Any Age	25, including 5 years school service
50	20, including 5 years school service



Benefit Service Retirement Benefit reduced by 1/6% per month (or 2% per year) that date of retirement precedes age 55.

DISABILITY RETIREMENT

Eligibility Active members with five or more years of school service credit are covered (vested) for disability retirement. To be eligible, the member must be found to be incapable of satisfactorily performing the duties of his/her position.

Benefit Equal to Service Retirement benefit. Minimum benefit is the lesser of a) or b):

- a) 40% of Average Salary
- b) Calculated benefit amount by projecting service to age 60.

SURVIVOR BENEFITS

LUMP SUM

Eligibility Death before completion of 18 months of school service or death without an eligible spouse, child or parent.

Benefit Refund of member contributions.

SPOUSE ONLY

Eligibility Death before retirement and married for at least two years, or have a child by the marriage.

Benefit 55% of Service Retirement benefit. Minimum benefit is the lesser of a) or b):

- a) 55% of 40% of Average Salary
- b) 55% of the calculated benefit amount by projecting service to age 60.

SPOUSE & DEPENDENT CHILDREN

Eligibility Death before retirement and married for at least two years, or have a child by the marriage. Children must be unmarried and under age 18, or 22 if full-time student. Also, any dependent child because of a disability incurred before age 18. Death does not have to occur before retirement for the children's benefit.

Spouse Benefit 55% of Service Retirement benefit. Minimum benefit is the lesser of a) or b):

- a) 55% of 40% of Average Salary
- b) 55% of the calculated benefit amount by projecting service to age 60.

Child Benefit A benefit per child equal to the smallest of a) or b) or c):

- a) 60% of Average Salary divided by the number of eligible children
- b) \$6,795* (if hired before 1/1/1980), \$6,562* (if hired between 1/1/1980 and 10/31/1996), or \$6,390* (if hired on or after 11/1/1996) per child



- c) \$20,548* (if hired before 1/1/1980), \$19,843* (if hired between 1/1/1980 and 10/31/1996), or \$19,324* (if hired on or after 11/1/1996) divided by the number of children.

DEPENDENT CHILDREN ONLY

Eligibility

Children must be unmarried and under age 18, or 22 if full-time student. Also, any dependent child because of a disability incurred before age 18. Death does not have to occur before retirement for the children’s benefit.

Benefit

A benefit per child equal to the smallest of a) or b) or c):

- d) 75% of Average Salary divided by the number of eligible children
- e) \$8,304* (if hired before 1/1/1980), \$7,997* (if hired between 1/1/1980 and 10/31/1996), or \$7,752* (if hired on or after 11/1/1996) per child
- f) \$25,110* (if hired before 1/1/1980), \$24,183* (if hired between 1/1/1980 and 10/31/1996), or \$23,441* (if hired on or after 11/1/1996) divided by the number of children.

PARENTS ONLY

Eligibility

Death before retirement and no eligible spouse or children, and parents must receive at least one-half of their total income from member.

Benefit

55% of Service Retirement benefit. Minimum benefit is the lesser of a) or b):

- a) 55% of 40% of Average Salary
- b) 55% of the calculated benefit amount by projecting service to age 60.

*Survivor benefit amounts are as of 2016, and are subject to annual inflation adjustments.

DEFERRED VESTED RETIREMENT

Eligibility

Active members with five or more years of school service credit .

Benefit

Benefit is calculated in the same manner as Service Retirement benefit and may be collected starting at age 62.

OPTIONS

Retirement and disability benefits are payable for the life of the retired member. Optional reduced benefits may be elected at the time of retirement to provide for continuation of a reduced benefit amount to a designated beneficiary. Optional forms include:

a) Reduced Annuity with a Maximum Survivor Annuity (to Spouse or Registered Domestic Partner)

Reduced benefit paid to member so that upon member’s death, the spouse will receive 55% of the unreduced normal life annuity. Member’s benefit is reduced by 2.5% of retirement benefit, up to \$3,600, plus 10% of any retirement benefit over \$3,600.





b) Reduced Annuity with a Partial Survivor Annuity (to Spouse or Registered Domestic Partner)

Reduced benefit paid to member so that upon member's death, the spouse will receive a partial annuity that can range from \$1 up to any amount less than 55% of the unreduced normal life annuity amount. Member's benefit is reduced by the same amount as option a, multiplied by the ratio of the chosen benefit percent to the maximum benefit percent (55%).

c) Reduced Annuity with a Life Insurance Benefit

Member elects a life insurance amount, payable in a lump sum to designated beneficiary upon member's death.

d) Reduced Annuity with a Survivor Annuity to a Person with an Insurable Interest

A 55% joint and survivor annuity where the original benefit is reduce by 10% plus an additional 5% for each full 5 years, up to 25 years, that the designated beneficiary is younger than the member. Maximum reduction is 40% for any beneficiary who is 25 or more years younger than the member.

COST OF LIVING ADJUSTMENTS

Each year on March 1st, benefits which have been paid for at least twelve months preceding March 1st may be increased. The increase is equal to the annual CPI. COLA's are included in benefit payments on and after April 1st. If member's retirement is effective after March 1 of the preceding year, the COLA amount will be prorated.

For members hired on or after November 1, 1996, the cost of living increase is limited to 3% per year. In addition, cost of living adjustments do not apply to retirement benefit payments resulting from voluntary contributions.



SCHEDULE E

(Continued)

SUMMARY OF DISTRICT OF COLUMBIA POLICE OFFICERS & FIREFIGHTERS' RETIREMENT PLAN PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

Effective Date Established on July 1, 1997. The U.S. Department of the Treasury is responsible for paying all benefits accrued before this date.

DEFINITIONS

Affiliated Employers The District of Columbia Metropolitan Police Department (MPD) and the District of Columbia Department of Fire and Emergency Medical Services (FEMS).

Covered Members Sworn Police Officers and Firefighters become members on their first day of active duty (cadets are not eligible). Membership is not automatic for uniformed EMT Firefighters.

Service Credit One year of service is given for each year of employment with MPD or FEMS. Additional service may be purchased or credited for lateral transfer service, EMT service, prior military service, and certain civilian service. For purposes of eligibility and benefit accrual, Federal service is included in the calculation of the normal retirement benefit.

Average Salary For members hired before February 15, 1980, the highest 12 consecutive months of pay. For members hired on or after February 15, 1980, the highest 36 consecutive months of pay, divided by 3. Base pay does not include overtime, holiday or military pay.

Vested Members who accrue five or more years of Service Credit are vested for benefits. If these members leave service, they may leave their Member Contribution Accounts with the Plan for a future benefit when reaching eligibility (deferred vested in this report).

CONTRIBUTIONS

Member Contributions Members hired before November 10, 1996 contribute 7.0% of salary. Members hired on or after November 10, 1996 contribute 8.0% of salary. Member contributions, together with any purchased service credit payments, are credited to individual Member Contribution Accounts. No interest is accrued on contributions.

Refund of Member Contributions In the event a member leaves service for a reason other than death or retirement, member contribution accounts are refunded upon request.





SERVICE RETIREMENT

Eligibility

The Age and Service Credit requirements to be eligible for a full Service Retirement are listed below:

- **Members hired before November 10, 1996**

Age	Service Credit
Any age	20 years departmental service (only if hired before 2/15/1980)
50	25 years departmental service
60	5 years departmental service

- **Members hired on and after November 10, 1996**

Age	Service Credit
Any Age	25 years departmental service
60	

Benefit

For members hired before November 10, 1996:

- 2.5% of Average Salary times departmental service up to 25 years (20 years if hired before 2/15/1980), plus
- 3.0% of Average Salary times departmental service over 25 years (or 20 years if hired before 2/15/1980), plus
- 2.5% of Average Salary times purchased or credited service.

For members hired on or after November 10, 1996:

- 2.5% of Average Salary times total service.

All members are subject to a maximum benefit of 80% of Average Salary.

SERVICE-RELATED DISABILITY RETIREMENT

Eligibility

Disabled as a result of an injury or disease that permanently disables him/her for the performance of duty.

Benefit

For members hired before February 15, 1980:

2.5% of Average Salary times total years of service, subject to a minimum of 66-2/3% of Average Salary and a maximum of 70% of Average Salary.

For members hired on or after February 15, 1980:

70% of final pay times percentage of disability, subject to a minimum of 40% of final pay.



NONSERVICE-RELATED DISABILITY RETIREMENT

Eligibility Active members with five or more years of departmental service are covered (vested) for disability retirement. The member is eligible if found that the disability precludes further service with his/her department.

Benefit **For members hired before February 15, 1980:**
2.0% of Average Salary times total years of service, subject to a minimum of 40% of Average Salary and a maximum of 70% of Average Salary.

For members hired on or after February 15, 1980:
70% of final pay times percentage of disability, subject to a minimum of 30% of final pay.

SURVIVOR BENEFITS

LUMP SUM

Eligibility Death before retirement without an eligible spouse or child.

Benefit Refund of member contributions according to Plan's order of precedence.

LUMP SUM – DEATH IN LINE OF DUTY

Eligibility Death occurring in the line of duty, not resulting from willful misconduct.

Benefit \$50,000

SPOUSE ONLY – DEATH IN LINE OF DUTY

Eligibility Member killed in line of duty, after December 29, 1993.

Benefit 100% of final pay.

SPOUSE ONLY – DEATH NOT IN LINE OF DUTY

Eligibility Member death, not in line of duty, after December 29, 1993. If retired, must be married for at least one year or have a child by the marriage.

Benefit 40% of the greater of a) or b):

- a) Average Salary
- b) Salary for step 6 salary class 1 of the DC Police and Fireman's Salary Act in effect, adjusted for cost-of-living increases if death occurs after retirement.

Benefit cannot be higher than rate of pay at death (or retirement if death occurs after retirement).



SPOUSE & DEPENDENT CHILDREN

Eligibility

Member death, not in line of duty, after December 29, 1993. If retired, must be married for at least one year or have a child by the marriage. Children must be unmarried and under age 18, or 22 if full-time student. Also, any dependent child because of a disability incurred before age 18. Death does not have to occur before retirement for the children's benefit.

Spouse Benefit

40% of the greater of a) or b):

- a) Average Salary
- b) Salary for step 6 salary class 1 of the DC Police and Fireman's Salary Act in effect, adjusted for cost-of-living increases if death occurs after retirement.

Benefit cannot be higher than rate of pay at death (or retirement if death occurs after retirement).

Child Benefit

A benefit per child equal to the smallest of a) or b) or c):

- a) 60% of Average Salary divided by the number of eligible children
- b) \$3,993* (if hired before 11/1/1996) or \$3,907* (if hired on or after 11/1/1996) per child
- c) \$11,980* (if hired before 11/1/1996) or \$11,720* (if hired on or after 11/1/1996) divided by the number of children.

DEPENDENT CHILDREN ONLY

Eligibility

Children must be unmarried and under age 18, or 22 if full-time student. Also, any dependent child because of a disability incurred before age 18. Death does not have to occur before retirement for the children's benefit.

Benefit

75% of Average Salary divided by the number of eligible children, adjusted for cost-of-living increases.

*Survivor benefit amounts are as of 2016, and are subject to annual inflation adjustments.

DEFERRED VESTED RETIREMENT

Eligibility

Active members with five or more years of departmental service.

Benefit

Benefit is calculated in the same manner as Service Retirement benefit and may be collected starting at age 55.



OPTIONS

Retirement and disability benefits are payable for the life of the retired member. This includes an unreduced joint and survivor annuity as defined above in the “Survivor Benefits – Spouse and Dependent Children” section.

An optional reduced benefit may be elected at the time of retirement to provide for an additional survivor benefit to a designated beneficiary. Member’s original annuity is reduced by 10% and that amount is added to the survivor’s benefit. If the designated beneficiary is more than five years younger than the member, the additional amount will be reduced by 5% for each full five years that the beneficiary is younger than the member, subject to a maximum of 40%.

COST OF LIVING ADJUSTMENTS

Each year on March 1st, benefits which have been paid for at least twelve months preceding March 1st may be increased. The increase is equal to the annual CPI. COLA’s are included in benefit payments on and after April 1st. If member’s retirement is effective after March 1 of the preceding year, the COLA amount will be prorated.

For members hired on or after November 10, 1996, the cost of living increase is limited to 3% per year. Members hired before February 15, 1980, receive equalization pay, which is defined as the percentage increase of active employees’ salary increases. Equalization increases are not paid to beneficiaries.



SCHEDULE F

SCHEDULES OF MEMBER DATA

TABLE 1

**RECONCILIATION OF MEMBER DATA
AS OF OCTOBER 1, 2016**

TEACHERS' RETIREMENT PLAN

	Actives	Retirees	Disabled	Beneficiaries	Vested Terms	Total
1. Headcounts as of October 1, 2015	4,866	3,489	98	131	1,152	9,736
2. Change in status during the year:						
a. Death	(2)	(52)	(4)	(1)	(3)	(62)
b. Disabled	(4)		5		(1)	
c. Retired	(113)	186			(73)	
d. Vested Termination	(169)				169	
e. Nonvested Termination	(376)					(376)
f. Benefits Expired/Refund	(148)				(38)	(186)
3. New member due to:						
a. New Hire	1,015					1,015
b. Rehire	72				(30)	42
c. Death of Participant				18		18
d. Adjustments		(6)	17	1		12
4. Headcounts as of October 1, 2016	5,141	3,617	116	149	1,176	10,199



SCHEDULE F

SCHEDULES OF MEMBER DATA

TABLE 2

**RECONCILIATION OF MEMBER DATA
AS OF OCTOBER 1, 2016**

POLICE OFFICERS' RETIREMENT PLAN

	Actives	Retirees	Disabled	Beneficiaries	Vested Terms	Total
1. Headcounts as of October 1, 2015	3,829	1,291	299	333	222	5,974
2. Change in status during the year:						
a. Death	(2)	(24)	(7)	(2)	(1)	(36)
b. Disabled	(14)		15		(1)	
c. Retired	(262)	319			(57)	
d. Vested Termination	(49)				49	
e. Nonvested Termination	(48)					(48)
f. Benefits Expired/Refund	(39)			(5)	(12)	(56)
3. New member due to:						
a. New Hire	228					228
b. Rehire	8				(3)	5
c. Death of Participant				36		36
d. Adjustments		7	3			10
4. Headcounts as of October 1, 2016	3,651	1,593	310	362	197	6,113



SCHEDULE F

SCHEDULES OF MEMBER DATA

TABLE 3

**RECONCILIATION OF MEMBER DATA
AS OF OCTOBER 1, 2016**

FIREFIGHTERS' RETIREMENT PLAN

	Actives	Retirees	Disabled	Beneficiaries	Vested Terms	Total
1. Headcounts as of October 1, 2015	1,708	487	77	122	97	2,491
2. Change in status during the year:						
a. Death	(4)	(5)		(2)		(11)
b. Disabled	(5)		7		(2)	
c. Retired	(39)	47			(8)	
d. Vested Termination	(18)				18	
e. Nonvested Termination	(10)					(10)
f. Benefits Expired/Refund	(4)			(1)	(3)	(8)
3. New member due to:						
a. New Hire	73					73
b. Rehire	7				(6)	1
c. Death of Participant				6		6
d. Adjustments						0
4. Headcounts as of October 1, 2016	1,708	529	84	125	96	2,542



SCHEDULE F

TABLE 4

**SCHEDULE OF ACTIVE MEMBER DATA
AS OF OCTOBER 1, 2016**

TEACHERS' RETIREMENT PLAN

Attained Age	Completed Years of Service								Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+	Total	
Under 20	0	0	0	0	0	0	0	0	\$ 0
20 to 24	89	0	0	0	0	0	0	89	\$ 4,909,938
25 to 29	740	72	1	0	0	0	0	813	\$ 50,620,287
30 to 34	713	284	27	1	0	0	0	1,025	\$ 77,059,036
35 to 39	457	210	115	15	0	0	0	797	\$ 69,798,235
40 to 44	321	157	96	98	9	0	0	681	\$ 63,510,657
45 to 49	191	113	89	115	51	8	0	567	\$ 54,395,747
50 to 54	98	64	43	63	30	61	9	368	\$ 36,209,879
55 to 59	61	40	54	65	41	63	37	361	\$ 36,192,090
60 to 64	48	31	43	53	25	58	44	302	\$ 31,000,075
65 to 69	13	11	16	21	10	17	19	107	\$ 11,078,272
70 & Over	4	3	1	6	1	8	8	31	\$ 3,304,509
Total	2,735	985	485	437	167	215	117	5,141	\$ 438,078,725

Average Age: 40.73

Average Service: 7.83



SCHEDULE F

TABLE 5

**SCHEDULE OF ACTIVE MEMBER DATA
AS OF OCTOBER 1, 2016**

POLICE OFFICERS' RETIREMENT PLAN

Attained Age	Completed Years of Service								Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+	Total	
Under 20	0	0	0	0	0	0	0	0	\$ 0
20 to 24	102	0	0	0	0	0	0	102	\$ 5,940,648
25 to 29	440	27	2	0	0	0	0	469	\$ 29,394,923
30 to 34	250	259	71	0	0	0	0	580	\$ 40,787,293
35 to 39	82	128	268	40	0	0	0	518	\$ 40,034,573
40 to 44	26	58	148	218	56	0	0	506	\$ 43,183,270
45 to 49	5	42	109	187	153	294	0	790	\$ 73,390,624
50 to 54	6	22	44	75	87	282	10	526	\$ 50,411,315
55 to 59	0	5	10	31	16	50	22	134	\$ 12,808,539
60 to 64	1	1	4	7	2	3	8	26	\$ 2,491,109
65 to 69	0	0	0	0	0	0	0	0	\$ 0
70 & Over	0	0	0	0	0	0	0	0	\$ 0
Total	912	542	656	558	314	629	40	3,651	\$ 298,442,294

Average Age: 40.46
Average Service: 13.97



SCHEDULE F

TABLE 6

**SCHEDULE OF ACTIVE MEMBER DATA
AS OF OCTOBER 1, 2016**

FIREFIGHTERS' RETIREMENT PLAN

Attained Age	Completed Years of Service								Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+	Total	
Under 20	0	0	0	0	0	0	0	0	\$ 0
20 to 24	93	18	0	0	0	0	0	111	\$ 6,014,529
25 to 29	65	37	4	0	0	0	0	106	\$ 6,282,464
30 to 34	62	185	100	0	0	0	0	347	\$ 23,856,475
35 to 39	10	129	117	23	1	0	0	280	\$ 20,794,819
40 to 44	3	28	94	76	37	0	0	238	\$ 20,126,816
45 to 49	2	2	51	95	85	87	0	322	\$ 30,686,936
50 to 54	0	0	7	26	79	58	29	199	\$ 20,729,347
55 to 59	0	1	3	12	11	38	32	97	\$ 10,188,566
60 to 64	0	0	0	0	0	0	8	8	\$ 991,572
65 & Over	0	0	0	0	0	0	0	0	\$ 0
Total	235	400	376	232	213	183	69	1,708	\$ 139,671,524

Average Age: 40.02

Average Service: 14.59



SCHEDULE F

TABLE 7

**SCHEDULE OF RETIREE MEMBER DATA
AS OF OCTOBER 1, 2016**

**TEACHERS' RETIREMENT PLAN
DISTRICT ONLY**

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	0	\$0	0	\$0	7	\$34,611	7	\$34,611
20 to 24	0	\$0	0	\$0	2	\$3,500	2	\$3,500
25 to 29	0	\$0	0	\$0	0	\$0	0	\$0
30 to 34	0	\$0	0	\$0	1	\$12,792	1	\$12,792
35 to 39	0	\$0	0	\$0	1	\$3,744	1	\$3,744
40 to 44	0	\$0	2	\$72,540	2	\$15,917	4	\$88,457
45 to 49	0	\$0	4	\$137,844	0	\$0	4	\$137,844
50 to 54	10	\$340,587	9	\$318,432	1	\$2,432	20	\$661,451
55 to 59	101	\$3,362,057	14	\$467,568	10	\$113,041	125	\$3,942,666
60 to 64	383	\$11,085,836	25	\$679,292	18	\$195,171	426	\$11,960,299
65 to 69	1,204	\$24,639,055	46	\$807,155	36	\$219,644	1,286	\$25,665,855
70 to 74	1,202	\$16,808,878	13	\$171,482	40	\$240,593	1,255	\$17,220,953
75 to 79	531	\$6,767,859	3	\$12,176	18	\$99,651	552	\$6,879,685
80 to 84	146	\$1,612,319	0	\$0	12	\$139,529	158	\$1,751,848
85 to 89	35	\$381,224	0	\$0	1	\$5,056	36	\$386,280
90 to 94	5	\$39,964	0	\$0	0	\$0	5	\$39,964
95 & Over	0	\$0	0	\$0	0	\$0	0	\$0
Total	3,617	\$65,037,779	116	\$2,666,489	149	\$1,085,681	3,882	\$68,789,949



SCHEDULE F

TABLE 8

**SCHEDULE OF RETIREE MEMBER DATA
AS OF OCTOBER 1, 2016**

**TEACHERS' RETIREMENT PLAN
FEDERAL PLUS DISTRICT**

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	0	\$0	0	\$0	7	\$45,612	7	\$45,612
20 to 24	0	\$0	0	\$0	3	\$19,920	3	\$19,920
25 to 29	0	\$0	0	\$0	0	\$0	0	\$0
30 to 34	0	\$0	0	\$0	1	\$12,792	1	\$12,792
35 to 39	0	\$0	0	\$0	1	\$3,744	1	\$3,744
40 to 44	0	\$0	2	\$72,540	3	\$29,412	5	\$101,952
45 to 49	0	\$0	4	\$137,844	2	\$13,584	6	\$151,428
50 to 54	10	\$452,223	9	\$318,432	2	\$14,268	21	\$784,923
55 to 59	101	\$4,947,714	20	\$600,684	16	\$330,552	137	\$5,878,950
60 to 64	386	\$18,818,985	27	\$849,204	21	\$442,752	434	\$20,110,941
65 to 69	1,230	\$57,435,943	67	\$2,095,704	55	\$1,021,872	1,352	\$60,553,519
70 to 74	1,352	\$62,616,239	46	\$1,363,656	80	\$1,465,620	1,478	\$65,445,515
75 to 79	900	\$41,890,920	40	\$1,171,308	71	\$1,457,052	1,011	\$44,519,280
80 to 84	670	\$31,003,068	33	\$1,009,118	63	\$1,332,540	766	\$33,344,726
85 to 89	472	\$20,813,844	32	\$1,015,116	58	\$1,403,268	562	\$23,232,228
90 to 94	222	\$9,355,824	23	\$818,304	42	\$992,184	287	\$11,166,312
95 & Over	88	\$4,045,284	12	\$487,548	12	\$299,436	112	\$4,832,268
Total	5,431	\$251,380,044	315	\$9,939,458	437	\$8,884,608	6,183	\$270,204,110



SCHEDULE F

TABLE 9

**SCHEDULE OF RETIREE MEMBER DATA
AS OF OCTOBER 1, 2016**

**POLICE OFFICERS' RETIREMENT PLAN
DISTRICT ONLY**

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	0	\$0	0	\$0	43	\$378,612	43	\$378,612
20 to 24	0	\$0	0	\$0	8	\$47,991	8	\$47,991
25 to 29	0	\$0	1	\$22,620	0	\$0	1	\$22,620
30 to 34	0	\$0	3	\$73,728	1	\$27,540	4	\$101,268
35 to 39	0	\$0	10	\$360,120	1	\$55,536	11	\$415,656
40 to 44	0	\$0	20	\$678,096	7	\$103,781	27	\$781,877
45 to 49	2	\$41,660	75	\$2,706,996	30	\$614,825	107	\$3,363,481
50 to 54	460	\$19,939,457	90	\$3,181,387	40	\$645,657	590	\$23,766,501
55 to 59	438	\$16,698,165	51	\$1,175,813	49	\$767,204	538	\$18,641,182
60 to 64	375	\$8,536,893	44	\$737,627	65	\$962,527	484	\$10,237,047
65 to 69	247	\$3,220,762	12	\$122,022	65	\$1,060,709	324	\$4,403,493
70 to 74	65	\$463,439	4	\$44,353	34	\$465,523	103	\$973,315
75 to 79	6	\$54,652	0	\$0	12	\$244,122	18	\$298,774
80 to 84	0	\$0	0	\$0	3	\$57,000	3	\$57,000
85 to 89	0	\$0	0	\$0	3	\$75,048	3	\$75,048
90 to 94	0	\$0	0	\$0	1	\$23,076	1	\$23,076
95 & Over	0	\$0	0	\$0	0	\$0	0	\$0
Total	1,593	\$48,955,028	310	\$9,102,762	362	\$5,529,151	2,265	\$63,586,941



SCHEDULE F

TABLE 10

**SCHEDULE OF RETIREE MEMBER DATA
AS OF OCTOBER 1, 2016**

**POLICE OFFICERS' RETIREMENT PLAN
FEDERAL PLUS DISTRICT**

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	0	\$0	0	\$0	49	\$591,960	49	\$591,960
20 to 24	0	\$0	0	\$0	10	\$109,164	10	\$109,164
25 to 29	0	\$0	1	\$22,620	0	\$0	1	\$22,620
30 to 34	0	\$0	3	\$73,728	1	\$27,540	4	\$101,268
35 to 39	0	\$0	10	\$360,120	1	\$55,536	11	\$415,656
40 to 44	0	\$0	20	\$678,096	8	\$134,880	28	\$812,976
45 to 49	2	\$54,732	80	\$2,810,868	35	\$1,075,476	117	\$3,941,076
50 to 54	460	\$30,439,992	99	\$3,399,192	52	\$1,374,288	611	\$35,213,472
55 to 59	440	\$30,398,136	77	\$2,731,116	83	\$2,333,796	600	\$35,463,048
60 to 64	518	\$33,000,048	117	\$4,908,180	153	\$4,264,876	788	\$42,173,104
65 to 69	954	\$52,669,552	160	\$7,011,108	245	\$6,972,608	1,359	\$66,653,268
70 to 74	688	\$37,699,824	155	\$6,834,756	217	\$6,456,120	1,060	\$50,990,700
75 to 79	385	\$21,327,396	104	\$5,143,584	207	\$6,490,848	696	\$32,961,828
80 to 84	170	\$9,822,312	71	\$3,693,768	155	\$4,950,588	396	\$18,466,668
85 to 89	52	\$3,749,784	69	\$3,766,354	116	\$3,690,372	237	\$11,206,510
90 to 94	11	\$929,100	25	\$1,580,196	73	\$2,164,128	109	\$4,673,424
95 & Over	2	\$169,620	8	\$511,572	24	\$791,196	34	\$1,472,388
Total	3,682	\$220,260,496	999	\$43,525,258	1,429	\$41,483,376	6,110	\$305,269,130



SCHEDULE F

TABLE 11

**SCHEDULE OF RETIREE MEMBER DATA
AS OF OCTOBER 1, 2016**

**FIREFIGHTERS' RETIREMENT PLAN
DISTRICT ONLY**

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	0	\$0	0	\$0	23	\$244,022	23	\$244,022
20 to 24	0	\$0	0	\$0	1	\$1,957	1	\$1,957
25 to 29	0	\$0	1	\$24,996	0	\$0	1	\$24,996
30 to 34	0	\$0	5	\$152,412	2	\$4,465	7	\$156,877
35 to 39	0	\$0	5	\$188,952	0	\$0	5	\$188,952
40 to 44	0	\$0	6	\$207,012	3	\$82,505	9	\$289,517
45 to 49	0	\$0	10	\$359,028	7	\$237,604	17	\$596,632
50 to 54	50	\$2,276,363	14	\$529,440	13	\$301,480	77	\$3,107,283
55 to 59	167	\$7,042,904	10	\$194,495	19	\$361,888	196	\$7,599,287
60 to 64	188	\$6,121,739	20	\$394,433	20	\$457,895	228	\$6,974,067
65 to 69	90	\$1,731,107	11	\$133,677	16	\$244,627	117	\$2,109,411
70 to 74	32	\$381,237	2	\$1,587	11	\$245,194	45	\$628,018
75 to 79	2	\$20,551	0	\$0	7	\$153,726	9	\$174,277
80 to 84	0	\$0	0	\$0	3	\$55,452	3	\$55,452
85 to 89	0	\$0	0	\$0	0	\$0	0	\$0
90 to 94	0	\$0	0	\$0	0	\$0	0	\$0
95 & Over	0	\$0	0	\$0	0	\$0	0	\$0
Total	529	\$17,573,901	84	\$2,186,032	125	\$2,390,815	738	\$22,150,748



SCHEDULE F

TABLE 12

**SCHEDULE OF RETIREE MEMBER DATA
AS OF OCTOBER 1, 2016**

**FIREFIGHTERS' RETIREMENT PLAN
FEDERAL PLUS DISTRICT**

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	0	\$0	0	\$0	24	\$343,800	24	\$343,800
20 to 24	0	\$0	0	\$0	2	\$7,992	2	\$7,992
25 to 29	0	\$0	1	\$24,996	0	\$0	1	\$24,996
30 to 34	0	\$0	5	\$152,412	2	\$7,980	7	\$160,392
35 to 39	0	\$0	5	\$188,952	1	\$27,840	6	\$216,792
40 to 44	0	\$0	6	\$207,012	3	\$90,828	9	\$297,840
45 to 49	0	\$0	10	\$359,028	8	\$321,192	18	\$680,220
50 to 54	50	\$3,584,964	14	\$529,440	17	\$481,104	81	\$4,595,508
55 to 59	167	\$12,790,908	17	\$528,456	27	\$650,400	211	\$13,969,764
60 to 64	201	\$15,212,436	45	\$2,177,040	38	\$1,201,608	284	\$18,591,084
65 to 69	154	\$11,125,140	37	\$1,941,132	57	\$1,744,248	248	\$14,810,520
70 to 74	214	\$13,761,288	62	\$3,194,340	72	\$2,154,610	348	\$19,110,238
75 to 79	197	\$12,465,648	77	\$4,119,276	91	\$2,774,280	365	\$19,359,204
80 to 84	81	\$5,351,580	42	\$2,143,164	58	\$1,863,744	181	\$9,358,488
85 to 89	42	\$3,017,304	27	\$1,573,200	72	\$2,530,248	141	\$7,120,752
90 to 94	8	\$519,132	13	\$821,244	40	\$1,366,728	61	\$2,707,104
95 & Over	0	\$0	5	\$323,975	16	\$556,884	21	\$880,859
Total	1,114	\$77,828,400	366	\$18,283,667	528	\$16,123,486	2,008	\$112,235,553



SCHEDULE G

SCHEDULE OF RETIREES ADDED TO AND REMOVED FROM ROLLS

**DISTRICT BENEFIT ONLY
(\$ IN THOUSANDS)**

Fiscal Year Ended	Plan	Added		Removed		Increase Due to Plan Amendments	Rolls at End of Year		Percentage Increase in Annual Allowances	Average Annual Allowances
		Number	Annual Allowances	Number	Annual Allowances		Number	Annual Allowances		
September 30, 2012	Teachers	204	\$4,807	49	\$594	\$1,198	3,285	\$47,407	12.9%	\$14
	Police	156	\$5,153	43	\$476	\$343	1,498	\$30,592	19.6%	\$20
	Fire	78	\$2,881	8	\$81	\$80	541	\$12,838	28.9%	\$24
September 30, 2013	Teachers	202	\$5,289	39	\$436	\$706	3,448	\$52,966	11.7%	\$15
	Police	110	\$3,746	24	\$248	\$302	1,584	\$34,392	12.4%	\$22
	Fire	64	\$2,308	6	\$50	\$42	599	\$15,138	17.9%	\$25
September 30, 2014	Teachers	218	\$6,079	65	\$955	\$597	3,601	\$58,687	10.8%	\$16
	Police	157	\$6,139	34	\$399	\$139	1,707	\$40,271	17.1%	\$24
	Fire	80	\$3,326	21	\$496	\$211	658	\$18,179	20.1%	\$28
September 30, 2015	Teachers	183	\$4,950	66	\$822	\$84	3,718	\$62,899	7.2%	\$17
	Police	240	\$10,865	24	\$189	-\$535	1,923	\$50,412	25.2%	\$26
	Fire	44	\$1,953	16	\$235	-\$95	686	\$19,802	8.9%	\$29
September 30, 2016	Teachers	222	\$6,844	58	\$1,021	\$68	3,882	\$68,790	9.4%	\$18
	Police	381	\$15,394	39	\$822	-\$1,397	2,265	\$63,587	26.1%	\$28
	Fire	60	\$2,811	8	\$200	-\$262	738	\$22,151	11.9%	\$30





SCHEDULE G

SCHEDULE OF RETIREES ADDED TO AND REMOVED FROM ROLLS

**FEDERAL PLUS DISTRICT BENEFIT
(\$ IN THOUSANDS)**

Fiscal Year Ended	Plan	Added		Removed		Increase Due to Plan Amendments	Rolls at End of Year		Percentage Increase in Annual Allowances	Average Annual Allowances
		Number	Annual Allowances	Number	Annual Allowances		Number	Annual Allowances		
September 30, 2012	Teachers	218	\$8,632	201	\$7,421	\$7,721	6,130	\$257,036	3.6%	\$42
	Police	218	\$11,195	174	\$6,844	\$6,412	5,703	\$263,202	4.3%	\$46
	Fire	106	\$5,780	67	\$3,087	\$2,339	1,974	\$102,767	5.1%	\$52
September 30, 2013	Teachers	390	\$7,883	348	\$6,676	\$5,448	6,172	\$263,691	2.6%	\$43
	Police	164	\$8,218	172	\$7,493	\$3,572	5,695	\$267,499	1.6%	\$47
	Fire	80	\$4,327	60	\$2,896	\$1,322	1,994	\$105,520	2.7%	\$53
September 30, 2014	Teachers	245	\$10,540	228	\$8,792	\$4,251	6,189	\$269,690	2.3%	\$44
	Police	240	\$13,009	218	\$8,382	\$3,689	5,717	\$275,815	3.1%	\$48
	Fire	121	\$6,969	89	\$3,880	\$1,391	2,026	\$110,000	4.2%	\$54
September 30, 2015	Teachers	197	\$8,040	249	\$17,224	\$7,071	6,137	\$267,577	-0.8%	\$44
	Police	312	\$19,957	168	\$9,132	\$4,269	5,861	\$290,909	5.5%	\$50
	Fire	70	\$3,988	103	\$5,370	\$2,006	1,993	\$110,624	0.6%	\$56
September 30, 2016	Teachers	446	\$15,992	400	\$18,508	\$5,143	6,183	\$270,204	1.0%	\$44
	Police	465	\$25,416	216	\$9,739	-\$1,317	6,110	\$305,269	4.9%	\$50
	Fire	83	\$4,887	68	\$3,260	-\$16	2,008	\$112,235	1.5%	\$56



SCHEDULE H

ANALYSIS OF FINANCIAL EXPERIENCE

**Gains & Losses in Actuarial Accrued Liabilities
Resulting from Difference Between
Assumed Experience & Actual Experience
(\$ Millions)**

Type of Activity	Teachers	Police	Fire	Police and Fire	Total
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	(\$8.5)	(\$0.9)	\$4.4	\$3.5	(\$5.0)
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	(\$2.8)	\$0.9	\$0.0	\$0.9	(\$1.9)
Death-in Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	\$0.8	\$1.1	\$0.3	\$1.4	\$2.2
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	\$5.7	(\$2.4)	(\$2.8)	(\$5.2)	\$0.5
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	\$31.4	\$53.3	\$57.0	\$110.3	\$141.7
New Members. Additional unfunded actuarial accrued liability will produce a loss.	(\$30.8)	(\$7.9)	(\$7.4)	(\$15.3)	(\$46.1)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	\$3.0	\$0.3	\$0.8	\$1.1	\$4.1
Death After Retirement. If retirants live longer than assumed, there is a loss. If not as long, a gain.	\$8.6	\$6.8	\$0.7	\$7.5	\$16.1
COLA/CPI. If inflation is different than expected, gains or losses can occur.	\$21.9	\$59.8	\$16.7	\$76.5	\$98.4
Other. Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	<u>\$8.5</u>	<u>\$(11.5)</u>	<u>\$1.4</u>	<u>\$(10.1)</u>	<u>\$(1.6)</u>
Gain (or Loss) During Year From Financial Experience	\$37.8	\$99.5	\$71.1	\$170.6	\$208.4
Non-Recurring Items. Adjustments for plan amendments, assumption changes, method changes or audit changes.	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
Composite Gain (or Loss) During Year	<u>\$37.8</u>	<u>\$99.5</u>	<u>\$71.1</u>	<u>\$170.6</u>	<u>\$208.4</u>