



## **District of Columbia Retirement Board Teachers' Retirement Plan and Police Officers and Firefighters' Retirement Plan**

Actuarial Valuations as of October 1, 2020 to Determine  
the District's Contribution for the Fiscal Year Ending  
September 30, 2022

# **Bolton**

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# Bolton

Employee Benefits, Actuarial & Investment Consulting

January 28, 2021

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

Re: *District of Columbia Teachers' Retirement Plan and District of Columbia Police Officers and Firefighters' Retirement Plan Actuarial Valuations*

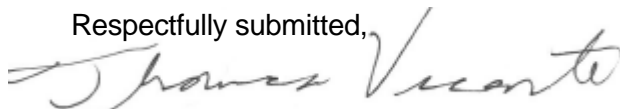
Dear Trustees:

The following sets forth the actuarial valuations of the District of Columbia Teachers' Retirement Plan and the District of Columbia Police Officers and Firefighters' Retirement Plan (collectively referred to as the Plans) as of October 1, 2020. Section I of the report provides a summary, while Sections II through VI contain the development of the District's contribution for the 2022 fiscal year, along with a summary of the census and asset data, plan provisions, assumptions and actuarial methods. Section VII provides a glossary of many of the terms used in this report. The appendices of the report provide information on plan funding, solvency, a discussion of risk, adjustments to the actuarially determined contribution, gain and loss from experience, and valuation balance sheets for the DCRB Comprehensive Annual Financial Report (CAFR).

The 2022 fiscal year contribution is \$184,025,000 (16.44% of projected pay).

We are available to answer any questions on the material in this report or to provide explanations or further details, as appropriate. The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report. We are not aware of any direct or materially indirect financial interest or relationship, including investments or other services that could create a conflict of interest, which would impair the objectivity of our work.

Respectfully submitted,



Thomas Vicente, FSA, EA



Colin Slovenkay, FSA, EA



Thomas Lowman, FSA, EA



Ann M. Sturner, FSA, EA





## Section I. Executive Summary

### Background

Bolton Partners, Inc. has prepared the following report that sets forth the actuarial valuation of the District of Columbia Teachers' Retirement Plan (Teachers) and District of Columbia Police Officers and Firefighters' Retirement Plan (Police and Fire), collectively referred to as the Plans, as of October 1, 2020. Information for October 1, 2018 and earlier was taken from the valuation report prepared by Cavanaugh Macdonald Consulting, LLC, dated December 17, 2018. Unless stated otherwise, the calculations reflected in this report are solely for the District-provided benefit and do not include the Federal portion of the benefit. Some demographic information includes a breakdown of District only, Federal only, and split annuitants.

### Actuarially Determined Contributions (ADC)

The combined actuarially determined contribution (ADC) amount for all Plans increased as a dollar amount and as a percentage of payroll this year. Separately, the contribution for Teachers increased as a dollar amount but decreased as a percentage of payroll. The contribution for Police increased, while the contribution for Fire decreased, after adjustment.

(\$ in Thousands)

Teachers, Police, and Fire	FY2020	FY2021	FY2022
ADC (before §1-907.02(c) adjustment)	\$ 149,318	\$ 172,338	\$ 181,490
Total Payroll	964,269	1,055,446	1,104,198
Percent of Total Payroll	15.49%	16.33%	16.44%
ADC (after §1-907.02(c) adjustment)	\$ 151,949	\$ 180,411	\$ 184,025

Teachers	FY2020	FY2021	FY2022
ADC (before §1-907.02(c) adjustment)	\$ 57,271	\$ 66,327	\$ 70,524
Total Payroll	490,756	538,565	575,288
Percent of Total Payroll	11.67%	12.32%	12.26%
ADC (after §1-907.02(c) adjustment)	\$ 58,888	\$ 70,478	\$ 75,060

Police and Fire Combined	FY2020	FY2021	FY2022
ADC (before §1-907.02(c) adjustment)	\$ 92,047	\$ 106,011	\$ 110,966
Total Payroll	473,513	516,881	528,910
Percent of Total Payroll	19.44%	20.51%	20.98%
ADC (after §1-907.02(c) adjustment)	\$ 93,061	\$ 109,933	\$ 108,965

Police	FY2020	FY2021	FY2022
ADC (before §1-907.02(c) adjustment)	\$ 48,285	\$ 64,066	\$ 68,786
Total Payroll	309,918	341,662	350,779
Percent of Total Payroll	15.58%	18.75%	19.61%
ADC (after §1-907.02(c) adjustment)	\$ 45,421	\$ 61,796	\$ 68,035

Fire	FY2020	FY2021	FY2022
ADC (before §1-907.02(c) adjustment)	\$ 43,762	\$ 41,945	\$ 42,180
Total Payroll	163,595	175,219	178,131
Percent of Total Payroll	26.75%	23.94%	23.68%
ADC (after §1-907.02(c) adjustment)	\$ 47,640	\$ 48,137	\$ 40,931



## Section I. Executive Summary

### Funding Measures – Teachers

Teachers	10/1/2019	10/1/2020	Percent Change
1. Actuarial Accrued Liability			
a. Active	\$ 1,230,678	\$ 1,335,898	8.55%
b. Retirees and Beneficiaries	1,107,126	1,121,326	1.28%
c. Inactive with Deferred Benefits	156,487	183,579	17.31%
<b>d. Total</b>	<b>\$ 2,494,291</b>	<b>\$ 2,640,803</b>	<b>5.87%</b>
2. Actuarial Value of Assets	\$ 2,271,160	\$ 2,431,075	7.04%
3. Plan Funded Ratio (2. / 1.d.)	91.05%	92.06%	
4. Market Value of Assets	\$ 2,264,428	\$ 2,411,390	6.49%
5. Funded Ratio based on Market Value of Assets (4. / 1.d.)	90.78%	91.31%	

(\$ in Thousands)

### Funding Measures – Police and Fire

Police and Fire	10/1/2019	10/1/2020	Percent Change
1. Actuarial Accrued Liability			
a. Active	\$ 3,057,435	\$ 3,119,862	2.04%
b. Retirees and Beneficiaries	2,497,165	2,830,585	13.35%
c. Inactive with Deferred Benefits	49,973	73,396	46.87%
<b>d. Total</b>	<b>\$ 5,604,573</b>	<b>\$ 6,023,843</b>	<b>7.48%</b>
2. Actuarial Value of Assets	\$ 6,269,628	\$ 6,676,013	6.48%
3. Plan Funded Ratio (2. / 1.d.)	111.87%	110.83%	
4. Market Value of Assets	\$ 6,256,213	\$ 6,620,190	5.82%
5. Funded Ratio based on Market Value of Assets (4. / 1.d.)	111.63%	109.90%	

(\$ in Thousands)



## Section I. Executive Summary

### Funding Measures – Police

Police	10/1/2019	10/1/2020	Percent Change
1. Actuarial Accrued Liability			
a. Active	\$ 1,965,788	\$ 1,997,978	1.64%
b. Retirees and Beneficiaries	1,895,162	2,121,866	11.96%
c. Inactive with Deferred Benefits	37,037	59,270	60.03%
<b>d. Total</b>	<b>\$ 3,897,987</b>	<b>\$ 4,179,114</b>	<b>7.21%</b>
2. Actuarial Value of Assets	\$ 4,359,508	\$ 4,615,243	5.87%
3. Plan Funded Ratio (2. / 1.d.)	111.84%	110.44%	
4. Market Value of Assets	\$ 4,350,405	\$ 4,576,808	5.20%
5. Funded Ratio based on Market Value of Assets (4. / 1.d.)	111.61%	109.52%	

(\$ in Thousands)

### Funding Measures – Fire

Fire	10/1/2019	10/1/2020	Percent Change
1. Actuarial Accrued Liability			
a. Active	\$ 1,091,647	\$ 1,121,885	2.77%
b. Retirees and Beneficiaries	602,003	708,718	17.73%
c. Inactive with Deferred Benefits	12,936	14,126	9.20%
<b>d. Total</b>	<b>\$ 1,706,586</b>	<b>\$ 1,844,730</b>	<b>8.09%</b>
2. Actuarial Value of Assets	\$ 1,910,120	\$ 2,060,770	7.89%
3. Plan Funded Ratio (2. / 1.d.)	111.93%	111.71%	
4. Market Value of Assets	\$ 1,905,808	\$ 2,043,382	7.22%
5. Funded Ratio based on Market Value of Assets (4. / 1.d.)	111.67%	110.77%	

(\$ in Thousands)



## Section I. Executive Summary

### Risk Measures

Actuarial Standard of Practice No. 51 concerning pension plan risk is now in effect. Appendix 3 contains important information about various risks common to most public pension plans. Because the information is too lengthy to include in this summary, we strongly recommend reviewing the Appendix and considering whether further risk assessments are necessary.

Generally, the risk that a plan sponsor incurs from a defined benefit plan is primarily the risk of substantial increases in annual contributions. These increases occur most frequently due to variation in the investment returns. This valuation reflects the smoothing of asset returns, which reduces the risk of wide year-by-year contribution changes but does not ultimately reduce the risk inherent in a defined benefit plan. The following table shows four commonly used measures of the relative riskiness of a pension plan that are related to the plan sponsor and the employee group covered by the plan.

<b>Teachers</b>				<b>Conservative</b>
<b>Risk Measure</b>	<b>10/1/2018</b>	<b>10/1/2019</b>	<b>10/1/2020</b>	<b>Measures</b>
Retiree Liability as a Percent of Total Liability	37%	44%	42%	<50%
Assets to Payroll (Asset Volatility Ratio)	4.7	4.4	4.4	<5
Liabilities to Payroll (Liability Volatility Ratio)	4.9	4.8	4.8	<5
Benefit Payments to Contributions	0.9	0.9	0.9	<3

<b>Police and Fire</b>				<b>Conservative</b>
<b>Risk Measure</b>	<b>10/1/2018</b>	<b>10/1/2019</b>	<b>10/1/2020</b>	<b>Measures</b>
Retiree Liability as a Percent of Total Liability	30%	45%	47%	<50%
Assets to Payroll (Asset Volatility Ratio)	13.3	12.6	13.0	<5
Liabilities to Payroll (Liability Volatility Ratio)	11.5	11.3	11.9	<5
Benefit Payments to Contributions	0.8	0.8	1.1	<3



## Section I. Executive Summary

### Experience Analysis

The following factors affected the District's contribution, as a percentage of payroll:

- Retiree COLAs in FY2020 were less than the assumed annual increases.
- Investment returns during FY2020 were about \$7.6 million lower than expected for Teachers and \$22.3 million lower than expected for Police and Fire. A portion of that loss is reflected in this valuation, with the remaining portions to be reflected in future valuations. The loss was offset by the continued recognition of prior investment gains and losses. There is a total of \$19.7 million in net deferred investment losses for Teachers and \$55.8 million in net deferred investments losses for Police and Fire as of October 1, 2020 that will be reflected in future valuations. These deferrals produce an overall experience gain on investment income.
- The average participant pay increased by 0.9% for Teachers, 3.3% for Police, and 2.1% for Fire.
- Total participant payroll increased by 6.8% for Teachers and 2.3% for Police and Fire over the prior year; the assumption is 4.25% growth per year.
- Overall, the increases in pay were lower than expected and produced a liability gain (the increase was not as large as expected).

### Changes in Method, Assumptions, and Plan Amendments

There were no changes in valuation methods and assumptions or plan provisions since the prior valuation, other than an update to the child survivor benefits. The child survivor benefits are updated annually for inflation. The amounts are described in Section V.

### Impact of COVID-19

Because the long-term net impact of COVID-19 on mortality, salary increases, and changes in turnover and retirement behavior is not possible to estimate at this time, we have made no adjustments to any of the assumptions selected before the COVID-19 pandemic.

### Sources of Information

Membership data as of July 1, 2020, and market value of assets as of October 1, 2020, were provided by or at the direction of the District of Columbia Retirement Board. While we have reviewed this data for consistency and completeness, we have not audited this data. For valuation purposes, members were treated as remaining in the Plans as of October 1, 2020.

### Actuarial Certification

This actuarial valuation sets forth our calculation of an estimate of the liabilities of the District of Columbia Teachers' Retirement Plan and the District of Columbia Police Officers and Firefighters' Retirement Plan, together with a comparison of these liabilities with the value of the plan assets, as submitted by the District of Columbia Retirement Board (the Board). These calculations, and comparisons with assets, are applicable for the valuation date only. The future is uncertain, and the Plans may become better funded or more poorly funded in the future. This valuation does not provide any guarantee that the Plans will be able to provide the promised benefits in the future.





## Section I. Executive Summary

### Actuarial Certification

These are deterministic valuations in that they are based on a single set of assumptions. This set of assumptions is one possible basis for our calculations. Other assumptions may be equally valid. The future is uncertain, and the Plans' actual experience will differ from those assumptions; these differences may be significant or material because these results are very sensitive to the assumptions made and, in some cases, to the interaction between the assumptions. We may consider that some factors are not material to the valuation of the Plans and may not provide a specific assumption for those factors. We may have used other assumptions in the past. We will likely consider changes in assumptions at a future date.

Different assumptions or scenarios within the range of possibilities may also be reasonable and results based on those assumptions would be different. As a result of the uncertainty inherent in a forward-looking projection over a very long period of time, no one projection is uniquely "correct" and many alternative projections of the future could also be regarded as reasonable. Two different actuaries could, quite reasonably, arrive at different results based on the same data and different views of the future. A "sensitivity analysis" shows the degree to which results would be different if alternative assumptions are substituted within the range of possibilities for those utilized in this report. We have not been engaged to perform such a sensitivity analysis, and thus, the results of such an analysis are not included in this report. At the Board's request, Bolton Partners, Inc. is available to perform such a sensitivity analysis.

The Board is responsible for selecting the Plans' funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in these valuations are those that have been so prescribed and are described in this report. The Board is solely responsible for communicating to Bolton Partners, Inc. any changes required thereto.

The Board could reasonably ask how the valuations would change if we used a different assumption set or if Plan experience exhibited variations from our assumptions. This report does not contain such an analysis. That type of analysis would be a separate assignment.

In addition, decisions regarding benefit improvements, benefit changes, the underlying trust's investment policy, and similar issues should not be based on these valuations. These are complex issues and other factors should be considered when making such decisions. These other factors might include the anticipated vitality of the local economy and future growth expectations, as well as other economic and financial factors.

The costs of these Plans are determined by the benefits promised by them, the Plans' participant population, the investment experience of the Plans, and many other factors. An actuarial valuation is a budgeting tool for the Board and the District of Columbia (the Plan Sponsor). It does not affect the cost of the Plans. Different funding methods provide for different timing of contributions to the Plans. As the experience of the Plans evolves, it is normal for the level of contributions to the Plans to change. If a contribution is not made for a particular year, either by deliberate choice or because of an error in a calculation, that contribution can be made in later years. We will not be responsible for contributions that are made at a future time rather than an earlier time. The Plan Sponsor is responsible for funding the cost of the Plans.



## Section I. Executive Summary

### Actuarial Certification

We make every effort to ensure that our calculations are accurately performed. These calculations are complex. Despite our best efforts, we may make a mistake. We reserve the right to correct any potential errors by amending the results of this report or by including the corrections in a future valuation report. If a mistake is discovered, we will notify the Board of any impact to the results.

Because modeling all aspects of a situation is not possible or practical, we may use summary information, estimates, or simplifications of calculations to facilitate the modeling of future events in an efficient and cost-effective manner. We may also exclude factors or data that are immaterial in our judgment. Use of such simplifying techniques does not, in our judgment, affect the reasonableness of valuation results for the Plans.

The valuation was completed using both proprietary and third-party models (including software and other tools). We have tested these models to ensure they are used for the proper purposes, within their known limitations, and without any known material inconsistencies, unless otherwise stated.

This report is based on Plan provisions, census data, and asset data submitted by, or at the direction of, the Board. We have relied on this information for purposes of preparing this report, but have not performed an audit. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The Board is solely responsible for the validity and completeness of this information.

The Board is also solely responsible for selecting the Plans' investment policies, asset allocations and individual investments. Bolton Partners, Inc. has not provided any investment advice to the District.

The information in this report was prepared for the internal use of the Board and its auditors in connection with our actuarial valuations of the pension Plans. It is neither intended nor necessarily suitable for other purposes. Bolton Partners, Inc. is not responsible for the consequences of any other use or the reliance upon this report by any other party.

The only purpose of this report is to provide the recommended employer contribution for the 2022 fiscal year. This report may not be used for any other purpose; Bolton Partners, Inc. is not responsible for the consequences of any unauthorized use.

The calculation of actuarial liabilities for valuation purposes is based on a current estimate of future benefit payments. The calculation includes a computation of the "present value" of those estimated future benefit payments using an assumed discount rate; the higher the discount rate assumption, the lower the estimated liability will be. For purposes of estimating the liabilities (future and accrued) in this report, the Board selected an assumption based on the expected long-term rate of return on Plan investments. Using a lower discount rate assumption, such as a rate based on long-term bond yields, could substantially increase the estimated present value of future and accrued liabilities.

Because valuations are a snapshot in time, and are based on estimates and assumptions that are not precise and will differ from actual experience, contribution calculations are inherently imprecise. There is no uniquely "correct" level of contributions for the coming fiscal year.



## Section I. Executive Summary

### Actuarial Certification

This report provides certain financial calculations for use by the auditor. These values have been computed in accordance with our understanding of generally accepted actuarial principles and practices, and fairly reflect the actuarial position of the Plans. The various actuarial assumptions and methods which have been used are, in our opinion, appropriate for the purposes of this report.

The report is conditioned on the assumption of ongoing plans and is not meant to present the actuarial position of the Plans in the case of plan termination. Future actuarial measurements may differ significantly from the current measurements presented in this report, due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status), and changes in plan provisions or applicable law.

The Board should notify Bolton Partners, Inc. promptly after receipt of this report if the Board disagrees with anything contained in the report or is aware of any information that would affect the results of the report that has not been communicated to Bolton Partners, Inc. or incorporated therein. The report will be deemed final and acceptable to the Board unless the Board promptly provides such notice to Bolton Partners, Inc.

The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. We are currently compliant with the Continuing Professional Development Requirement of the Society of Actuaries. We are not aware of any direct or materially indirect financial interest or relationship, including investments or other services, which could create a conflict of interest that would impair the objectivity of our work.

We are available to answer any questions on the material in this report, or to provide explanations or further details, as appropriate.

Thomas Vicente, FSA, EA

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Ann M. Sturner, FSA, EA

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## Section II. Determination of District Contributions

### Derivation of Liabilities – Teachers

Below is a summary of the actuarial accrued liability of the future benefits expected to be paid from the Plan.

Teachers	10/1/2019	10/1/2020
1. Participants		
a. Active	5,226	5,531
b. Retirees and Beneficiaries	4,059	4,071
i. Service Retirements	3,767	3,775
ii. Disability Retirements	110	111
iii. Survivors	182	185
c. Inactive with Deferred Benefits	1,446	1,510
<b>d. Total</b>	<b>10,731</b>	<b>11,112</b>
2. Active Payroll	\$ 516,609	\$ 551,835
3. Actuarial Accrued Liability		
a. Active Participants	\$ 1,230,678	\$ 1,335,898
b. Retirees and Beneficiaries	1,107,126	1,121,326
i. Service Retirements	1,055,141	1,071,761
ii. Disability Retirements	30,620	30,366
iii. Survivors	21,364	19,198
c. Inactive with Deferred Benefits	156,487	183,579
<b>d. Total</b>	<b>2,494,291</b>	<b>2,640,803</b>
4. Actuarial Value of Assets	\$ 2,271,160	\$ 2,431,075
5. Unfunded Actuarial Liability (3.d.- 4.)	223,131	209,728
6. Funded Ratio (4. ÷ 3.d.)	91.05%	92.06%

(\$ in Thousands)



## Section II. Determination of District Contributions

### Derivation of Liabilities – Police and Fire

Below is a summary of the actuarial accrued liability of the future benefits expected to be paid from the Plan.

Police and Fire	10/1/2019	10/1/2020
1. Participants		
a. Active	5,406	5,377
b. Retirees and Beneficiaries	3,699	3,929
i. Service Retirements	2,752	2,947
ii. Disability Retirements	420	428
iii. Survivors	527	554
c. Inactive with Deferred Benefits	261	303
<b>d. Total</b>	<b>9,366</b>	<b>9,609</b>
2. Active Payroll	\$ 495,809	\$ 507,348
3. Actuarial Accrued Liability		
a. Active Participants	\$ 3,057,435	\$ 3,119,862
b. Retirees and Beneficiaries	2,497,165	2,830,585
i. Service Retirements	2,146,289	2,459,810
ii. Disability Retirements	192,788	198,508
iii. Survivors	158,088	172,267
c. Inactive with Deferred Benefits	49,973	73,396
<b>d. Total</b>	<b>5,604,573</b>	<b>6,023,843</b>
4. Actuarial Value of Assets	\$ 6,269,628	\$ 6,676,013
5. Unfunded Actuarial Liability (3.d.- 4.)	(665,055)	(652,169)
6. Funded Ratio (4. ÷ 3.d.)	111.87%	110.83%

(\$ in Thousands)



## Section II. Determination of District Contributions

### Derivation of Liabilities – Police

Below is a summary of the actuarial accrued liability of the future benefits expected to be paid from the Plan.

Police	10/1/2019	10/1/2020
1. Participants		
a. Active	3,566	3,544
b. Retirees and Beneficiaries	2,799	2,952
i. Service Retirements	2,079	2,214
ii. Disability Retirements	326	331
iii. Survivors	394	407
c. Inactive with Deferred Benefits	179	219
<b>d. Total</b>	<b>6,544</b>	<b>6,715</b>
2. Active Payroll	\$ 327,734	\$ 336,479
3. Actuarial Accrued Liability		
a. Active Participants	\$ 1,965,788	\$ 1,997,978
b. Retirees and Beneficiaries	1,895,162	2,121,866
i. Service Retirements	1,634,182	1,853,125
ii. Disability Retirements	150,005	152,994
iii. Survivors	110,975	115,747
c. Inactive with Deferred Benefits	37,037	59,270
<b>d. Total</b>	<b>3,897,987</b>	<b>4,179,114</b>
4. Actuarial Value of Assets	\$ 4,359,508	\$ 4,615,243
5. Unfunded Actuarial Liability (3.d.- 4.)	(461,521)	(436,129)
6. Funded Ratio (4. ÷ 3.d.)	111.84%	110.44%

(\$ in Thousands)



## Section II. Determination of District Contributions

### Derivation of Liabilities – Fire

Below is a summary of the actuarial accrued liability of the future benefits expected to be paid from the Plan.

Fire	10/1/2019	10/1/2020
1. Participants		
a. Active	1,840	1,833
b. Retirees and Beneficiaries	900	977
i. Service Retirements	673	733
ii. Disability Retirements	94	97
iii. Survivors	133	147
c. Inactive with Deferred Benefits	82	84
<b>d. Total</b>	<b>2,822</b>	<b>2,894</b>
2. Active Payroll	\$ 168,076	\$ 170,869
3. Actuarial Accrued Liability		
a. Active Participants	\$ 1,091,647	\$ 1,121,885
b. Retirees and Beneficiaries	602,003	708,718
i. Service Retirements	512,106	606,685
ii. Disability Retirements	42,784	45,514
iii. Survivors	47,113	56,519
c. Inactive with Deferred Benefits	12,936	14,126
<b>d. Total</b>	<b>1,706,586</b>	<b>1,844,730</b>
4. Actuarial Value of Assets	\$ 1,910,120	\$ 2,060,770
5. Unfunded Actuarial Liability (3.d.- 4.)	(203,534)	(216,040)
6. Funded Ratio (4. ÷ 3.d.)	111.93%	111.71%

(\$ in Thousands)



## Section II. Determination of District Contributions

### Experience Gain/(Loss) and Projection of Unfunded Liability – Teachers

The experience gain/(loss) from October 1, 2019 to October 1, 2020 and projection of the unfunded actuarial liability from October 1, 2020 to October 1, 2021, the beginning of the fiscal year, is shown below. Please see Appendix 5 for a detailed breakdown of gain/(loss) sources.

Experience Gain/(Loss) - Teachers		10/1/2020
1. Unfunded Liability as of 10/01/2019	\$	223,131
2. Total FY2020 Normal Cost		75,344
3. Actual FY2020 Expenses		3,511
4. Total FY2020 Actual Contributions		101,244
5. Interest		16,275
6. Expected Unfunded Liability as of 10/01/2020		217,017
7. Change due to Plan Amendments		0
8. Change due to Assumptions and/or Methods		0
9. Expected Unfunded Liability as of 10/01/2020		217,017
10. Actual Unfunded Liability as of 10/01/2020		209,728
11. Gain/(Loss)		7,289
12. Actuarial Accrued Liability at 10/01/2019	\$	2,494,291
13. Gain/(Loss) as a percent of Actuarial Accrued Liability		0.29%

Projected Unfunded Liability - Teachers		
1. Actual Unfunded Liability as of 10/01/2020	\$	209,728
2. Total Normal Cost FY2021		82,614
3. Expected District and Employee Contributions FY2021		114,096
4. Expected Expenses FY2021		6,626
5. Interest		15,564
6. Projected Unfunded Liability as of 10/1/2021	\$	200,436

(\$ in Thousands)



## Section II. Determination of District Contributions

### Experience Gain/(Loss) and Projection of Unfunded Liability – Police

The experience gain/(loss) from October 1, 2019 to October 1, 2020 and projection of the unfunded actuarial liability from October 1, 2020 to October 1, 2021, the beginning of the fiscal year, is shown below. Please see Appendix 5 for a detailed breakdown of gain/(loss) sources.

Experience Gain/(Loss) - Police		10/1/2020
1. Unfunded Liability as of 10/01/2019		\$ (461,521)
2. Total FY2020 Normal Cost		127,093
3. Actual FY2020 Expenses		6,670
4. Total FY2020 Actual Contributions		70,213
5. Interest		(23,770)
6. Expected Unfunded Liability as of 10/01/2020		(421,742)
7. Change due to Plan Amendments		0
8. Change due to Assumptions and/or Methods		0
9. Expected Unfunded Liability as of 10/01/2020		(421,742)
10. Actual Unfunded Liability as of 10/01/2020		(436,129)
11. Gain/(Loss)		14,387
12. Actuarial Accrued Liability at 10/01/2019		\$ 3,897,987
13. Gain/(Loss) as a percent of Actuarial Accrued Liability		0.37%

Projected Unfunded Liability - Police		
1. Actual Unfunded Liability as of 10/01/2020		\$ (436,129)
2. Total Normal Cost FY2021		132,655
3. Expected District and Employee Contributions FY2021		86,923
4. Expected Expenses FY2021		6,679
5. Interest		(22,293)
6. Projected Unfunded Liability as of 10/1/2021		\$ (406,011)

(\$ in Thousands)



## Section II. Determination of District Contributions

### Experience Gain/(Loss) and Projection of Unfunded Liability – Fire

The experience gain/(loss) from October 1, 2019 to October 1, 2020 and projection of the unfunded actuarial liability from October 1, 2020 to October 1, 2021, the beginning of the fiscal year, is shown below. Please see Appendix 5 for a detailed breakdown of gain/(loss) sources.

Experience Gain/(Loss) - Fire		10/1/2020
1. Unfunded Liability as of 10/01/2019	\$	(203,534)
2. Total FY2020 Normal Cost		69,538
3. Actual FY2020 Expenses		2,978
4. Total FY2020 Actual Contributions		60,728
5. Interest		(10,557)
6. Expected Unfunded Liability as of 10/01/2020		(202,303)
7. Change due to Plan Amendments		0
8. Change due to Assumptions and/or Methods		0
9. Expected Unfunded Liability as of 10/01/2020		(202,303)
10. Actual Unfunded Liability as of 10/01/2020		(216,040)
11. Gain/(Loss)		13,737
12. Actuarial Accrued Liability at 10/01/2019	\$	1,706,586
13. Gain/(Loss) as a percent of Actuarial Accrued Liability		0.80%

Projected Unfunded Liability - Fire		
1. Actual Unfunded Liability as of 10/01/2020	\$	(216,040)
2. Total Normal Cost FY2021		71,566
3. Expected District and Employee Contributions FY2021		61,226
4. Expected Expenses FY2021		3,479
5. Interest		(11,238)
6. Projected Unfunded Liability as of 10/1/2021	\$	(213,458)

(\$ in Thousands)



## Section II. Determination of District Contributions

### Development of District Contributions – Teachers

The breakdown of the Actuarially Determined Contribution into normal cost, amortization payment, expected administrative expenses, and D.C. Code §1-907.02(c) Adjustment is illustrated below. The calculation of the D.C. Code §1-907.02(c) Adjustment is detailed in Appendix 4.

Teachers Actuarially Determined Contribution (ADC)	FY2022	Percentage of FY2022 Payroll
1. Total Normal Cost as of October 1, 2020	\$ 82,614	N/A
2. Projected Total Normal Cost as of October 1, 2021 (1. x 1.0425)	86,121	14.97%
3. Expected Member Contributions	45,448	7.90%
4. Employer Normal Cost (2. - 3.)	40,673	7.07%
5. Expenses	6,903	1.20%
6. Amortization Payment	22,948	3.99%
7. Actuarially Determined Contribution (ADC) (4. + 5. + 6.)	70,524	12.26%
8. D.C. Code §1-907.02(c) Adjustment to FY2022 Payment	4,536	N/A
9. Fiscal Year District Payment	\$ 75,060	N/A

Projected Payroll		
1. Active Member June 30, 2020 Payroll	\$	512,805
2. Expected FY2021 Payroll (1. increased with one year of salary scale)		551,835
3. Projected FY2022 Payroll (2. x 1.0425)	\$	575,288

(\$ in Thousands)



## Section II. Determination of District Contributions

### Development of District Contributions – Police and Fire

The breakdown of the Actuarially Determined Contribution into normal cost, amortization payment, expected administrative expenses, and D.C. Code §1-907.02(c) Adjustment is illustrated below. The calculation of the D.C. Code §1-907.02(c) Adjustment is detailed in Appendix 4.

Police and Fire Actuarially Determined Contribution (ADC)	FY2022	Percentage of FY2022 Payroll
1. Total Normal Cost as of October 1, 2020	\$ 204,221	N/A
2. Projected Total Normal Cost as of October 1, 2021 (1. x 1.0425)	212,878	40.25%
3. Expected Member Contributions	41,784	7.90%
4. Employer Normal Cost (2. - 3.)	171,095	32.35%
5. Expenses	11,107	2.10%
6. Amortization Payment	(71,236)	(13.47%)
7. Actuarially Determined Contribution (ADC) (4. + 5. + 6.)	110,966	20.98%
8. D.C. Code §1-907.02(c) Adjustment to FY2022 Payment	(2,001)	N/A
9. Fiscal Year District Payment	\$ 108,965	N/A

Projected Payroll		
1. Active Member June 30, 2020 Payroll	\$	474,000
2. Expected FY2021 Payroll (1. increased with one year of salary scale)		507,348
3. Projected FY2022 Payroll (2. x 1.0425)	\$	528,910

(\$ in Thousands)



## Section II. Determination of District Contributions

### Development of District Contributions – Police

The breakdown of the Actuarially Determined Contribution into normal cost, amortization payment, expected administrative expenses, and D.C. Code §1-907.02(c) Adjustment is illustrated below. The calculation of the D.C. Code §1-907.02(c) Adjustment is detailed in Appendix 4.

Police Actuarially Determined Contribution (ADC)	FY2022	Percentage of FY2022 Payroll
1. Total Normal Cost as of October 1, 2020	\$ 132,655	N/A
2. Projected Total Normal Cost as of October 1, 2021 (1. x 1.0425)	138,277	39.42%
3. Expected Member Contributions	27,712	7.90%
4. Employer Normal Cost (2. - 3.)	110,566	31.52%
5. Expenses	7,366	2.10%
6. Amortization Payment	(49,146)	(14.01%)
7. Actuarially Determined Contribution (ADC) (4. + 5. + 6.)	68,786	19.61%
8. D.C. Code §1-907.02(c) Adjustment to FY2022 Payment	(751)	N/A
9. Fiscal Year District Payment	\$ 68,035	N/A

Projected Payroll		
1. Active Member June 30, 2020 Payroll	\$	314,190
2. Expected FY2021 Payroll (1. increased with one year of salary scale)		336,479
3. Projected FY2022 Payroll (2. x 1.0425)	\$	350,779

(\$ in Thousands)



## Section II. Determination of District Contributions

### Development of District Contributions – Fire

The breakdown of the Actuarially Determined Contribution into normal cost, amortization payment, expected administrative expenses, and D.C. Code §1-907.02(c) Adjustment is illustrated below. The calculation of the D.C. Code §1-907.02(c) Adjustment is detailed in Appendix 4.

Fire Actuarially Determined Contribution (ADC)	FY2022	Percentage of FY2022 Payroll
1. Total Normal Cost as of October 1, 2020	\$ 71,566	N/A
2. Projected Total Normal Cost as of October 1, 2021 (1. x 1.0425)	74,601	41.88%
3. Expected Member Contributions	14,072	7.90%
4. Employer Normal Cost (2. - 3.)	60,529	33.98%
5. Expenses	3,741	2.10%
6. Amortization Payment	(22,090)	(12.40%)
7. Actuarially Determined Contribution (ADC) (4. + 5. + 6.)	42,180	23.68%
8. D.C. Code §1-907.02(c) Adjustment to FY2022 Payment	(1,249)	N/A
9. Fiscal Year District Payment	\$ 40,931	N/A

Projected Payroll		
1. Active Member June 30, 2020 Payroll	\$	159,810
2. Expected FY2021 Payroll (1. increased with one year of salary scale)		170,869
3. Projected FY2022 Payroll (2. x 1.0425)	\$	178,131

(\$ in Thousands)



## Section II. Determination of District Contributions

### Schedule of Amortization Bases

Below is a schedule of the amortization bases as of October 1, 2021.

Teachers Description	Date Established	Remaining Years	Amount to be Amortized	Payment / (Credit)
Legacy Unfunded	10/1/2017	11	\$ 135,712	\$ 17,103
Actuarial (Gain)/Loss and Assumption and Method Changes	10/1/2017	16	(12,666)	(1,257)
Actuarial (Gain)/Loss	10/1/2018	17	16,279	1,560
Actuarial (Gain)/Loss	10/1/2020	19	71,799	6,481
Actuarial (Gain)/Loss	10/1/2021	20	(10,687)	(940)
<b>Totals</b>			<b>\$ 200,436</b>	<b>\$ 22,948</b>

Police Description	Date Established	Remaining Years	Amount to be Amortized	Payment / (Credit)
Legacy Unfunded	10/1/2017	11	\$ (337,645)	\$ (42,551)
Actuarial (Gain)/Loss and Assumption and Method Changes	10/1/2017	16	33,274	3,301
Actuarial (Gain)/Loss	10/1/2018	17	(131,858)	(12,637)
Actuarial (Gain)/Loss	10/1/2020	19	36,269	3,274
Actuarial (Gain)/Loss	10/1/2021	20	(6,050)	(532)
<b>Totals</b>			<b>\$ (406,011)</b>	<b>\$ (49,146)</b>

Fire Description	Date Established	Remaining Years	Amount to be Amortized	Payment / (Credit)
Legacy Unfunded	10/1/2017	11	\$ (66,773)	\$ (8,415)
Actuarial (Gain)/Loss and Assumption and Method Changes	10/1/2017	16	(59,727)	(5,925)
Actuarial (Gain)/Loss	10/1/2018	17	9,839	943
Actuarial (Gain)/Loss	10/1/2020	19	(77,361)	(6,983)
Actuarial (Gain)/Loss	10/1/2021	20	(19,435)	(1,709)
<b>Totals</b>			<b>\$ (213,458)</b>	<b>\$ (22,090)</b>

(\$ in Thousands)

Bases are amortized on a level dollar basis.

The unfunded liability at 10/1/2020 is projected to 10/1/2021 for the amortization of the actuarial (gain)/loss.

The unfunded liability at 10/1/2019 was projected to 10/1/2020 for the amortization of the actuarial (gain)/loss. Therefore, no amortization base was created at 10/1/2019.



## Section III. Valuation of Assets

### Reconciliation of Assets – Teachers

Below is a reconciliation of assets from October 1, 2018 through September 30, 2020. An adjustment has been included to account for the difference in market value of assets between the prior year's valuation report and the audited value.

Teachers	FY2019	FY2020
1. Beginning of Year Assets	\$ 2,193,598,000	\$ 2,264,428,000
2. Adjustments	(17,494,000)	(28,000)
3. Beginning of Year Assets after Adjustments	2,176,104,000	2,264,400,000
4. Receipts		
a. Employer Contributions	53,343,000	58,888,000
b. Employee Contributions	40,432,000	42,356,000
c. Net Investment Income	85,874,000	139,809,000
<b>d. Total Receipts</b>	<b>\$ 179,649,000</b>	<b>\$ 241,053,000</b>
5. Deductions		
a. Benefit Payments	\$ (81,471,000)	\$ (85,679,000)
b. Refunds	(6,418,000)	(4,873,000)
c. Administrative Expenses	(3,436,000)	(3,511,000)
<b>d. Total Deductions</b>	<b>\$ (91,325,000)</b>	<b>\$ (94,063,000)</b>
6. Net Increase	88,324,000	146,990,000
7. End of Year Assets	\$ 2,264,428,000	\$ 2,411,390,000
8. Rate of Return ( $2I / [A + B - I]$ Method)	3.94%	6.16%



## Section III. Valuation of Assets

### Reconciliation of Assets – Police and Fire

Below is a reconciliation of assets from October 1, 2018 through September 30, 2020. An adjustment has been included to account for the difference in market value of assets between the prior year's valuation report and the audited value.

Police and Fire	FY2019	FY2020
1. Beginning of Year Assets	\$ 6,015,953,000	\$ 6,256,213,000
2. Adjustments	7,817,000	232,000
3. Beginning of Year Assets after Adjustments	6,023,770,000	6,256,445,000
4. Receipts		
a. Employer Contributions	\$ 91,284,000	\$ 93,061,000
b. Employee Contributions	38,243,000	37,880,000
c. Net Investment Income	235,301,000	383,732,000
<b>d. Total Receipts</b>	<b>\$ 364,828,000</b>	<b>\$ 514,673,000</b>
5. Deductions		
a. Benefit Payments	\$ (121,342,000)	\$ (140,044,000)
b. Refunds	(1,533,000)	(1,236,000)
c. Administrative Expenses	(9,510,000)	(9,648,000)
<b>d. Total Deductions</b>	<b>\$ (132,385,000)</b>	<b>\$ (150,928,000)</b>
6. Net Increase	232,443,000	363,745,000
7. End of Year Assets	\$ 6,256,213,000	\$ 6,620,190,000
8. Rate of Return (2I / [A + B - I] Method)	3.91%	6.14%



## Section III. Valuation of Assets

### Reconciliation of Assets – Police

Below is a reconciliation of assets from October 1, 2018 through September 30, 2020. An adjustment has been included to account for the difference in market value of assets between the prior year's valuation report and the audited value.

Police	FY2019	FY2020
1. Beginning of Year Assets	\$ 4,199,796,949	\$ 4,350,404,858
2. Adjustments	5,457,126	161,327
3. Beginning of Year Assets after Adjustments	4,205,254,075	4,350,566,185
4. Receipts		
a. Employer Contributions	\$ 54,522,000	\$ 45,421,000
b. Employee Contributions	25,030,044	24,792,460
c. Net Investment Income	163,937,939	266,041,479
<b>d. Total Receipts</b>	<b>\$ 243,489,982</b>	<b>\$ 336,254,939</b>
5. Deductions		
a. Benefit Payments	\$ (90,581,803)	\$ (102,582,230)
b. Refunds	(1,144,385)	(761,129)
c. Administrative Expenses	(6,613,012)	(6,670,091)
<b>d. Total Deductions</b>	<b>\$ (98,339,199)</b>	<b>\$ (110,013,450)</b>
6. Net Increase	145,150,783	226,241,490
7. End of Year Assets	\$ 4,350,404,858	\$ 4,576,807,674
8. Rate of Return (2I / [A + B - I] Method)	3.91%	6.14%



## Section III. Valuation of Assets

### Reconciliation of Assets – Fire

Below is a reconciliation of assets from October 1, 2018 through September 30, 2020. An adjustment has been included to account for the difference in market value of assets between the prior year's valuation report and the audited value.

Fire	FY2019	FY2020
1. Beginning of Year Assets	\$ 1,816,156,051	\$ 1,905,808,142
2. Adjustments	2,359,874	70,673
3. Beginning of Year Assets after Adjustments	1,818,515,925	1,905,878,815
4. Receipts		
a. Employer Contributions	\$ 36,762,000	\$ 47,640,000
b. Employee Contributions	13,212,957	13,087,540
c. Net Investment Income	71,363,061	117,690,521
<b>d. Total Receipts</b>	<b>\$ 121,338,018</b>	<b>\$ 178,418,061</b>
5. Deductions		
a. Benefit Payments	\$ (30,760,197)	\$ (37,461,770)
b. Refunds	(388,616)	(474,871)
c. Administrative Expenses	(2,896,988)	(2,977,909)
<b>d. Total Deductions</b>	<b>\$ (34,045,801)</b>	<b>\$ (40,914,550)</b>
6. Net Increase	87,292,217	137,503,510
7. End of Year Assets	\$ 1,905,808,142	\$ 2,043,382,326
8. Rate of Return (2I / [A + B - I] Method)	3.91%	6.14%



## Section III. Valuation of Assets

### Calculation of Actuarial Asset Value – Teachers

The actuarial asset value as of October 1, 2020 is determined by spreading the asset gain or loss for each year over a five-year period. The asset gain or loss is the amount by which the actual asset return differs from the expected asset return.

Teachers		10/1/2020	
1.	Market Value of Assets at End of Year	\$	2,411,390,000
2.	Net investment income		139,809,000
3.	Valuation interest rate		6.50%
4.	Expected investment income		147,419,383
5.	Gain/(Loss)		(7,610,383)
Spreading of investment gain/(loss)			
Year	Original or restructured base	% Deferred	Deferred
FY2020	\$ (7,610,383)	80%	\$ (6,088,306)
FY2019	(55,652,385)	60%	(33,391,431)
FY2018	(1,502,690)	40%	(601,076)
FY2017	101,977,795	20%	20,395,559
FY2016	(10,495,880)	0%	-
<b>Total deferred</b>			<b>(19,685,254)</b>
6.	Preliminary Actuarial Value of Assets	\$	2,431,075,254
7.	Lower Corridor		1,929,112,000
8.	Upper Corridor		2,893,668,000
9.	Final Actuarial Value of Assets		2,431,075,254
Rate of Return			6.71%



## Section III. Valuation of Assets

### Calculation of Actuarial Asset Value – Police and Fire

The actuarial asset value as of October 1, 2020 is determined by spreading the asset gain or loss for each year over a five-year period. The asset gain or loss is the amount by which the actual asset return differs from the expected asset return.

Police and Fire		10/1/2020	
1.	Market Value of Assets at End of Year	\$ 6,620,190,000	
2.	Net investment income	383,732,000	
3.	Valuation interest rate	6.50%	
4.	Expected investment income	406,019,348	
5.	Gain/(Loss)	(22,287,348)	
Spreading of investment gain/(loss)			
Year	Original or restructured base	% Deferred	Deferred
FY2020	\$ (22,287,348)	80%	\$ (17,829,878)
FY2019	(156,151,165)	60%	(93,690,699)
FY2018	(234,205)	40%	(93,682)
FY2017	278,958,425	20%	55,791,685
FY2016	314,875	0%	-
<b>Total deferred</b>			<b>(55,822,574)</b>
6.	Preliminary Actuarial Value of Assets	\$ 6,676,012,574	
7.	Lower Corridor	5,296,152,000	
8.	Upper Corridor	7,944,228,000	
9.	Final Actuarial Value of Assets	6,676,012,574	
Rate of Return		6.81%	



## Section III. Valuation of Assets

### Calculation of Actuarial Asset Value – Police

The actuarial asset value as of October 1, 2020 is determined by spreading the asset gain or loss for each year over a five-year period. The asset gain or loss is the amount by which the actual asset return differs from the expected asset return.

<b>Police</b>	<b>10/1/2020</b>
1. Market Value of Assets at End of Year	\$ 4,576,807,674
2. Net investment income	266,041,479
3. Valuation interest rate	6.50%
4. Expected investment income	281,493,302
5. Gain/(Loss)	(15,451,823)

#### Spreading of investment gain/(loss)

<b>Year</b>	<b>Original or restructured base</b>	<b>% Deferred</b>	<b>Deferred</b>
FY2020	\$ (15,451,823)	80%	\$ (12,361,458)
FY2019	(108,792,993)	60%	(65,275,796)
FY2018	(304,943)	40%	(121,977)
FY2017	196,620,900	20%	39,324,180
FY2016	(2,671,515)	0%	-
<b>Total deferred</b>			<b>(38,435,051)</b>

6. Preliminary Actuarial Value of Assets	\$ 4,615,242,725
7. Lower Corridor	3,661,446,139
8. Upper Corridor	5,492,169,209
9. Final Actuarial Value of Assets	4,615,242,725
Rate of Return	6.81%



## Section III. Valuation of Assets

### Calculation of Actuarial Asset Value – Fire

The actuarial asset value as of October 1, 2020 is determined by spreading the asset gain or loss for each year over a five-year period. The asset gain or loss is the amount by which the actual asset return differs from the expected asset return.

Fire	10/1/2020
1. Market Value of Assets at End of Year	\$ 2,043,382,326
2. Net investment income	117,690,521
3. Valuation interest rate	6.50%
4. Expected investment income	124,526,045
5. Gain/(Loss)	(6,835,524)

#### Spreading of investment gain/(loss)

Year	Original or restructured base	% Deferred	Deferred
FY2020	\$ (6,835,524)	80%	\$ (5,468,420)
FY2019	(47,358,172)	60%	(28,414,903)
FY2018	70,738	40%	28,295
FY2017	82,337,530	20%	16,467,506
FY2016	2,986,390	0%	-
<b>Total deferred</b>			<b>(17,387,522)</b>

6. Preliminary Actuarial Value of Assets	\$ 2,060,769,848
7. Lower Corridor	1,634,705,861
8. Upper Corridor	2,452,058,791
9. Final Actuarial Value of Assets	2,060,769,848

Rate of Return	6.81%
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## Section IV. Participant Information

### Participant Summary

The following table summarizes the counts, ages and benefit information for Plan participants used in this valuation.

	Teachers	Police Officers	Firefighters	Total
1. Active				
a. Number	5,531	3,544	1,833	10,908
b. Average Age	41.3	39.7	40.1	40.6
c. Average Service	8.58	12.56	14.11	10.8
<b>d. Average Salary</b>	<b>\$ 99,771</b>	<b>\$ 94,943</b>	<b>\$ 93,218</b>	<b>\$ 97,101</b>
2. Vested Terminations				
a. Number	1,510	219	84	1,813
b. Average Age	48.9	44.9	42.5	48.1
<b>c. Total Annual Benefits</b>	<b>\$ 21,189,220</b>	<b>\$ 4,248,921</b>	<b>\$ 1,220,065</b>	<b>\$ 26,658,206</b>
3. Service Retired, Disabled and Beneficiaries (Receiving District Benefits)				
a. Number	4,071	2,952	977	8,000
b. Average Age	73.2	59.9	61.2	66.8
<b>c. Total Annual Benefits</b>	<b>\$ 85,367,855</b>	<b>\$ 108,730,960</b>	<b>\$ 37,861,283</b>	<b>\$ 231,960,098</b>
4. Service Retired, Disabled and Beneficiaries (Receiving District and/or Federal Benefits)				
a. Number	5,776	6,420	2,062	14,258
b. Average Age	76.8	70.9	68.7	73.0
<b>c. Total Annual Benefits</b>	<b>\$ 274,265,448</b>	<b>\$ 361,138,252</b>	<b>\$ 129,795,362</b>	<b>\$ 765,199,061</b>





## Section IV. Participant Information

### Active Age/Service Distribution Including Compensation – Teachers

Shown below is the distribution of active participants based on age and service. The compensation shown is the average of estimated FY2021 pay (pay rate provided as of June 30, 2020 increased with salary scale for one year).

Age	Years of Service as of 10/01/2020										Total	
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up		
Under 25	5	79	0	0	0	0	0	0	0	0	0	84
	58,210	62,821	0	0	0	0	0	0	0	0	0	62,546
25 - 29	17	421	133	3	0	0	0	0	0	0	0	574
	76,630	71,467	76,920	78,161	0	0	0	0	0	0	0	72,919
30 - 34	17	496	503	131	1	0	0	0	0	0	0	1,148
	80,485	83,505	92,510	107,878	93,758	0	0	0	0	0	0	90,196
35 - 39	15	368	419	237	46	0	0	0	0	0	0	1,085
	94,820	92,813	104,085	108,707	106,542	0	0	0	0	0	0	101,247
40 - 44	11	226	275	184	99	32	0	0	0	0	0	827
	87,052	95,690	113,923	109,605	118,892	118,123	0	0	0	0	0	108,379
45 - 49	10	125	189	128	97	103	18	0	0	0	0	670
	101,421	95,078	108,579	115,704	115,207	119,794	121,043	0	0	0	0	110,333
50 - 54	4	90	96	88	49	73	56	10	0	0	0	466
	82,049	96,322	106,715	110,436	112,486	120,649	121,722	121,070	0	0	0	110,100
55 - 59	2	46	51	52	36	43	30	52	2	0	0	314
	97,283	92,105	111,513	109,543	114,580	119,608	119,610	119,678	118,448	0	0	111,883
60 - 64	2	23	26	33	37	25	23	40	9	1	1	219
	71,138	92,550	113,958	110,608	118,703	112,884	124,032	117,977	113,574	122,812	113,310	
65 - 69	1	11	13	13	15	17	10	20	7	1	1	108
	98,749	91,687	115,683	112,105	113,898	118,603	127,679	118,416	136,171	116,240	115,813	
70 & Up	1	4	2	4	1	8	1	12	1	2	2	36
	102,354	91,431	101,260	117,795	100,784	118,615	122,813	112,076	116,240	119,131	111,492	
<b>Totals</b>	<b>85</b>	<b>1,889</b>	<b>1,707</b>	<b>873</b>	<b>381</b>	<b>301</b>	<b>138</b>	<b>134</b>	<b>19</b>	<b>4</b>	<b>5,531</b>	
	<b>84,967</b>	<b>84,989</b>	<b>101,245</b>	<b>110,081</b>	<b>114,903</b>	<b>119,125</b>	<b>121,999</b>	<b>118,405</b>	<b>122,552</b>	<b>119,328</b>	<b>99,771</b>	

Averages	
Age	41.3
Service	8.6



## Section IV. Participant Information

### Active Age/Service Distribution Including Compensation – Police

Shown below is the distribution of active participants based on age and service. The compensation shown is the average of estimated FY2021 pay (pay rate provided as of June 30, 2020 increased with salary scale for one year).

Age	Years of Service as of 10/01/2020										Total	
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up		
Under 25	50	121	4	0	0	0	0	0	0	0	0	175
	66,209	69,364	76,572	0	0	0	0	0	0	0	0	68,628
25 - 29	37	377	109	3	0	0	0	0	0	0	0	526
	66,209	74,044	80,780	76,049	0	0	0	0	0	0	0	74,900
30 - 34	22	189	311	63	2	0	0	0	0	0	0	587
	66,209	74,851	83,602	90,739	85,695	0	0	0	0	0	0	80,906
35 - 39	9	61	149	290	102	0	0	0	0	0	0	611
	66,209	74,582	83,838	93,697	103,615	0	0	0	0	0	0	90,635
40 - 44	3	24	41	118	220	63	1	0	0	0	0	470
	66,209	73,971	84,092	94,385	105,875	118,964	108,849	0	0	0	0	100,969
45 - 49	2	15	15	55	144	212	76	40	0	0	0	559
	66,209	73,078	85,337	96,351	106,509	120,144	124,379	126,340	0	0	0	112,920
50 - 54	1	7	4	39	80	125	75	78	0	0	0	409
	66,209	76,092	81,208	94,937	105,070	118,537	130,145	122,848	0	0	0	115,384
55 - 59	0	1	4	13	37	32	24	53	7	0	0	171
	0	72,095	86,772	93,294	109,537	117,946	122,098	128,460	146,551	0	0	118,268
60 - 64	0	0	0	3	4	12	6	7	2	2	2	36
	0	0	0	90,938	110,723	111,970	110,036	126,745	145,225	146,156	0	116,376
65 - 69	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>124</b>	<b>795</b>	<b>637</b>	<b>584</b>	<b>589</b>	<b>444</b>	<b>182</b>	<b>178</b>	<b>9</b>	<b>2</b>	<b>2</b>	<b>3,544</b>
	<b>66,209</b>	<b>73,560</b>	<b>83,208</b>	<b>93,736</b>	<b>105,724</b>	<b>119,145</b>	<b>125,896</b>	<b>125,457</b>	<b>146,257</b>	<b>146,156</b>	<b>146,156</b>	<b>94,943</b>

Averages	
Age	39.7
Service	12.6



## Section IV. Participant Information

### Active Age/Service Distribution Including Compensation – Fire

Shown below is the distribution of active participants based on age and service. The compensation shown is the average of estimated FY2021 pay (pay rate provided as of June 30, 2020 increased with salary scale for one year).

Age	Years of Service as of 10/01/2020										Total	
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up		
Under 25	10	55	8	0	0	0	0	0	0	0	0	73
	59,976	62,657	70,912	0	0	0	0	0	0	0	0	63,195
25 - 29	18	118	106	3	0	0	0	0	0	0	0	245
	61,060	65,721	73,174	61,257	0	0	0	0	0	0	0	68,548
30 - 34	12	105	73	79	8	0	0	0	0	0	0	277
	59,829	66,596	77,173	88,903	83,622	0	0	0	0	0	0	75,944
35 - 39	5	42	46	198	84	0	0	0	0	0	0	375
	60,863	68,635	80,027	92,669	102,271	0	0	0	0	0	0	90,153
40 - 44	0	8	17	85	130	33	3	0	0	0	0	276
	0	69,726	82,070	90,293	104,695	118,431	132,265	0	0	0	0	99,794
45 - 49	1	4	5	8	114	36	43	33	0	0	0	244
	67,955	70,023	81,336	88,599	100,157	119,989	118,693	130,789	0	0	0	109,102
50 - 54	1	2	3	1	48	79	62	21	0	0	0	217
	59,090	66,772	93,559	99,275	100,977	110,764	131,721	128,191	0	0	0	115,339
55 - 59	0	0	0	1	1	40	43	21	3	0	0	109
	0	0	0	136,816	115,720	102,785	121,633	148,212	218,799	0	0	122,596
60 - 64	0	0	0	0	1	4	1	8	3	0	0	17
	0	0	0	0	102,468	96,243	154,666	128,832	129,623	0	0	121,272
65 - 69	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>47</b>	<b>334</b>	<b>258</b>	<b>375</b>	<b>386</b>	<b>192</b>	<b>152</b>	<b>83</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>1,833</b>
	<b>60,599</b>	<b>66,012</b>	<b>76,439</b>	<b>91,134</b>	<b>101,951</b>	<b>111,847</b>	<b>125,343</b>	<b>134,351</b>	<b>174,211</b>	<b>0</b>	<b>0</b>	<b>93,218</b>

Averages	
Age	40.1
Service	14.1



## Section IV. Participant Information

### Participant Reconciliation – Teachers

Shown below is the reconciliation of participants between the prior and current valuation date.

Teachers	Inactive Participants			Total
	Active Participants	With Deferred Benefits	Receiving Benefits	
Participants in Last Valuation	5,226	1,446	4,059	10,731
Death	(4)	0	(80)	(84)
Disabled	0	(2)	2	0
Retired	(64)	(21)	85	0
Vested Termination	(192)	192	0	0
Nonvested Termination	(289)	0	0	(289)
Return of Contributions/Benefits Ended	(69)	(62)	(6)	(137)
New Actives	857	0	0	857
Rehire from Vested Term	36	(36)	0	0
Rehire from Nonvested Term	0	0	0	0
New Beneficiaries	0	0	11	11
Data Adjustment*	30	(7)	0	23
Participants in This Valuation	5,531	1,510	4,071	11,112

In addition, there are 603 participants who are non-vested and due a refund of employee contributions.

\*Includes charter school teachers.



## Section IV. Participant Information

### Participant Reconciliation – Police

Shown below is the reconciliation of participants between the prior and current valuation date.

Police	Inactive Participants			Total
	Active Participants	With Deferred Benefits	Receiving Benefits	
Participants in Last Valuation	3,566	179	2,799	6,544
Death	(3)	0	(24)	(27)
Disabled	(9)	(1)	10	0
Retired	(144)	(2)	146	0
Vested Termination	(49)	49	0	0
Nonvested Termination	(37)	0	0	(37)
Return of Contributions/Benefits Ended	(25)	(8)	(11)	(44)
New Actives	244	0	0	244
Rehire from Vested Term	1	(1)	0	0
Rehire from Nonvested Term	0	0	0	0
New Beneficiaries	0	0	29	29
Data Adjustment	0	3	3	6
Participants in This Valuation	3,544	219	2,952	6,715

In addition, there are 66 participants who are non-vested and due a refund of employee contributions.



## Section IV. Participant Information

### Participant Reconciliation – Fire

Shown below is the reconciliation of participants between the prior and current valuation date.

Fire	Inactive Participants			Total
	Active Participants	With Deferred Benefits	Receiving Benefits	
Participants in Last Valuation	1,840	82	900	2,822
Death	(2)	0	(5)	(7)
Disabled	(3)	0	3	0
Retired	(62)	(3)	65	0
Vested Termination	(10)	10	0	0
Nonvested Termination	(19)	0	0	(19)
Return of Contributions/Benefits Ended	(8)	(5)	(4)	(17)
New Actives	97	0	0	97
Rehire from Vested Term	0	0	0	0
Rehire from Nonvested Term	0	0	0	0
New Beneficiaries	0	0	18	18
Data Adjustment	0	0	0	0
Participants in This Valuation	1,833	84	977	2,894

In addition, there are 25 participants who are non-vested and due a refund of employee contributions.



## Section IV. Participant Information

### Schedule of Retiree Member Data – Total Counts

The following table summarizes the total number of Service Retired, Disabled, and Beneficiary members included in the retiree member data. Only the retiree members receiving a benefit from the District are included in this valuation.

	(1) Receiving Only District Benefits	(2) Receiving Only Federal Benefits	(3) Receiving Both District and Federal Benefits	(4) = (1) + (3) Total Receiving District Benefits	(5) = (2) + (3) Total Receiving Federal Benefits	(6) = (1) + (2) + (3) Total Receiving Benefits
Teachers	508	1,705	3,563	4,071	5,268	5,776
Police	481	3,468	2,471	2,952	5,939	6,420
Fire	169	1,085	808	977	1,893	2,062
<b>Total</b>	<b>1,158</b>	<b>6,258</b>	<b>6,842</b>	<b>8,000</b>	<b>13,100</b>	<b>14,258</b>



## Section IV. Participant Information

### Schedule of Retiree Member Data – Teachers – Receiving District Benefits

Shown below is the schedule of retiree member data. The benefits are only those member benefits that are the District's responsibility.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	-	\$ -	6	\$ 36,738	6	\$ 36,738
20 to 24	-	-	-	-	1	6,948	1	6,948
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	2	17,952	2	17,952
40 to 44	-	-	-	-	2	37,080	2	37,080
45 to 49	-	-	2	79,452	4	57,975	6	137,427
50 to 54	3	123,349	6	217,344	2	24,887	11	365,580
55 to 59	59	2,523,703	10	391,464	4	65,533	73	2,980,700
60 to 64	267	9,877,683	22	666,942	19	161,181	308	10,705,806
65 to 69	650	19,562,213	18	430,155	26	237,220	694	20,229,589
70 to 74	1,245	26,624,970	49	890,752	43	266,667	1,337	27,782,389
75 to 79	1,055	16,086,660	9	109,085	40	273,914	1,104	16,469,659
80 to 84	389	5,117,197	1	3,194	18	103,468	408	5,223,859
85 to 89	86	1,029,193	-	-	10	58,031	96	1,087,224
90 to 94	18	249,762	-	-	1	2,232	19	251,995
95 and over	3	30,975	-	-	1	3,934	4	34,909
<b>Total</b>	<b>3,775</b>	<b>\$ 81,225,707</b>	<b>117</b>	<b>\$ 2,788,388</b>	<b>179</b>	<b>\$</b>	<b>4,071</b>	<b>\$ 85,367,855</b>





## Section IV. Participant Information

### Schedule of Retiree Member Data – Teachers – Receiving District and/or Federal Benefits

Shown below is the schedule of all retiree member data. The benefits are the total member benefits and include both those that are the District's responsibility and those that are the responsibility of the U.S. Department of the Treasury.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	-	\$ -	6	\$ 41,808	6	\$ 41,808
20 to 24	-	-	-	-	1	6,948	1	6,948
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	2	17,952	2	17,952
40 to 44	-	-	-	-	2	45,408	2	45,408
45 to 49	-	-	2	79,452	6	81,624	8	161,076
50 to 54	3	145,164	6	217,344	4	53,616	13	416,124
55 to 59	59	3,364,536	13	465,444	6	111,480	78	3,941,460
60 to 64	268	13,910,064	26	863,568	23	388,800	317	15,162,432
65 to 69	655	32,835,756	21	727,416	31	656,748	707	34,219,920
70 to 74	1,290	64,647,216	77	2,464,344	62	1,207,992	1,429	68,319,552
75 to 79	1,215	61,816,080	41	1,340,280	91	1,904,232	1,347	65,060,592
80 to 84	744	37,953,120	26	845,532	66	1,581,708	836	40,380,360
85 to 89	488	24,242,220	25	789,660	67	1,561,140	580	26,593,020
90 to 94	252	11,805,288	11	357,144	37	969,888	300	13,132,320
95 and over	109	5,328,492	14	681,120	27	756,864	150	6,766,476
<b>Total</b>	<b>5,083</b>	<b>\$ 256,047,936</b>	<b>262</b>	<b>\$ 8,831,304</b>	<b>431</b>	<b>\$ 9,386,208</b>	<b>5,776</b>	<b>\$ 274,265,448</b>



## Section IV. Participant Information

### Schedule of Retiree Member Data – Teachers – Receiving Federal Benefits

Shown below is the schedule of retiree member data. The benefits are only those member benefits that are the responsibility of the U.S. Department of the Treasury.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	-	\$ -	1	\$ 5,070	1	\$ 5,070
20 to 24	-	-	-	-	-	-	-	-
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	-	-	-	-
40 to 44	-	-	-	-	1	8,328	1	8,328
45 to 49	-	-	-	-	3	23,649	3	23,649
50 to 54	3	21,815	-	-	3	28,729	6	50,544
55 to 59	57	840,833	3	73,980	6	45,947	66	960,760
60 to 64	224	4,032,381	15	196,626	19	227,619	258	4,456,626
65 to 69	536	13,273,543	16	297,261	27	419,528	579	13,990,331
70 to 74	1,126	38,022,246	72	1,573,592	50	941,325	1,248	40,537,163
75 to 79	1,148	45,729,420	41	1,231,195	83	1,630,318	1,272	48,590,933
80 to 84	724	32,835,923	26	842,338	62	1,478,240	812	35,156,501
85 to 89	481	23,213,027	25	789,660	66	1,503,109	572	25,505,796
90 to 94	252	11,555,526	11	357,144	37	967,656	300	12,880,325
95 and over	109	5,297,517	14	681,120	27	752,930	150	6,731,567
<b>Total</b>	<b>4,660</b>	<b>\$ 174,822,229</b>	<b>223</b>	<b>\$ 6,042,916</b>	<b>385</b>	<b>\$ 8,032,448</b>	<b>5,268</b>	<b>\$ 188,897,593</b>



## Section IV. Participant Information

### Schedule of Retiree Member Data – Police – Receiving District Benefits

Shown below is the schedule of retiree member data. The benefits are only those member benefits that are the District's responsibility.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	2	\$ 24,524	31	\$ 251,459	33	\$ 275,982
20 to 24	-	-	3	41,817	6	103,754	9	145,571
25 to 29	-	-	4	128,424	-	-	4	128,424
30 to 34	-	-	2	81,084	-	-	2	81,084
35 to 39	-	-	9	346,728	3	63,565	12	410,293
40 to 44	-	-	15	527,101	1	30,876	16	557,977
45 to 49	1	40,620	38	1,457,412	17	328,642	56	1,826,674
50 to 54	478	28,240,050	99	3,822,694	39	812,174	616	32,874,918
55 to 59	689	34,079,611	83	2,183,735	54	1,020,276	826	37,283,622
60 to 64	452	18,463,357	54	1,395,166	67	1,053,452	573	20,911,975
65 to 69	361	8,188,939	37	563,315	71	1,220,959	469	9,973,213
70 to 74	188	2,293,740	9	127,216	57	885,647	254	3,306,602
75 to 79	42	361,963	4	28,330	25	357,635	71	747,928
80 to 84	3	33,303	-	-	4	79,925	7	113,228
85 to 89	-	-	-	-	4	93,468	4	93,468
90 to 94	-	-	-	-	-	-	-	-
95 and over	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,214</b>	<b>\$ 91,701,583</b>	<b>359</b>	<b>\$ 10,727,546</b>	<b>379</b>	<b>\$ 6,301,831</b>	<b>2,952</b>	<b>\$ 108,730,960</b>



## Section IV. Participant Information

### Schedule of Retiree Member Data – Police – Receiving District and/or Federal Benefits

Shown below is the schedule of all retiree member data. The benefits are the total member benefits and include both those that are the District's responsibility and those that are the responsibility of the U.S. Department of the Treasury.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	4	\$ 74,544	31	\$ 284,664	35	\$ 359,208
20 to 24	-	-	3	57,012	7	192,324	10	249,336
25 to 29	-	-	5	179,052	-	-	5	179,052
30 to 34	-	-	2	81,084	-	-	2	81,084
35 to 39	-	-	9	346,728	3	65,220	12	411,948
40 to 44	-	-	16	573,432	1	30,876	17	604,308
45 to 49	1	40,620	39	1,525,932	17	410,544	57	1,977,096
50 to 54	478	37,503,696	105	4,035,420	47	1,335,684	630	42,874,800
55 to 59	689	50,796,060	100	3,709,416	68	1,852,680	857	56,358,156
60 to 64	456	34,613,376	104	4,038,060	102	3,065,416	662	41,716,852
65 to 69	570	37,926,020	162	7,117,776	166	5,345,337	898	50,389,133
70 to 74	911	54,338,016	201	8,720,424	242	7,746,343	1,354	70,804,783
75 to 79	514	31,172,532	195	8,586,108	187	6,268,896	896	46,027,536
80 to 84	277	16,855,464	146	6,528,480	151	5,369,460	574	28,753,404
85 to 89	89	5,829,360	99	4,344,972	64	2,409,324	252	12,583,656
90 to 94	15	1,442,976	80	3,574,704	25	930,240	120	5,947,920
95 and	4	413,412	29	1,177,092	6	229,476	39	1,819,980
<b>Total</b>	<b>4,004</b>	<b>\$ 270,931,532</b>	<b>1,299</b>	<b>\$ 54,670,236</b>	<b>1,117</b>	<b>\$ 35,536,484</b>	<b>6,420</b>	<b>\$ 361,138,252</b>



## Section IV. Participant Information

### Schedule of Retiree Member Data – Police – Receiving Federal Benefits

Shown below is the schedule of retiree member data. The benefits are only those member benefits that are the responsibility of the U.S. Department of the Treasury.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	3	\$ 50,020	14	\$ 33,205	17	\$ 83,226
20 to 24	-	-	2	15,195	5	88,570	7	103,765
25 to 29	-	-	1	50,628	-	-	1	50,628
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	1	1,655	1	1,655
40 to 44	-	-	2	46,331	-	-	2	46,331
45 to 49	-	-	3	68,520	6	81,902	9	150,422
50 to 54	465	9,263,646	10	212,726	26	523,510	501	9,999,882
55 to 59	669	16,716,449	87	1,525,681	27	832,404	783	19,074,534
60 to 64	444	16,150,019	100	2,642,894	65	2,011,964	609	20,804,877
65 to 69	560	29,737,081	160	6,554,461	122	4,124,378	842	40,415,920
70 to 74	909	52,044,276	199	8,593,208	201	6,860,696	1,309	67,498,181
75 to 79	513	30,810,569	195	8,557,778	172	5,911,261	880	45,279,608
80 to 84	277	16,822,161	146	6,528,480	148	5,289,535	571	28,640,176
85 to 89	89	5,829,360	99	4,344,972	60	2,315,856	248	12,490,188
90 to 94	15	1,442,976	80	3,574,704	25	930,240	120	5,947,920
95 and over	4	413,412	29	1,177,092	6	229,476	39	1,819,980
<b>Total</b>	<b>3,945</b>	<b>\$ 179,229,949</b>	<b>1,116</b>	<b>\$ 43,942,690</b>	<b>878</b>	<b>\$ 29,234,653</b>	<b>5,939</b>	<b>\$ 252,407,292</b>



## Section IV. Participant Information

### Schedule of Retiree Member Data – Fire – Receiving District Benefits

Shown below is the schedule of retiree member data. The benefits are only those member benefits that are the District's responsibility.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	1	\$ 44,756	17	\$ 285,133	18	\$ 329,888
20 to 24	-	-	1	4,175	2	39,562	3	43,737
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	2	50,640	2	65,109	4	115,749
35 to 39	-	-	7	255,684	2	4,855	9	260,539
40 to 44	-	-	8	349,692	1	36,060	9	385,752
45 to 49	-	-	9	434,580	6	118,551	15	553,131
50 to 54	79	4,985,243	22	812,360	11	269,809	112	6,067,412
55 to 59	161	8,593,090	15	476,042	23	580,242	199	9,649,374
60 to 64	236	11,215,091	13	296,204	18	506,261	267	12,017,557
65 to 69	162	5,389,633	23	353,791	19	481,905	204	6,225,329
70 to 74	74	1,260,653	9	108,683	18	340,763	101	1,710,099
75 to 79	20	196,454	2	1,291	6	164,212	28	361,957
80 to 84	1	17,432	-	-	5	91,948	6	109,380
85 to 89	-	-	-	-	2	31,380	2	31,380
90 to 94	-	-	-	-	-	-	-	-
95 and over	-	-	-	-	-	-	-	-
<b>Total</b>	<b>733</b>	<b>\$ 31,657,597</b>	<b>112</b>	<b>\$ 3,187,898</b>	<b>132</b>	<b>\$ 3,015,788</b>	<b>977</b>	<b>\$ 37,861,283</b>



## Section IV. Participant Information

### Schedule of Retiree Member Data – Fire – Receiving District and/or Federal Benefits

Shown below is the schedule of all retiree member data. The benefits are the total member benefits and include both those that are the District’s responsibility and those that are the responsibility of the U.S. Department of the Treasury.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	1	\$ 60,420	17	\$ 346,272	18	\$ 406,692
20 to 24	-	-	1	4,188	2	64,812	3	69,000
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	2	50,640	2	87,552	4	138,192
35 to 39	-	-	7	255,684	2	8,676	9	264,360
40 to 44	-	-	8	349,692	2	66,324	10	416,016
45 to 49	-	-	9	434,580	6	134,520	15	569,100
50 to 54	79	6,532,932	23	858,396	12	342,528	114	7,733,856
55 to 59	161	12,830,676	18	725,580	25	752,424	204	14,308,680
60 to 64	236	20,208,972	24	902,808	23	781,524	283	21,893,304
65 to 69	179	14,541,660	55	2,722,848	37	1,255,248	271	18,519,756
70 to 74	156	12,164,640	59	2,882,568	63	2,171,190	278	17,218,398
75 to 79	196	13,731,084	78	3,791,856	66	2,202,136	340	19,725,076
80 to 84	130	9,464,148	81	4,149,900	66	2,184,700	277	15,798,748
85 to 89	58	4,142,124	48	2,201,064	25	937,644	131	7,280,832
90 to 94	19	1,488,384	38	1,807,500	18	760,764	75	4,056,648
95 and over	3	219,972	12	575,316	15	601,416	30	1,396,704
<b>Total</b>	<b>1,217</b>	<b>\$ 95,324,592</b>		<b>\$ 21,773,040</b>		<b>\$ 12,697,730</b>	<b>2,062</b>	<b>\$ 129,795,362</b>



## Section IV. Participant Information

### Schedule of Retiree Member Data – Fire – Receiving Federal Benefits

Shown below is the schedule of retiree member data. The benefits are only those member benefits that are the responsibility of the U.S. Department of the Treasury.

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20	-	\$ -	1	\$ 15,664	4	\$ 61,139	5	\$ 76,804
20 to 24	-	-	1	13	1	25,250	2	25,263
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	1	22,443	1	22,443
35 to 39	-	-	-	-	2	3,821	2	3,821
40 to 44	-	-	-	-	1	30,264	1	30,264
45 to 49	-	-	-	-	2	15,969	2	15,969
50 to 54	79	1,547,689	2	46,036	4	72,719	85	1,666,444
55 to 59	158	4,237,586	16	249,538	9	172,182	183	4,659,306
60 to 64	226	8,993,881	23	606,604	10	275,263	259	9,875,747
65 to 69	169	9,152,027	54	2,369,057	24	773,343	247	12,294,427
70 to 74	156	10,903,987	58	2,773,885	52	1,830,427	266	15,508,299
75 to 79	196	13,534,630	78	3,790,565	60	2,037,924	334	19,363,119
80 to 84	130	9,446,716	81	4,149,900	61	2,092,752	272	15,689,368
85 to 89	58	4,142,124	48	2,201,064	23	906,264	129	7,249,452
90 to 94	19	1,488,384	38	1,807,500	18	760,764	75	4,056,648
95 and over	3	219,972	12	575,316	15	601,416	30	1,396,704
<b>Total</b>	<b>1,194</b>	<b>\$ 63,666,995</b>	<b>412</b>	<b>\$ 18,585,142</b>	<b>287</b>	<b>\$ 9,681,941</b>	<b>1,893</b>	<b>\$ 91,934,078</b>





## Section IV. Participant Information

### Schedule of Retiree Member Data – Added and Removed from Rolls – Receiving District Benefit

Shown below is the schedule of District retiree members added and removed.

District Benefit (\$ in Thousands)											
Fiscal Year Ended	Plan	Added		Removed			Rolls at End of Year			Percentage Increase in Annual Allowances	Average Annual Allowances
		Number	Annual Allowances	Number	Annual Allowances	Increase due to Plan Amendments	Number	Annual Allowances			
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	
September 30, 2017	Teachers	96	\$ 2,599	79	\$ 1,211	\$ 1,023	3,899	\$ 71,201	3.5%	\$ 18	
	Police	189	8,485	35	537	928	2,419	72,463	14.0%	30	
	Fire	63	2,802	5	141	411	796	25,223	13.9%	32	
September 30, 2018	Teachers	160	\$ 4,892	69	\$ 977	\$ 1,419	3,990	\$ 76,535	7.5%	\$ 19	
	Police	208	10,269	34	683	1,427	2,593	83,476	15.2%	32	
	Fire	63	2,910	11	226	441	848	28,348	12.4%	33	
September 30, 2019	Teachers	141	\$ 4,693	72	\$ 1,278	\$ 1,890	4,059	\$ 81,840	6.9%	\$ 20	
	Police	233	12,244	27	569	1,492	2,799	96,643	15.8%	35	
	Fire	68	3,673	16	252	501	900	32,270	13.8%	36	
September 30, 2020	Teachers	98	\$ 3,471	86	\$ 1,767	\$ 1,824	4,071	\$ 85,368	4.3%	\$ 21	
	Police	188	10,010	35	757	2,835	2,952	108,731	12.5%	37	
	Fire	86	5,258	9	551	884	977	37,861	17.3%	39	



## Section IV. Participant Information

### Schedule of Retiree Member Data – Added and Removed from Rolls – Receiving Federal and/or District Benefit

Shown below is the schedule of Federal and/or District retiree members added and removed.

Federal Plus District Benefit (\$ in Thousands)											
Fiscal Year Ended	Plan	Added		Removed			Rolls at End of Year			Percentage Increase in Annual Allowances	Average Annual Allowances
		Number	Annual Allowances	Number	Annual Allowances	Increase due to Plan Amendments	Number	Annual Allowances			
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	
September 30, 2017	Teachers	107	\$ 3,937	229	\$ 8,829	\$ 5,495	6,061	\$ 270,807	0.2%	\$ 45	
	Police	261	14,438	214	9,061	5,772	6,157	316,418	3.7%	51	
	Fire	84	4,919	58	2,727	2,233	2,034	116,660	3.9%	57	
September 30, 2018	Teachers	226	\$ 8,601	281	\$ 9,897	\$ 4,195	6,006	\$ 273,706	1.1%	\$ 46	
	Police	300	17,322	228	9,611	5,322	6,229	329,451	4.1%	53	
	Fire	81	4,649	78	3,786	2,310	2,037	119,833	2.7%	59	
September 30, 2019	Teachers	165	\$ 6,648	248	\$ 10,146	\$ 5,088	5,923	\$ 275,295	0.6%	\$ 46	
	Police	314	18,580	184	8,464	7,848	6,359	347,414	5.5%	55	
	Fire	98	5,985	90	4,425	3,306	2,045	124,700	4.1%	61	
September 30, 2020	Teachers	124	\$ 4,710	271	\$ 11,621	\$ 5,880	5,776	\$ 274,265	-0.4%	\$ 47	
	Police	272	15,538	211	9,937	8,123	6,420	361,138	4.0%	56	
	Fire	119	7,848	102	4,935	2,182	2,062	129,795	4.1%	63	



## Section V. Summary of Plan Provisions

### Teachers' Retirement Plan

#### Effective Date

Established on September 18, 1998, the Plan applies to benefit payments based on service accrued after June 30, 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

##### Covered Members

Teachers and other educational employees in a salary class position ET 1-15 under the District of Columbia Public Schools (DCPS) system become members automatically on their date of employment. Covered members who leave the DCPS system to work for a D.C. public charter school may elect to remain in the Plan. Such members who are on a leave of absence to teach in a D.C. public charter school must remain in the Plan. Substitute teachers and rehired retirees are not covered.

##### Service Credit

One year of teaching service is given for each year of employment with DCPS. Service credit may also include purchased prior civilian government service and outside teaching service. For purposes of retirement eligibility and benefit accrual, creditable Federal and District service is aggregated in determining total creditable service.

##### Average Salary

Highest 36 consecutive months of pay, divided by three.

##### Vested

Members who accrue five or more years of creditable DCPS teaching service are vested for benefits. If a vested member leaves service, they may leave their Member Contributions with the Plan for a future deferred vested benefit when reaching eligibility for retirement (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 prior to retirement, vested members may leave their contributions in the Plan or request a refund. Nonvested members must take a refund. No interest is accrued on contributions.

## Section V. Summary of Plan Provisions

### 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 DCPS service
60	20, including 5 years DCPS service
62	5 years DCPS service

Members hired on and after November 1, 1996

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

#### Benefit

For members hired before November 1, 1996:

- 1.5% of Average Salary times service through 5 years, plus
- 1.75% of Average Salary times service from 6 through 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 DCPS service
50	20, including 5 years DCPS service

#### Benefit

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

## Section V. Summary of Plan Provisions

### Disability Retirement

#### Eligibility

Active members with five or more years of DCPS 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 as determined by DCPS.

#### 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/domestic partner, child or parent.

##### Benefit

Refund of member contributions.

#### Spouse/Domestic Partner Only

##### Eligibility

Death before retirement and married/registered domestic partnership for at least two years, or have a child by the marriage or registered domestic partnership.

##### 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/Domestic Partner & Dependent Children

##### Eligibility

Death before retirement and married/registered domestic partnership for at least two years, or have a child by the marriage or registered domestic partnership. Children must be unmarried and not in a domestic partnership and under age 18, 22 if full-time student, or any dependent child incapable of self-support due to a disability incurred before age 18. Death does not have to occur before retirement for the children's benefit.

##### Spouse/Domestic Partner Benefit

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

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

## Section V. Summary of Plan Provisions

### Survivor Benefits

#### Spouse/Domestic Partner & Dependent Children (continued)

##### 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. \$7,210<sup>1</sup> (if hired before 1/1/1980), \$6,963<sup>1</sup> (if hired between 1/1/1980 and 10/31/1996), or \$6,781<sup>1</sup> (if hired on or after 11/1/1996) per child
- c. \$21,805<sup>1</sup> (if hired before 1/1/1980), \$21,057<sup>1</sup> (if hired between 1/1/1980 and 10/31/1996), or \$20,507<sup>1</sup> (if hired on or after 11/1/1996) divided by the number of children.

#### Dependent Children Only

##### Eligibility

Children must be unmarried and not in a domestic partnership and under age 18, 22 if full-time student, or any dependent child incapable of self-support due to 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):

- a. 60% of Average Salary divided by the number of eligible children
- b. \$7,376<sup>1</sup> (if hired before 1/1/1980), \$7,123<sup>1</sup> (if hired between 1/1/1980 and 10/31/1996), or \$6,937<sup>1</sup> (if hired on or after 11/1/1996) per child
- c. \$22,307<sup>1</sup> (if hired before 1/1/1980), \$21,541<sup>1</sup> (if hired between 1/1/1980 and 10/31/1996), or \$20,979<sup>1</sup> (if hired on or after 11/1/1996) divided by the number of children.

#### Parents Only

##### Eligibility

Death before retirement and no eligible spouse/domestic partner or children, and parents must have received at least one-half of their total income from the member immediately before the member's death.

##### 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.

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<sup>1</sup> Survivor benefit amounts are as of March 1, 2020 and are subject to annual inflation adjustments.



## Section V. Summary of Plan Provisions

### Deferred Vested Retirement

#### Eligibility

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

#### Benefit

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

### Retirement Options

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

- a. **Reduced Annuity with a Maximum Survivor Annuity (to Spouse/Domestic Partner):**  
Reduced benefit paid to the member so that upon the member's death, the spouse/domestic partner 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/Domestic Partner)**  
Reduced benefit paid to the member so that upon the member's death, the spouse/domestic partner 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) above, 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 a designated beneficiary upon the 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 reduced 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.



## Section V. Summary of Plan Provisions

### Cost-of-Living Adjustments (COLA)

Each year on March 1, benefits which have been paid for at least twelve months preceding March 1 may be increased. The increase is equal to the annual Consumer Price Index (CPI-W Washington/Baltimore area). COLA's are included in benefit payments on and after April 1. If a member's retirement is effective after March 1 of the preceding year, the COLA amount is prorated.

For members hired on or after November 1, 1996, the cost-of-living increase is limited to no more than 3% per year.

### Changes since Prior Valuation

The child death benefit amounts were increased with inflation effective March 1, 2020.





## Section V. Summary of Plan Provisions

### Police Officers and Firefighters' Retirement Plan

#### Effective Date

Established on September 18, 1998, the Plan applies to benefit payments based on service accrued after June 30, 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. EMTs must be cross-trained in fire suppression, go through the fire academy, and considered sworn Firefighters.

##### Service Credit

One year of service is given for each year of employment with MPD or FEMS. Service Credit may also include approved purchased lateral transferred service, prior civilian government service and prior military service. For purposes of retirement eligibility and benefit accrual, creditable Federal and District service is aggregated in determining total creditable service.

##### 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. Longevity pay is included in Firefighters' base pay and in Police Officers' base pay once the member has completed 25 years of service.

##### 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 for retirement (deferred vested in this report).

## Section V. Summary of Plan Provisions

### 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 vested member leaves service prior to retirement, member contributions may be left in the Plan or refunded upon request. Nonvested members must take a refund. No interest is accrued on contributions.

### 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.

## Section V. Summary of Plan Provisions

### 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/domestic partner 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



## Section V. Summary of Plan Provisions

### Survivor Benefits

#### 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/domestic partnership.

##### 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 Firemen'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/Domestic Partner & Dependent Children

##### Eligibility

Member death, not in line of duty, after December 29, 1993. If retired, must be married/in a domestic partnership for at least one year or have a child by the marriage/domestic partnership. Children must be unmarried, not in a domestic partnership and under age 18, 22 if full-time student, or any dependent child incapable of self-support due to having 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 Firemen'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).



## Section V. Summary of Plan Provisions

### Survivor Benefits

#### Spouse/Domestic Partner & Dependent Children (continued)

##### 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. \$4,340<sup>2</sup> (if hired before 11/10/1996) or \$4,245<sup>2</sup> (if hired on or after 11/10/1996) per child
- c. \$13,019<sup>2</sup> (if hired before 11/10/1996) or \$12,736<sup>2</sup> (if hired on or after 11/10/1996) divided by the number of children.

#### Dependent Children Only

##### Eligibility

Children must be unmarried and not in a domestic partnership and under age 18, 22 if full-time student, or any dependent child incapable of self-support due to 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.

### 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.

### Retirement 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/Domestic Partnership and Dependent Children" sections.

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%.

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<sup>2</sup> Survivor benefit amounts are as of March 1, 2020 and are subject to annual inflation adjustments.



## Section V. Summary of Plan Provisions

### Cost-of-Living Adjustments (COLA)

Each year on March 1, benefits which have been paid for at least twelve months preceding March 1 may be increased. The increase is equal to the annual Consumer Price Index (CPI-W Washington/Baltimore area). COLA's are included in benefit payments on and after April 1. If member's retirement is effective after March 1 of the preceding year, the COLA amount is prorated.

For members hired on or after November 10, 1996, the cost-of-living increase is limited to no more than 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 survivors.

### Changes since Prior Valuation

The child death benefit amounts were increased with inflation effective March 1, 2020.



## Section VI. Actuarial Methods and Assumptions

### Valuation Date

All assets and liabilities are computed as of October 1, 2020. Demographic information was collected as of June 30, 2020. For valuation purposes (e.g., age, service), all members are treated as if remaining in the Plans as of October 1, 2020.

### 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

The valuation is completed on the basis of the entry age normal cost method calculated on an individual basis with level percentage of pay normal cost.

### Amortization of Unfunded Actuarial Accrued Liability

The unfunded actuarial accrued liability (UAAL) is amortized on a level dollar basis based on the following funding policy adopted by the Board in 2012 and amended in 2017:

- Amortize the legacy UAAL as of October 1, 2017 over a closed 15-year period.
- Amortize the assumption and method changes and experience gains for the October 1, 2017 valuation over a closed 20-year period from the valuation date.
- Amortize all subsequent benefit changes, assumption and method changes and experience gains or losses over a closed 20-year period from the date established.

### 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 five-year period. The actuarial value of assets is constrained to an 80% to 120% corridor around market value of assets.

### Withdrawal Assumption

For Teachers and Firefighters, it was assumed that 15% of the vested members who terminate elect to withdraw their contributions while the remaining 85% elect to leave their contributions in the Plan in order to be eligible for a benefit at their deferred retirement date. For Police Officers, it was assumed that 25% of the vested members who terminate elect to withdraw their contributions while the remaining 75% elect to leave their contributions in the Plan.



## Section VI. Actuarial Methods and Assumptions

### Other Assumptions

To value the post-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 Officer 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 CPI, will increase at the rate of 3.5% per year for members hired before November 1, 1996, and 3.0% per year for members hired on or after November 1, 1996.

### Credited Service and Date of Entry

Service is credited as elapsed time from date of hire. The entry date for participation is date of service.

### Military Service

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

### Administrative Expenses

For Teachers, budgeted administrative expenses of 1.20% of payroll are added to the normal cost rate. For Police Officers and Firefighters, budgeted administrative expenses of 2.10% of payroll are added to the normal cost rate.

### Mortality

The RPH-2014 Blue Collar Mortality Table projected generationally with Scale BB, set back 1 year for males is used for healthy active members, retirees, and beneficiaries. The RPH-2014 Disabled Mortality Table set back 6 years for males and set forward 7 years for females is used for disabled retirees. Mortality improvement is anticipated under these assumptions.

### Liability for Terminated Non-Vested Participants

The Inactive with Deferred Benefits liability includes a liability for terminated non-vested participants who are due a refund of their contributions. The liability is equal to the refund amount as of the valuation date.



## Section VI. Actuarial Methods and Assumptions

### 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	4.20%	4.25%	8.63%
10	3.20	4.25	7.59
15	1.20	4.25	5.50
20	1.20	4.25	5.50
25	1.20	4.25	5.50
30	1.20	4.25	5.50
35	1.20	4.25	5.50

#### Separations from Active Service

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

Sample	Percent of Members Separating Within the Next Year				Disability
	Withdrawal 5 years of service and up <sup>3</sup>		Service Retirement		
	Male	Female	Under 30 yrs	30 & up yrs	
25	18.00%	18.00%			0.01%
30	16.00	16.00			0.02
35	12.00	10.00			0.03
40	12.00	8.00			0.07
45	8.00	6.50			0.12
50	8.00	6.50	5.00%	5.00%	0.20
55	8.00	6.50	9.00	22.00	0.25
60			27.00	28.00	0.30
62			22.00	25.00	0.30
65			25.00	35.00	
70			30.00	30.00	
71			25.00	30.00	
75			100.00	100.00	

<sup>3</sup> Members of any age with less than 5 years of service have withdrawal rates of 18% to 26% for males, and 16% to 23% for females

## Section VI. Actuarial Methods and Assumptions

### Police Officers

#### Salary Increases

Police Officers are assumed to receive longevity increases applied to individual base pay after 25, and 30 years of service. 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	2.00%	4.25%	6.34%
10	2.00	4.25	6.34
15	2.00	4.25	6.34
20	1.75	4.25	6.07
25	0.75	4.25	5.03
30	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				Years of Service	Service Retirement <sup>6</sup>
	(5 years of service & up) <sup>4</sup>		Disability Retirement <sup>5</sup>			
	Males	Females	Males	Females		
20	5.00%	5.00%	0.03%	0.02%		
25	5.00	5.00	0.06	0.05		
30	4.25	4.50	0.11	0.10		
35	2.75	3.50	0.16	0.15		
40	1.50	1.50	0.23	0.30	20	15.0%
45	1.50	1.50	0.32	0.40	25	22.0
50	1.50	1.50	0.42	0.60	30	38.0
55	1.50	1.50	0.44	0.70	35	18.0
60	1.50	1.50	0.51	1.00	40	16.0

<sup>4</sup> Members of any age with less than 5 years of service have withdrawal rates of 6% to 13% for males, and 5% to 11% for females

<sup>5</sup> 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%

<sup>6</sup> 100% of active members are assumed to retire at age 65, regardless of service.

## Section VI. Actuarial Methods and Assumptions

### Firefighters

#### Salary Increases

Firefighters are assumed to receive longevity increases applied to individual base pay after 15, 20, 25, and 30 years of service. 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	3.00%	4.25%	7.38%
10	3.00	4.25	7.38
15	3.00	4.25	7.38
20	1.25	4.25	5.55
25	1.25	4.25	5.55
30	1.25	4.25	5.55
35	1.25	4.25	5.55

#### 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		Years of Service	Service Retirement <sup>9</sup>
	(5 years of service & up) <sup>7</sup>	Disability Retirement <sup>8</sup>		
20	3.00%	0.01%		
25	3.00	0.05		
30	2.60	0.18		
35	1.80	0.25		
40	1.40	0.30	20	12.50%
45	1.20	0.35	25	12.50
50	1.20	0.40	30	22.00
55	0.80	0.45	35	40.00
60	0.60	0.50	40	40.00

<sup>7</sup> Members of any age with less than 5 years of service have withdrawal rates of 4.0% to 7.5%.

<sup>8</sup> 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%.

<sup>9</sup> 100% of active members are assumed to retire at age 60, regardless of service.



## Section VI. Actuarial Methods and Assumptions

### Rationale for Assumptions

The economic and demographic assumptions are the same as those used by the prior actuary and were adopted by the Board on June 22, 2017. Bolton reviewed the assumptions and have concluded that they are generally valid and reasonable. At the direction of the Board, an experience study will be conducted in the future and changes may be made as a result of the study.

### Changes Since Prior Valuation

None.

## Section VII. Glossary

### Actuarial Accrued Liability (AAL)

The difference between the Actuarial Present Value of Future Benefits and the Actuarial Present Value of Future Normal Costs or the portion of the present value of future benefits allocated to service before the valuation date in accordance with the actuarial cost method. Represents the present value of benefits expected to be paid from the plan in the future allocated to service prior to the date of the measurement.

### Actuarial Asset Valuation Method

The method of determining the value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined contribution (ADC).

### Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of Future Benefits and the actuarial Present Value of Future Normal costs and the Actuarial Accrued Liability. Also known as the “funding method”. Examples of actuarial cost methods include Aggregate, Entry Age Normal, Projected Unit Credit, and Pay-as-you-go.

### Actuarial Present Value of Future Benefits (APVFB)

The Actuarial Present Value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested, plus investment earnings, would provide sufficient assets to pay all projected benefits and expenses when due.

### Aggregate Cost Method

An actuarial cost method that spreads the cost of all future benefits in excess of plan assets as a level percentage of future salary or service. The actuarial accrued liability is set to the value of assets in this method.

### Annual Determined Contributions of the Employer(s) (ADC)

The employer’s periodic determined contributions to a pension plan, calculated in accordance with the assumptions and methods used by the plan actuary. The ADC replaced the actuarially required contribution (ARC), with the replacement of GASB 27 with GASB 68.

### Cost-of-Living Adjustment (COLA)

An annual increase in the amount of a retired member’s or survivor’s benefit intended to adjust the benefit for inflation.

### Covered Group

Plan members included in the actuarial valuation.

## Section VII. Glossary

### Deferred Retirement Option Program (DROP)

A program allowing participants eligible to retire to continue working for a fixed period of time, while accumulating the benefit payments they would have received if they had retired on their entry to DROP.

### Demographic Assumption

Assumptions regarding the future population of pension participants, including retirement, termination, disability and mortality assumptions.

### Economic Assumption

Assumptions regarding future economic factors, including COLA, salary improvement, change in average wages, changes in Social Security benefits and investment returns.

### Employer's Contributions

Contributions made in relation to the actuarially determined contributions of the employer (ADC). An employer has made a contribution in relation to the ADC if the employer has (a) made payments of benefits directly to or on behalf of a retiree or beneficiary, (b) made premium payments to an insurer, or (c) irrevocably transferred assets to a trust, or an equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employer(s) or plan administrator.

### Entry Age Normal (EAN) Cost Method

An actuarial cost method that spreads the cost for each individual's expected benefits over their career, either as a level percentage of pay or service. The actuarial accrued liability is the accumulated value of all past normal cost, and the unfunded accrued liability (surplus) is the excess of the AAL over the value of assets.

### Expenses

Plan expenses paid by the plan are divided into administrative and investment related expenses.

### Funded Ratio

The actuarial value of assets expressed as a percentage of the plan's actuarial accrued liability.

### GASB

Government Accounting Standards Board.

## Section VII. Glossary

### GASB No. 67 and GASB No. 68

These are the government standards that replace GASB 25 and 27. They are effective for plan years beginning after June 14, 2013 and employer fiscal years beginning after June 14, 2014.

### Investment Return Assumption or Investment Rate of Return (Discount Rate)

The rate used to adjust a series of future payments to reflect the time value of money.

### Level Percentage of Projected Payroll Amortization Method

Amortization payments are calculated so that they are a constant percentage of the projected payroll of active plan members over a given number of years. The dollar amount of the payments generally will increase over time as payroll increases due to inflation; in dollars adjusted for inflation, the payments can be expected to remain level.

### Normal Cost or Normal Actuarial Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

### Pay-As-You-Go (PAYG)

A method of financing a benefits plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.

### Payroll Growth Rate

An actuarial assumption with respect to future increases in total covered payroll attributable to inflation; used in applying the level percentage of projected payroll amortization method.

### Plan Liabilities

Obligations payable by the plan at the reporting date, including primarily, benefits and refunds due and payable to plan members and beneficiaries, and accrued investment and administrative expenses. Plan liabilities do not include actuarial accrued liabilities for benefits that are not due and payable at the reporting date.

### Plan Members

The individuals covered by the terms of a Pension or Other Post-Employment Benefits (OPEB) plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.

### Post-Employment

The period between termination of employment and retirement, as well as the period after retirement.

## Section VII. Glossary

### Projected Unit Credit (PUC) Funding Method

An actuarial cost method that spreads the employee's benefit over their career as a level percentage of service. The normal cost is the present value of the portion of the benefit assigned to the current year. The actuarial accrued liability is the accumulated value of all past normal cost, and the unfunded accrued liability (surplus) is the excess of the AAL over the value of assets.

### Salary Improvement

An actuarial assumption regarding the increase in employees' salaries, reflecting cost-of-living, merit and longevity increases.

### Select and Ultimate Rates

Actuarial assumptions that contemplate different rates for successive years. Instead of a single assumed rate with respect to, for example, the investment return assumption, the actuary may apply different rates for the early years of a projection and a single rate for all subsequent years. For example, if an actuary applies an assumed investment return of 8 percent for year 2020, 7.5 percent for 2021, and 7 percent for 2022 and thereafter, then 8 percent and 7.5 percent are select rates, and 7 percent is the ultimate rate.

### Unfunded Actuarial Accrued Liabilities

The excess of the present value of prospective pension benefits, as of the date of a pension plan valuation, over the sum of (1) the actuarial value of the assets of the plan and (2) the present value of future normal costs determined by any of several actuarial cost methods. For plans that define an accrued liability, this amount equals the excess of the accrued liability over plan assets.

### Vested Plan Benefits

All benefits to which current participants have a vested right based on pay and service through the valuation date. A participant has a vested right to a benefit if he/she would still be eligible to receive that benefit if employment terminated on the valuation date.





# Appendix 1

## Summary of Funding Progress

	(1)	(2)	(3)	(4)	(5)	(6)
Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Percentage Funded (1) / (2)	Unfunded Actuarial Accrued Liability (2) - (1)	Annual Covered Payroll	Unfunded Actuarial Accrued Liability as a Percentage of Covered Payroll (4) / (5)
<b>Teachers' Retirement Plan</b>						
10/1/2016	\$ 1,845,476	\$ 2,029,640	90.9%	\$ 184,164	\$ 438,079	42.0%
10/1/2017	1,982,019	2,142,491	92.5%	160,472	447,762	35.8%
10/1/2018	2,139,911	2,301,314	93.0%	161,403	470,749	34.3%
10/1/2019	2,271,160	2,494,291	91.1%	223,131	516,609	43.2%
10/1/2020	2,431,075	2,640,803	92.1%	209,728	551,835	38.0%
<b>Police Officers and Firefighters' Retirement Plan</b>						
10/1/2016	\$ 4,985,051	\$ 4,498,513	110.8%	\$ (486,538)	\$ 438,114	(111.1%)
10/1/2017	5,406,366	4,878,260	110.8%	(528,106)	441,905	(119.5%)
10/1/2018	5,848,576	5,223,760	112.0%	(624,816)	454,209	(137.6%)
10/1/2019	6,269,628	5,604,573	111.9%	(665,055)	495,809	(134.1%)
10/1/2020	6,676,013	6,023,843	110.8%	(652,169)	507,348	(128.5%)
<b>Total</b>						
10/1/2016	\$ 6,830,527	\$ 6,528,153	104.6%	\$ (302,374)	\$ 876,193	(34.5%)
10/1/2017	7,388,385	7,020,751	105.2%	(367,634)	889,667	(41.3%)
10/1/2018	7,988,487	7,525,074	106.2%	(463,413)	924,958	(50.1%)
10/1/2019	8,540,788	8,098,864	105.5%	(441,924)	1,012,418	(43.7%)
10/1/2020	9,107,088	8,664,646	105.1%	(442,442)	1,059,182	(41.8%)

(\$ in Thousands)

Analysis of the dollar amounts of net assets available for benefits, actuarial accrued liability, and unfunded actuarial accrued liability in isolation can be misleading. Expressing the net assets available for benefits as a percentage of the actuarial accrued liability provides one indication of funding status on a going-concern basis. Analysis of this percentage over time indicates whether the plan is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. Trends in unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial accrued liability as a percentage of annual covered payroll approximately adjusts for the effects of inflation and aids analysis of the District's progress made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.



## Appendix 2

### Valuation Solvency Test

The following table shows the accrued liabilities and the portion of accrued liabilities covered by reported assets.

Valuation Date	Aggregate Accrued Liabilities For			Portion of Accrued Liabilities Covered by Reported Asset			
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)	Reported Assets	(1)	(2)	(3)
<b>TEACHERS' RETIREMENT PLAN</b>							
10/1/2016	\$ 152,459	\$ 1,108,032	\$ 769,149	\$ 1,822,113	100.0%	100.0%	73.0%
10/1/2017	156,263	1,154,696	831,532	2,051,006	100.0%	100.0%	89.0%
10/1/2018	165,629	1,234,796	900,889	2,193,598	100.0%	100.0%	88.0%
10/1/2019	228,893	1,263,613	1,001,785	2,264,428	100.0%	100.0%	77.1%
10/1/2020	302,072	1,304,905	1,033,826	2,411,390	100.0%	100.0%	77.8%
<b>POLICE OFFICERS AND FIREFIGHTERS' RETIREMENT PLAN</b>							
10/1/2016	\$ 260,786	\$ 1,650,195	\$ 2,587,532	\$ 4,954,464	100.0%	100.0%	100.0%
10/1/2017	261,428	1,990,699	2,626,133	5,629,911	100.0%	100.0%	100.0%
10/1/2018	267,845	2,258,695	2,697,220	6,015,953	100.0%	100.0%	100.0%
10/1/2019	338,775	2,547,138	2,828,542	6,256,213	100.0%	100.0%	100.0%
10/1/2020	352,281	2,903,981	2,817,790	6,620,190	100.0%	100.0%	100.0%

(\$ in Thousands)

## Appendix 3

### ASOP 51 Disclosure

Actuarial Standard of Practice No. 51 *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions* is effective for actuarial valuations after November 2018. The standard requires actuaries to provide information so that users of the report can better understand the potential for future results to vary from the results presented in this report and identify risks on the plan's future financial condition. This standard does not require the assessment to be based on numerical calculations.

Examples of risk common to most public plans include the following (generally listed from greatest to least risk):

- Investment risk: The potential that investment returns will be different than expected. The Trustees are well aware of this risk.
- Contribution risk: Most commonly this is associated with the potential that actual future contributions are not made in accordance with the plan's actuarially based funding policy. When this occurs, it can create negative long-term problems.
- Longevity and other demographic risks: The potential that mortality or other demographic experience will be different than expected.
- Asset/liability mismatch risk: The potential that changes in asset values are not matched by changes in the value of liabilities.
- Cash flow risks: The potential that contributions coming into the plan will not cover benefit payments. While common in well-funded plans, this still requires the use of interest, dividends or principal to cover benefit payments. When assets need to be sold (or more cash held) it can be an issue. Poorly funded plans with DROP lump sum payments can be a particular issue.

One item left off this list is "interest rate risk" (i.e., the potential that interest rates will be different than expected). This risk is common in corporate ERISA plans where funding is based on bond rates. Interest rates on bonds are still an important consideration when setting an expected return assumption and can change over time.

There are some plan maturity measures that are significant to understanding the risks associated with the plan. The following table shows four commonly used measures of the relative riskiness of a pension plan, relative to the plan sponsor and the employee group covered by the plan.

## Appendix 3

### ASOP 51 Disclosure

Teachers				Conservative
Risk Measure	10/1/2018	10/1/2019	10/1/2020	Measures
Retiree Liability as a Percent of Total Liability	37%	44%	42%	<50%
Assets to Payroll (Asset Volatility Ratio)	4.7	4.4	4.4	<5
Liabilities to Payroll (Liability Volatility Ratio)	4.9	4.8	4.8	<5
Benefit Payments to Contributions	0.9	0.9	0.9	<3

Police and Fire				Conservative
Risk Measure	10/1/2018	10/1/2019	10/1/2020	Measures
Retiree Liability as a Percent of Total Liability	30%	45%	47%	<50%
Assets to Payroll (Asset Volatility Ratio)	13.3	12.6	13.0	<5
Liabilities to Payroll (Liability Volatility Ratio)	11.5	11.3	11.9	<5
Benefit Payments to Contributions	0.8	0.8	1.1	<3

The Asset Volatility Ratio (AVR) is equal to the market value of assets (MVA) divided by payroll. A higher AVR implies that the Plan is exposed to greater contribution volatility. The current Teachers AVR of 4.4 indicates that a 1% asset gain/loss can be related to about 4.4% of the annual payroll. The current Police and Fire AVR of 13.0 indicates that a 1% asset gain/loss can be related to about 13.0% of the annual payroll. The Plan currently amortizes asset gains/losses over a period of 20 years. This would result in a change in the District's contribution of about 0.4% of payroll for Teachers and 1.1% of payroll for Police and Fire for each 1.0% change in market assets in each Plan.

The Liability Volatility Ratio (LVR) is equal to the Actuarial Accrued Liability (AAL) divided by payroll. A higher LVR implies that the Plan is exposed to greater contribution volatility due to changes in liability measurements. The current Teachers LVR of 4.8 indicates that a 1% liability gain/loss can be related to about 4.8% of the annual payroll. The current Police and Fire LVR of 11.9 indicates that a 1% liability gain/loss can be related to about 11.9% of the annual payroll. The Plan currently amortizes liability gains/losses over a period of 20 years. This would result in a change in the District's contribution of about 0.4% of payroll for Teachers and about 1.0% of payroll for Police and Fire for each 1.0% change in each Plan.

## Appendix 3

### ASOP 51 Disclosure

The use of payroll in these risk measures is an easily available substitute for the employer's revenue and often reflects the employer's ability to afford the plan. Each of these measures is a measure of plan maturity. Some ratios are approaching or outside of the "conservative" range because the plans are becoming more mature. Mature plans present more risk to plan sponsors because changes to the liability or assets will result in large changes in the unfunded liability as compared to the overall size of the employer as measured by payroll.

If the plan or employer were interested in doing more quantitative assessment of risks, the following are examples of tests that could be performed:

Scenario Test—A process for assessing the impact of one possible event, or several simultaneously or sequentially occurring possible events, on a plan's financial condition.

Sensitivity Test—A process for assessing the impact of a change in an actuarial assumption on an actuarial measurement.

Stochastic Modeling—A process for generating numerous potential outcomes by allowing for random variations in one or more inputs over time for the purpose of assessing the distribution of those outcomes.

Stress Test—A process for assessing the impact of adverse changes in one or relatively few factors affecting a plan's financial condition.



## Appendix 4

### D.C. Code §1-907.02(c) Adjustment to FY2022 Payment

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."

The D.C. Code §1-907.02(c) adjustment to the fiscal year 2022 District payment is calculated by taking the actual fiscal year 2020 covered payroll for each employee class and multiplying by the corresponding fiscal year 2020 contribution rates, which were determined as of October 1, 2018. This result is the fiscal year 2020 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.

The following table shows the D.C. Code §1-907.02(c) Adjustment to FY2022 Payment.

	Teachers	Police	Fire
1. Actual FY2020 Covered Payroll	\$ 529,623	\$ 305,094	\$ 158,926
2. FY2020 Contribution Rate	11.67%	15.58%	26.75%
3. Actual FY2020 Contribution Required	61,807	47,534	42,513
4. Actual FY2020 Contribution Paid without Adjustment	57,271	48,285	43,762
5. Preliminary D.C. Code §1-907.02(c) Adjustment to FY2022 Payment (3. - 4.)	4,536	(751)	(1,249)
6. FY2020 Unrecognized Amount	0	0	0
7. Final D.C. Code §1-907.02(c) Adjustment to FY2022 Payment (5. + 6.)	4,536	(751)	(1,249)
8. Adjustment Applied to FY2022 Payment	\$ 4,536	\$ (751)	\$ (1,249)
9. Carryover Adjustment (7. - 8.)	0	0	0

(\$ in Thousands)



## Appendix 5

### Experience Gain/(Loss)

The following table shows the gain/(loss), or change in unfunded accrued liability, due to experience other than expected.

Experience Gain/(Loss)	Teachers	Police	Fire	Police and Fire	Total
<b>Age &amp; Service Retirements</b>					
If members retire at older ages, there is a gain; if younger ages, a loss.	\$ 1.4	\$ (8.6)	\$ (10.5)	\$ (19.1)	\$ (17.6)
<b>Disability Retirements</b>					
If disability claims are less than assumed, there is a gain; if more claims, a loss.	(0.0)	3.3	0.8	4.1	4.1
<b>Death-in Service Benefits</b>					
If survivor claims are less than assumed, there is a gain; if more claims, there is a loss.	(0.7)	(2.2)	(1.4)	(3.6)	(4.3)
<b>Withdrawal from Employment</b>					
If more liabilities are released by withdrawals than assumed, there is a gain; if smaller releases, a loss.	(19.2)	4.5	(1.4)	3.1	(16.1)
<b>Pay Increases</b>					
If there are smaller pay increases than assumed, there is a gain; if greater increases, a loss.	50.8	11.9	22.3	34.2	85.0
<b>New Members</b>					
Additional unfunded actuarial accrued liability will produce a loss.	(49.4)	(7.7)	(3.2)	(11.0)	(60.4)
<b>Investment Income</b>					
If there is greater investment income than assumed, there is a gain; if less income, a loss.	4.9	13.4	6.0	19.5	24.4
<b>Death after Retirement</b>					
If retirees live longer than assumed, there is a loss; if not as long, a gain.	8.5	(9.8)	(2.4)	(12.2)	(3.7)
<b>COLA/CPI</b>					
If inflation is different than expected, gains or losses can occur.	12.0	6.4	3.6	10.0	22.0
<b>Other</b>					
Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	(1.0)	3.2	(0.1)	3.0	2.1
<b>Gain/(Loss) During Year from Experience</b>	7.3	14.4	13.7	28.1	35.4
<b>Non-Recurring Items</b>					
Adjustments for plan amendments, assumption changes, method changes or audit changes.	-	-	-	-	-
<b>Composite Gain/(Loss) During Year</b>	\$ 7.3	\$ 14.4	\$ 13.7	\$ 28.1	\$ 35.4

(\$ in Millions)



## Appendix 6

### Valuation Balance Sheet – Teachers

The following table shows the Teachers valuation balance sheet (present and prospective assets and the actuarial liabilities) as of October 1, 2020 which is presented in the DCRB CAFR.

Teachers Present and Prospective Assets		
Actuarial Value of Present Assets		\$ 2,431,075,254
Present Value of Future Members' Contributions		373,243,139
Present Value of Future Employer Contributions		
Normal contributions	\$ 334,981,525	
Unfunded accrued liability contributions	209,727,748	
Total Prospective Employer Contributions		544,709,274
<b>Total Present and Prospective Assets</b>		<b>\$ 3,349,027,666</b>

Teachers Actuarial Liabilities		
Present Value of benefits payable on account of retired members and survivors of deceased members now drawing retirement benefits		\$ 1,121,325,708
Present Value of prospective benefits payable on account of inactive members		183,578,873
Present Value of prospective benefits payable on account of present active members		
Service retirement benefits	\$ 1,657,847,935	
Disability retirement benefits	41,709,853	
Survivor benefits	20,317,461	
Separation benefits	324,247,836	
Total		2,044,123,085
<b>Total Actuarial Liabilities</b>		<b>\$ 3,349,027,666</b>





## Appendix 7

### Valuation Balance Sheet – Police and Fire

The following table shows the Police and Fire valuation balance sheet (present and prospective assets and the actuarial liabilities) as of October 1, 2020 which is presented in the DCRB CAFR.

<b>Police and Fire Combined Present and Prospective Assets</b>		
Actuarial Value of Present Assets		\$ 6,676,012,574
Present Value of Future Members' Contributions		468,889,427
Present Value of Future Employer Contributions		
Normal contributions	\$ 1,978,023,110	
Unfunded accrued liability contributions	(652,169,451)	
Total Prospective Employer Contributions		1,325,853,660
<b>Total Present and Prospective Assets</b>		<b>\$ 8,470,755,660</b>

<b>Police and Fire Combined Actuarial Liabilities</b>		
Present Value of benefits payable on account of retired members and survivors of deceased members now drawing retirement benefits		\$ 2,830,584,678
Present Value of prospective benefits payable on account of inactive members		73,396,001
Present Value of prospective benefits payable on account of present active members		
Service retirement benefits	\$ 4,954,577,700	
Disability retirement benefits	280,032,572	
Survivor benefits	102,154,522	
Separation benefits	230,010,187	
Total		5,566,774,981
<b>Total Actuarial Liabilities</b>		<b>\$ 8,470,755,660</b>