



# United States Department of the Treasury District of Columbia Pensions Program

## Actuarial Valuation Report

**Valuation Date:** October 1, 2017

**Report Date:** October 16, 2017

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# Executive Summary

## Highlights of the Actuarial Valuation

The actuarial valuation report has been completed for the following program for the most recent plan year:

### **United States Department of the Treasury District of Columbia Pensions Program (Program)**

The Program refers to the federal responsibility for benefit payments under the following District of Columbia (D.C.) retirement plans: District of Columbia Police Officers and Firefighters' Retirement Plan, District of Columbia Teachers' Retirement Plan, and District of Columbia Judges' Retirement Plan. The designated assets for the federal administration of these plans are held in two separate funds. The District of Columbia Teachers, Police Officers and Firefighters Federal Pension Fund ("D.C. Federal Pension Fund") covers federal payments under the District of Columbia Police Officers and Firefighters' Retirement Plan and District of Columbia Teachers' Retirement Plan. The Judicial Retirement and Survivors Annuity Fund ("Judicial Retirement Fund") covers payments under the District of Columbia's Judges' Retirement Plan.

The purpose of this report is to present the results of the actuarial valuation including:

- To illustrate the current assets and liabilities of each Plan as of the end of Fiscal Year (FY) 2017 (October 1, 2016 through September 30, 2017);
- To review the experience of the Program over the past year and to discuss reasons for changes in Program costs;
- To determine the appropriate contribution to be paid by the Department of the Treasury to the Funds in FY 2018 (October 1, 2017 through September 30, 2018); and
- To identify and discuss any emerging trends in Program costs.

This report also includes certain statement line items and footnote disclosures necessary to compute the annual pension expense in accordance with Statement of Federal Financial Accounting Standards No. 5 and No. 33 (SFFAS 5 and SFFAS 33). Use of the valuation results for other purposes may not be appropriate.

### **Summary of Results**

As of October 1, 2017	Police Officers and Firefighters', and Teachers' Plans	Judges' Plan
Actuarial Accrued Liability	\$ 8,479,495,526	\$ 248,079,833
Plan Assets	<u>(3,851,858,284)</u>	<u>(162,650,267)</u>
Unfunded Actuarial Accrued Liability	\$ 4,627,637,242	\$ 85,429,566
Normal Cost with Interest (including expected employee contributions)	N/A	\$ 5,900,000

### **Summary of Gains and Losses**

As part the review of the valuation, an actuarial gain/loss analysis was performed. Expected liabilities and plan assets were developed presuming all demographic and economic assumptions from the prior valuation were realized during the plan year. These expected values were then compared to the actual results. The factors causing the liabilities or assets to be greater than expected (a loss for liabilities and a gain for assets), or smaller than expected (a gain for liabilities and a loss for assets) were isolated. Differences in liability not directly attributable to experience different than assumed, such as changes in assumptions and methods, were separately measured from this process.

The different sources of gains and losses, as well as their individual impacts, are outlined below.

## Executive Summary

### Highlights of the Actuarial Valuation

#### Source of Liability (Gain)/Loss due to Actuarial Experience

Source of Demographic (Gain)/Loss	Police Officers and Firefighters', and Teachers' Plans	Judges' Plan
(Gains)/Losses due to Plan Experience:		
Active Decrements	\$ (17,139,203)	\$ 2,510,395
Inactive Mortality	(15,523,235)	1,548,247
Salary Increase	(3,836,580)	(104,437)
New Entrants	N/A	281,282
COLA Different than Expected	13,303,040	(2,384,692)
(Gains)/Losses due to Census Changes:		
Changes to Deferred Federal Benefits for Term Vested Plan Members	892,027	-
New Retirements - Benefit Different than Expected	25,349,780	(198,699)
New Beneficiaries with Demographic Information Different than Assumption	14,543,647	-
Unexpected New Plan Members	5,385,256	-
Unexpected Plan Members Removed	(10,285,637)	-
Date of Hire Changes	(1,273,960)	-
Other Data Movement	<u>14,291,194</u>	<u>(86,646)</u>
<b>Total</b>	<b>\$ 25,706,329</b>	<b>\$ 1,565,450</b>

We have provided clarification on these items below:

- **(Gains)/Losses due to Plan Experience:** The liability for each plan is expected to change based on certain demographic and economic assumptions; however, actual plan experience will differ to some degree. These items are all (gains) or losses due to plan experience being different than these assumptions. This includes plan members decrementing at rates other than expected, salaries and retirement benefits changing at rates other than expected, and newly hired employees joining the plans.
- **Changes to Deferred Federal Benefits for Term Vested Plan Members:** Since the last valuation, the Department of the Treasury reviewed the benefits for the Terminated Vested (TV) participants and revised benefits where appropriate.
- **New Retirements – Benefit Different than Expected:** For many of the new retirements, the newly calculated retirement benefits differ from what was expected in the prior year, based on available active plan member information.
- **New Beneficiaries with Demographic Information Different than Assumption:** If information is not available, assumptions are used to estimate beneficiary age and gender for in-pay plan members eligible for survivor benefits. When these beneficiaries commence, there is a (gain) or loss based on the difference between the assumed demographic information and the actual demographic information.
- **Unexpected New Plan Members:** New plan members included in the current year's census that were excluded from the prior year's census as of result of Treasury's data review since the last valuation. This does not include plan members that were properly excluded in previous years and have since rejoined the plan.

# Executive Summary

## Highlights of the Actuarial Valuation

- **Unexpected Plan Members Removed:** Plan members included in the prior year's census that are not included in the current year's census as of result of Treasury's data review since the last valuation. This does not include plan members who have been removed from the data for administrative reasons (i.e., benefits expiring, terminating and receiving a refund, etc.).
- **Date of Hire Changes:** Since the last valuation, the Department of the Treasury reviewed the dates of hire for their active population and revised the data where appropriate.
- **Other Data Movements:** The primary driver of the net loss due to Other Data Movement for Police Officers and Firefighters', and Teachers' Plans was the loss due to other data revisions that were discovered as part of the Department of the Treasury's data review and other corrections/recalculations.

### Source of Asset (Gain)/Loss due to Actuarial Experience

Asset (Gain)/Loss	D.C. Federal Pension Fund	Judicial Retirement Fund
Beginning of Year Assets	\$ 3,902,281,110	\$ 156,100,342
Expected Return on Assets	40,581,244	5,437,750
Actual Return on Assets	<u>52,771,818</u>	<u>3,600,079</u>
<b>Asset (Gain)/Loss</b>	<b>\$ (12,190,574)</b>	<b>\$ 1,837,671</b>

The plan assets experienced the following rates of return during the prior plan year:

	D.C. Federal Pension Fund	Judicial Retirement Fund
Assets	1.37%	2.28%

The D.C. Federal Pension Fund experienced higher-than-anticipated returns on fund assets and the Judicial Retirement Fund experienced lower-than-anticipated returns on fund assets, thus resulting in an asset gain and an asset loss, respectively.

### Changes in Plan Provisions from the Previous Valuation

The valuation for the current plan year was based on the same plan provisions as the valuation for the prior plan year. We are not aware of any other changes to the plans since the last valuation.

A full summary of the plan provisions and plan changes for each plan (if any) can be found later in this report in Appendix C: Plan Provisions Summary.

## Executive Summary

### Highlights of the Actuarial Valuation

#### Source of Liability (Gain)/Loss due to Changes in Actuarial Assumptions from the Previous Valuation

Assumption Change	Police Officers and Firefighters', and Teachers' Plans	Judges' Plan
Discount Rate Assumption	\$ 422,632,308	\$ 5,420,556
Other Economic Assumptions	(46,581,080)	(7,566,654)
Non-Economic Assumptions	<u>(125,090,163)</u>	<u>15,267,705</u>
<b>Total</b>	<b>\$ 250,961,065</b>	<b>\$ 13,121,607</b>

The discount rate assumption was updated according to prescribed guidance. The Effective Interest Rate (EIR) for both plans decreased, causing a loss.

The other economic assumptions changed for this valuation were the cost-of-living adjustment (COLA) for annuitants and the salary increase assumption for active members. Due to the plans' composition of primarily inactive plan members, the COLA assumption is a primary driver in the calculation of liabilities. The decrease in the future expectation of these adjustments caused a gain for both plans. A detailed description of the changes since prior year is available in Appendix A: Actuarial Assumptions and Methods.

For the Police Officers and Firefighters', and Teachers' Plans, the non-economic assumption change included a mortality improvement scale update and a change to the form of payment election assumption. The mortality improvement scale was changed from Scale MP-2015 to Scale MP-2016. Scale MP-2016 is the most up-to-date expectation of future longevity improvements. Scale MP-2016 does not presume as much longevity improvement as Scale MP-2015, thereby causing a liability gain to both plans of approximately \$137M (in aggregate). The form of payment assumption was updated to reflect a Joint-and-57% Survivor Annuity for all married plan members and a Single Life Annuity for all single plan members. This caused a liability loss of approximately \$12M.

For the Judges' Plan, the base mortality was updated from RP-2000 Combined Healthy mortality with White Collar Adjustment, with no setbacks to RP-2014 Annuitant/Non-Annuitant Healthy mortality with White Collar Adjustment, with no setbacks for Active, Inactive and Disabled Members. The mortality projection scale was updated from Scale MP-2015 to Scale MP-2016. The RP-2014 base table reflects the most recently released study by the Society of Actuaries and Scale MP-2016 is the most up-to-date expectation of future longevity improvements. Scale MP-2016 does not presume as much longevity improvement as Scale MP-2015. This causes a gain. However, the new base table assumes that individuals will live longer. The loss due to the mortality table change is larger than the gain due to the longevity improvement change, thereby causing a liability net loss to the plan.

A complete description of the actuarial assumptions and rationale can be found in Appendix A: Actuarial Assumptions and Methods and Appendix B: Rationale.

## Executive Summary

### Highlights of the Actuarial Valuation

#### Government Contributions

This report includes a calculation of the Government Contribution required to be made before the end of FY 2018 (excluding the reimbursement for expenses). The table below contains Government Contribution (excluding expenses) for FY 2017 and FY 2018.

Contribution Year	Government Contribution (excluding expenses)	
	D.C. Federal Pension Fund	Judiciary Retirement Fund
September 30, 2017	\$ 436,500,000	\$ 14,300,000
September 30, 2018	\$ 451,800,000	\$ 15,600,000

#### Actuarial Valuation Opinion

This report presents the results of the actuarial valuation of the Program as of October 1, 2017. In our opinion, this report is complete and accurate and represents fairly the actuarial position of the Program for the purposes stated herein.

This actuarial valuation has been prepared based upon plan member data and plan provisions provided by the Department of the Treasury as of May 1, 2017 (plan data was projected to September 30, 2017 by adjusting for expected mortality for inactive members) and the estimated asset information projected by the Department of the Treasury to September 30, 2017 (provided on July 25, 2017).

We have reviewed the data and other information provided for reasonableness, but has not independently audited the data or other information provided. We have no reason to believe the data and other information provided are not complete and accurate, and knows of no further information that is essential to the preparation of the actuarial valuation.

In our opinion, all costs, liabilities, rates of interest, and other factors underlying these actuarial computations have been determined on the basis of actuarial assumptions and methods, which are each reasonable (or consistent with authoritative guidance) for the purposes described herein taking into account the experience of the Plans and future expectations and which, when combined, represent our best estimate of anticipated experience under the Plans.

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 operations of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on each plan's funded status); and changes in plan provisions or applicable law.

Our scope did not include analyzing the potential range of such future measurements; therefore, this analysis was not performed.

## **Executive Summary**

### **Actuarial Valuation Opinion**

The undersigned with actuarial credentials collectively meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

This report was prepared solely for the benefit and internal use of the Department of the Treasury. This report is not intended for the benefit of any other party and may not be relied upon by any third party for any purpose, and Deloitte Consulting LLP accepts no responsibility or liability with respect to any party other than the Department of the Treasury.

To the best of our knowledge, no employee of the Deloitte U.S. Firms is an officer or director of the employer. In addition, we are not aware of any relationship between the Deloitte U.S. Firms and the employer that may impair or appear to impair the objectivity of the work detailed in this report.

#### **DELOITTE CONSULTING LLP**

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# Executive Summary

## Summary of Results

### Police Officers and Firefighters', and Teachers' Plans

	Valuation Date	
	October 1, 2017	October 1, 2016
<b>Plan Member Counts</b>		
Actives	1,841	2,191
Terminated Vested	216	222
Inactives	13,542	13,559
Total	15,599	15,972
<b>Contributions</b>		
Federal Required Contribution	\$ 451,800,000	\$ 436,500,000
<b>Present Value of Benefits (PVB)</b>		
<b>Active Plan Members</b>		
Retirement Decrement	\$ 628,568,759	\$ 745,041,986
Termination Decrement	2,138,673	3,127,400
Disability Decrement	7,046,940	8,994,181
Death Decrement	2,395,354	2,920,414
Total	\$ 640,149,726	\$ 760,083,981
<b>Inactive Plan Members</b>		
Normal Retirees <sup>1</sup>	\$ 6,350,837,620	\$ 6,366,630,109
Terminated Vested	41,319,810	42,422,100
Disabled Retirees <sup>1</sup>	747,773,150	791,972,361
Beneficiaries	699,415,220	689,233,831
Total	\$ 7,839,345,800	\$ 7,890,258,401
<b>Total PVB (inactive and active)</b>	<b>\$ 8,479,495,526</b>	<b>\$ 8,650,342,382</b>
<b>Unfunded Actuarial Accrued Liability (AAL)</b>		
Active AAL	\$ 640,149,726	\$ 760,083,981
Inactive AAL	7,839,345,800	7,890,258,401
Total AAL	\$ 8,479,495,526	\$ 8,650,342,382
Asset Value as of Valuation Date	\$ (3,851,858,284)	\$ (3,902,281,110)
<b>Unfunded AAL</b>	<b>\$ 4,627,637,242</b>	<b>\$ 4,748,061,272</b>

<sup>1</sup>Throughout this report, former spouses receiving benefits under a qualified domestic relations order are not included in counts, while their benefit amounts are included with their associated retired plan member.

# Executive Summary

## Summary of Results

### Judges' Plan

	Valuation Date	
	October 1, 2017	October 1, 2016
<b>Plan Member Counts</b>		
Actives	64	67
Terminated Vested	-	-
Inactives	<u>92</u>	<u>91</u>
Total	156	158
<b>Contributions</b>		
Government Contribution (excluding expenses)	\$ 15,600,000	\$ 14,300,000
<b>Present Value of Benefits (PVB)</b>		
<b>Active Plan Members</b>		
Retirement Decrement	\$ 129,084,460	\$ 126,001,269
Termination Decrement	-	-
Disability Decrement	-	-
Death Decrement	<u>935,168</u>	<u>1,689,933</u>
Total	\$ 130,019,628	\$ 127,691,202
<b>Inactive Plan Members</b>		
Normal Retirees <sup>1</sup>	\$ 153,844,909	\$ 135,888,346
Terminated Vested	-	-
Disabled Retirees <sup>1</sup>	2,960,881	2,978,323
Beneficiaries	<u>7,568,250</u>	<u>9,845,937</u>
Total	\$ 164,374,040	\$ 148,712,606
<b>Total PVB (inactive and active)</b>	\$ 294,393,668	\$ 276,403,808
<b>Unfunded Actuarial Accrued Liability (AAL)</b>		
Active AAL	\$ 83,705,793	\$ 82,758,388
Inactive AAL	<u>164,374,040</u>	<u>148,712,606</u>
<b>Total AAL</b>	\$ 248,079,833	\$ 231,470,994
Asset Value as of Valuation Date	\$ (162,650,267)	\$ (156,100,342)
<b>Unfunded AAL</b>	\$ 85,429,566	\$ 75,370,652
Total Normal Cost	\$ 5,900,000	\$ 5,900,000
Employee Contributions	<u>(600,000)</u>	<u>(600,000)</u>
<b>Net Employer Normal Cost</b>	\$ 5,300,000	\$ 5,300,000

<sup>1</sup>Throughout this report, former spouses receiving benefits under a qualified domestic relations order are not included in counts, while their benefit amounts are included with their associated retired member.

## Plan Cost

### Amortization Schedule and Required Government Contribution

#### Police Officers and Firefighters', and Teachers' Plans

Amortization Base	Remaining Number of Years	Annual Amortization Installment	Outstanding Balance as of October 1, 2017
Initial Unfunded Accrued Liability	10	\$ 348,600,000	3,094,053,930
Assumption Change 10/1/2000	3	(22,200,000)	(65,238,853)
Assumption Change 10/1/2001	4	40,100,000	155,578,304
Plan Change 10/1/2001	4	16,000,000	62,076,131
Assumption Change 10/1/2004	7	13,700,000	89,417,220
Assumption Change 10/1/2005	8	(6,300,000)	(46,261,408)
Assumption Change 10/1/2006	9	39,800,000	323,405,195
Assumption Change 10/1/2007	10	3,600,000	31,952,364
(Gain)/Loss 10/1/2008	1	(25,000,000)	(24,823,751)
Assumption Change 10/1/2008	11	3,300,000	31,658,435
(Gain)/Loss 10/1/2009	2	(18,500,000)	(36,526,619)
Assumption Change 10/1/2009	12	40,700,000	418,408,294
(Gain)/Loss 10/1/2010	3	(3,300,000)	(9,697,667)
Assumption Change 10/1/2010	13	10,500,000	114,853,919
(Gain)/Loss 10/1/2011	4	(16,200,000)	(62,852,083)
Assumption Change 10/1/2011	14	6,900,000	79,825,564
(Gain)/Loss 10/1/2012	5	500,000	2,396,762
Assumption Change 10/1/2012	15	32,500,000	395,615,231
(Gain)/Loss 10/1/2013	6	(9,900,000)	(56,195,262)
Assumption Change 10/1/2013	16	18,700,000	238,465,456
Funding Method Change 10/1/2013	16	(34,800,000)	(443,775,287)
(Gain)/Loss 10/1/2014	7	(6,900,000)	(45,034,950)
Assumption Change 10/1/2014	17	13,400,000	178,321,035
(Gain)/Loss 10/1/2015	8	(7,000,000)	(51,401,564)
Assumption Change 10/1/2015	18	(4,000,000)	(55,361,257)
(Gain)/Loss 10/1/2016	9	(10,000,000)	(81,257,587)
Assumption Change 10/1/2016	19	20,600,000	295,650,177
Method Change 10/1/2016	19	500,000	7,175,975
(Gain)/Loss 10/1/2017	10	1,500,000	13,515,755
Assumption Change 10/1/2017 <sup>1</sup>	20	5,000,000	73,693,783
<b>Total Amortization</b>		<b>\$ 451,800,000</b>	<b>\$ 4,627,637,242</b>
Total Normal Cost with Interest		\$ -	
Employee Contributions		-	
<b>Net Employer Normal Cost</b>		<b>\$ -</b>	
<b>Total Required Government Contribution as of September 30, 2018<sup>2</sup></b>		<b>\$ 451,800,000</b>	

<sup>1</sup> Includes assumption change impact, \$250,961,065, as well as effect of discount rate change on prior amortization balances, (\$177,267,282).

<sup>2</sup> Before administrative expenses.

## Plan Cost

### Amortization Schedule and Required Government Contribution

#### Judges' Plan

Amortization Base	Remaining Number of Years	Annual Amortization Installment	Outstanding Balance as of October 1, 2017
Initial Unfunded Accrued Liability	10	\$ 2,100,000	\$ 17,535,507
Assumption Change 10/1/2000	3	(600,000)	(1,683,554)
Assumption Change 10/1/2001	4	500,000	1,840,033
Assumption Change 10/1/2004	7	200,000	1,226,568
Assumption Change 10/1/2006	9	600,000	4,581,492
(Gain)/Loss 10/1/2008	1	100,000	96,693
Assumption Change 10/1/2008	11	200,000	1,808,208
(Gain)/Loss 10/1/2009	2	600,000	1,141,132
Assumption Change 10/1/2009	12	(800,000)	(7,767,192)
(Gain)/Loss 10/1/2010	3	100,000	280,592
Assumption Changes 10/1/2010	13	1,500,000	15,532,282
(Gain)/Loss 10/1/2011	4	100,000	368,007
Assumption Changes 10/1/2011	14	100,000	1,097,936
(Gain)/Loss 10/1/2012	5	(400,000)	(1,810,120)
Assumption Changes 10/1/2012	15	600,000	6,949,929
(Gain)/Loss 10/1/2013	6	800,000	4,274,067
Assumption Changes 10/1/2013	16	400,000	4,866,840
Funding Method Change 10/1/2013	16	(1,000,000)	(12,167,099)
(Gain)/Loss 10/1/2014	7	2,900,000	17,785,238
Assumption Change 10/1/2014	17	200,000	2,546,335
(Gain)/Loss 10/1/2015	8	100,000	689,696
Assumption Change 10/1/2016	19	300,000	4,141,631
Method Change 10/1/2016	19	500,000	6,902,718
(Gain)/Loss 10/1/2017	10	400,000	3,403,121
Assumption Change 10/1/2017 <sup>1</sup>	20	800,000	11,789,506
<b>Total Amortization</b>		<b>\$ 10,300,000</b>	<b>\$ 85,429,566</b>
Total Normal Cost with Interest		\$ 5,900,000	
Employee Contributions		(600,000)	
<b>Net Employer Normal Cost</b>		<b>\$ 5,300,000</b>	
<b>Total Required Government Contribution as of September 30, 2018<sup>2</sup></b>		<b>\$ 15,600,000</b>	

<sup>1</sup> Includes assumption change impact, \$13,121,607, as well as effect of discount rate change on prior amortization balances, (\$1,332,101).

<sup>2</sup> Before administrative expenses.

## Changes in Actuarial Accrued Liability

### Reconciliation of Actuarial (Gain)/Loss

	Police Officers and Firefighters', and Teachers' Plans		Judges' Plan	
<b>Assets</b>				
As of October 1, 2016, before adjustments	\$	3,902,281,110	\$	156,100,342
As of October 1, 2016, after adjustments		3,903,928,063		156,223,036
Contributions:				
Employees	\$	-	\$	820,455
Employer		454,716,864		15,549,993
Total		454,716,864		16,370,448
Benefits Paid		(541,366,433)		(12,170,609)
Expenses Paid		(16,545,075)		(1,249,993)
Income (including adjustments)		52,771,818		3,600,079
Expected Income		40,581,244		5,437,750
Expected End of Year Value		3,839,667,710		164,487,938
October 1, 2017 (Projected) Value		3,851,858,284		162,650,267
<b>Asset (Gain)/Loss</b>	\$	(12,190,574)	\$	1,837,671
<b>Liabilities</b>				
Beginning of Year AAL	\$	8,650,342,382	\$	231,470,994
Normal Cost:				
Employees		-		600,000
Employers	-			5,300,000
Total		-		5,900,000
Benefits Paid		(541,366,433)		(12,170,609)
Interest		93,852,183		8,192,391
Expected End of Year AAL		8,202,828,132		233,392,776
Actual End of Year AAL before assumption and method changes <sup>1</sup>		8,228,534,461		234,958,226
<b>Liability (Gain)/Loss</b>		25,706,329		1,565,450
<b>Total Experience (Gain)/Loss</b>	\$	13,515,755	\$	3,403,121

### Summary of Changes in Assumptions and Methods

(Gains)/Losses	Police Officers and Firefighters', and Teachers' Plans		Judges' Plan	
Change in Discount Rate		422,632,308		5,420,556
Change in Other Economic Assumptions <sup>2</sup>		(46,581,080)		(7,566,654)
Change in Non-Economic Assumptions <sup>3</sup>		(125,090,163)		15,267,705
<b>Total Impact</b>	\$	250,961,065	\$	13,121,607
<b>Actual End of Year AAL after assumption and method changes</b>	\$	8,479,495,526	\$	248,079,833

<sup>1</sup> Liabilities as of 10/01/2017 for the Police Officers and Firefighters', and Teachers' Plans calculated for this purpose are based on 2017 spot rates implied by the 2016 spot rate yield curve. These spot rates used in gain/loss analysis were calculated by converting the 2016 spot rates to forward rates, removing the forward rate for FY 2017, and then converting the forward rates back to spot rates. See Appendix A: Actuarial Assumptions and Methods for an example of the rates.

<sup>2</sup> Projected salary increases and cost-of-living adjustments.

<sup>3</sup> For Police Officers and Firefighters', and Teachers' Plans, mortality improvement scale updated from Scale MP-2015 to Scale MP-2016. For Police Officers and Firefighters' Plans, form of payment election updated. For Judges' Plan, base mortality and mortality improvement scale updated as described in Appendix A.

## Asset Information

### Statement of Changes in Net Plan Assets

The following table is based on the unaudited statement of assets projected to September 30, 2017, as provided by the Department of the Treasury on July 25, 2017.

	<b>Police Officers and Firefighters', and Teachers' Plans</b>	<b>Judges' Plan</b>
Projected net assets available for benefits as of October 1, 2016	\$ 3,902,281,110	\$ 156,100,342
Adjusted from estimate to actual	<u>1,646,953</u>	<u>122,694</u>
Actual net assets available as of October 1, 2016	\$ 3,903,928,063	\$ 156,223,036
<b>Additions</b>		
Contributions:		
Government contributions (amortization payment)	\$ 454,716,864	\$ 15,549,993
Employee contributions	<u>-</u>	<u>820,455</u>
Total contributions	\$ 454,716,864	\$ 16,370,448
Investment income (including interest) <sup>1</sup>	50,987,682	3,462,142
Miscellaneous additions	<u>137,183</u>	<u>15,243</u>
Total additions	\$ 505,841,729	\$ 19,847,833
<b>Deductions</b>		
Benefit payments:		
Annuities - Federal only	\$ (541,252,652)	\$ (12,092,325)
Refunds of contributions	<u>(113,781)</u>	<u>(78,284)</u>
Total benefit payments	\$ (541,366,433)	\$ (12,170,609)
Expenses and fees:		
Administrative expenses	\$ (17,380,970)	\$ (1,249,993)
Other expenses	<u>835,895</u>	<u>-</u>
Total expenses and fees	\$ (16,545,075)	\$ (1,249,993)
Total deductions	\$ (557,911,508)	\$ (13,420,602)
<b>Net additions</b>	\$ (52,069,779)	\$ 6,427,231
<b>Net assets available for benefits as of October 1, 2017</b>	<u>\$ 3,851,858,284</u>	<u>\$ 162,650,267</u>

<sup>1</sup> The approximate rate of return on the Market Value of Assets is 1.37% for the Police Officers and Firefighters', and Teacher's plans, and 2.28% for the Judges' plan.

# Benefit Payments and Funding Projections

## Benefit Payment Projections

Police Officers and Firefighters', and Teachers' Plans (closed group)

Fiscal Year Ending In	Expected Net Benefit Payments	Fiscal Year Ending In	Expected Net Benefit Payments
2018	\$ 544,328,636	2056	\$ 64,266,577
2019	543,256,703	2057	57,244,265
2020	540,951,464	2058	50,786,546
2021	537,134,857	2059	44,863,564
2022	532,042,417	2060	39,449,788
2023	525,445,775	2061	34,520,509
2024	517,402,397	2062	30,048,589
2025	508,214,385	2063	26,008,949
2026	497,688,677	2064	22,383,982
2027	485,885,394	2065	19,149,868
2028	473,133,544	2066	16,281,534
2029	459,416,744	2067	13,752,613
2030	444,824,644	2068	11,539,296
2031	429,431,192	2069	9,617,428
2032	413,394,932	2070	7,960,087
2033	396,766,030	2071	6,541,687
2034	379,650,555	2072	5,337,028
2035	362,127,625	2073	4,322,709
2036	344,292,793	2074	3,475,700
2037	326,243,386	2075	2,773,465
2038	308,095,172	2076	2,195,504
2039	289,963,119	2077	1,723,702
2040	271,964,337	2078	1,341,992
2041	254,213,283	2079	1,036,267
2042	236,817,449	2080	793,567
2043	219,878,266	2081	603,193
2044	203,488,614	2082	455,904
2045	187,729,210	2083	342,799
2046	172,669,329	2084	256,609
2047	158,358,849	2085	191,509
2048	144,832,348	2086	142,802
2049	132,106,700	2087	106,562
2050	120,182,748	2088	79,542
2051	109,049,297	2089	59,520
2052	98,684,387	2090	44,571
2053	89,058,849	2091	33,300
2054	80,137,354	2092	24,716
2055	71,885,504		

# Benefit Payments and Funding Projections

## Benefit Payment Projections

Police Officers (closed group)

Fiscal Year Ending In	Expected Net Benefit Payments	Fiscal Year Ending In	Expected Net Benefit Payments
2018	\$ 249,501,707	2056	\$ 40,134,956
2019	250,039,059	2057	36,091,565
2020	250,319,823	2058	32,303,639
2021	249,943,203	2059	28,766,561
2022	248,924,787	2060	25,477,221
2023	247,224,046	2061	22,433,004
2024	244,794,700	2062	19,631,507
2025	241,776,504	2063	17,069,764
2026	238,069,051	2064	14,743,054
2027	233,734,585	2065	12,645,519
2028	228,954,266	2066	10,769,897
2029	223,670,884	2067	9,106,287
2030	217,907,877	2068	7,643,286
2031	211,674,729	2069	6,368,346
2032	205,052,687	2070	5,266,835
2033	198,109,221	2071	4,323,587
2034	190,853,673	2072	3,522,919
2035	183,317,346	2073	2,848,670
2036	175,548,097	2074	2,285,200
2037	167,590,302	2075	1,818,072
2038	159,494,983	2076	1,434,109
2039	151,316,671	2077	1,121,277
2040	143,112,787	2078	868,860
2041	134,940,598	2079	667,399
2042	126,855,398	2080	508,330
2043	118,908,505	2081	384,172
2044	111,144,009	2082	288,373
2045	103,602,763	2083	215,212
2046	96,321,366	2084	159,926
2047	89,325,604	2085	118,503
2048	82,632,894	2086	87,689
2049	76,253,573	2087	64,862
2050	70,191,076	2088	47,972
2051	64,443,550	2089	35,514
2052	59,004,447	2090	26,263
2053	53,864,171	2091	19,329
2054	49,012,389	2092	14,153
2055	44,439,253		

# Benefit Payments and Funding Projections

## Benefit Payment Projections

### Firefighters (closed group)

Fiscal Year Ending In	Expected Net Benefit Payments	Fiscal Year Ending In	Expected Net Benefit Payments
2018	\$ 93,543,498	2056	\$ 13,454,462
2019	93,163,187	2057	12,130,401
2020	92,596,940	2058	10,894,515
2021	91,739,295	2059	9,744,529
2022	90,822,632	2060	8,677,799
2023	89,623,013	2061	7,691,879
2024	88,161,564	2062	6,784,540
2025	86,493,869	2063	5,953,813
2026	84,564,640	2064	5,197,368
2027	82,403,748	2065	4,512,100
2028	80,056,935	2066	3,894,299
2029	77,556,951	2067	3,340,165
2030	74,944,050	2068	2,846,218
2031	72,235,722	2069	2,409,204
2032	69,454,287	2070	2,025,635
2033	66,623,194	2071	1,691,614
2034	63,759,863	2072	1,403,113
2035	60,880,074	2073	1,156,045
2036	57,999,212	2074	946,250
2037	55,132,133	2075	769,462
2038	52,292,216	2076	621,552
2039	49,492,056	2077	498,691
2040	46,742,450	2078	397,399
2041	44,052,077	2079	314,508
2042	41,427,837	2080	247,188
2043	38,875,210	2081	192,951
2044	36,398,580	2082	149,666
2045	34,002,154	2083	115,473
2046	31,689,010	2084	88,708
2047	29,461,064	2085	67,954
2048	27,320,398	2086	51,998
2049	25,268,547	2087	39,798
2050	23,306,516	2088	30,493
2051	21,435,338	2089	23,390
2052	19,656,165	2090	17,937
2053	17,968,891	2091	13,726
2054	16,372,929	2092	10,460
2055	14,868,268		

# Benefit Payments and Funding Projections

## Benefit Payment Projections

Teachers (closed group)

Fiscal Year Ending In	Expected Net Benefit Payments	Fiscal Year Ending In	Expected Net Benefit Payments
2018	\$ 201,283,431	2056	\$ 10,677,159
2019	200,054,458	2057	9,022,298
2020	198,034,701	2058	7,588,392
2021	195,452,359	2059	6,352,474
2022	192,294,999	2060	5,294,769
2023	188,598,717	2061	4,395,626
2024	184,446,133	2062	3,632,542
2025	179,944,012	2063	2,985,372
2026	175,054,986	2064	2,443,559
2027	169,747,061	2065	1,992,249
2028	164,122,343	2066	1,617,338
2029	158,188,908	2067	1,306,161
2030	151,972,718	2068	1,049,792
2031	145,520,740	2069	839,879
2032	138,887,959	2070	667,617
2033	132,033,615	2071	526,486
2034	125,037,020	2072	410,996
2035	117,930,205	2073	317,993
2036	110,745,485	2074	244,250
2037	103,520,951	2075	185,931
2038	96,307,973	2076	139,843
2039	89,154,392	2077	103,734
2040	82,109,099	2078	75,733
2041	75,220,609	2079	54,360
2042	68,534,214	2080	38,048
2043	62,094,551	2081	26,070
2044	55,946,025	2082	17,865
2045	50,124,293	2083	12,114
2046	44,658,953	2084	7,974
2047	39,572,181	2085	5,052
2048	34,879,055	2086	3,115
2049	30,584,579	2087	1,903
2050	26,685,156	2088	1,076
2051	23,170,408	2089	616
2052	20,023,775	2090	371
2053	17,225,787	2091	246
2054	14,752,035	2092	103
2055	12,577,983		

# Benefit Payments and Funding Projections

## Benefit Payment Projections

### Judges' Plan (open group)

Fiscal Year Ending In	Expected Net Benefit Payments <sup>1</sup>
2018	\$ 13,122,126
2019	13,454,995
2020	14,026,534
2021	14,489,155
2022	14,565,064
2023	14,940,329
2024	15,109,109
2025	15,254,686
2026	15,339,404
2027	15,424,441
2028	15,552,076
2029	15,671,029
2030	15,951,476
2031	16,054,005
2032	16,116,626
2033	16,274,653
2034	16,416,342
2035	16,463,360
2036	16,496,717
2037	16,450,712
2038	16,458,995
2039	16,299,382
2040	16,130,858
2041	16,218,546
2042	16,050,777

<sup>1</sup> Expected Net Benefit Payments are net of retiree contributions paid to provide for survivor benefits.

# Benefit Payments and Funding Projections

## Benefit Payment Projections

### Judges' Plan (closed group)

Fiscal Year Ending In	Expected Net Benefit Payments	Fiscal Year Ending In	Expected Net Benefit Payments
2018	\$ 13,122,126	2056	\$ 4,489,583
2019	13,454,892	2057	4,076,049
2020	14,026,293	2058	3,686,766
2021	14,488,701	2059	3,321,445
2022	14,564,312	2060	2,979,642
2023	14,939,216	2061	2,660,830
2024	15,107,285	2062	2,364,427
2025	15,251,250	2063	2,089,613
2026	15,333,690	2064	1,835,487
2027	15,415,609	2065	1,601,335
2028	15,539,270	2066	1,386,588
2029	15,622,926	2067	1,190,223
2030	15,853,455	2068	1,011,506
2031	15,849,449	2069	849,850
2032	15,769,253	2070	704,743
2033	15,498,147	2071	576,060
2034	15,339,743	2072	463,535
2035	15,036,143	2073	366,618
2036	14,699,882	2074	284,590
2037	14,371,442	2075	216,595
2038	14,001,147	2076	161,417
2039	13,499,168	2077	117,607
2040	12,974,395	2078	83,636
2041	12,686,172	2079	58,007
2042	12,101,782	2080	39,180
2043	11,610,180	2081	25,731
2044	10,999,974	2082	16,399
2045	10,442,104	2083	10,135
2046	9,828,261	2084	6,067
2047	9,220,882	2085	3,518
2048	8,623,326	2086	1,976
2049	8,038,700	2087	1,076
2050	7,469,574	2088	570
2051	6,918,267	2089	295
2052	6,386,795	2090	152
2053	5,876,979	2091	73
2054	5,390,272	2092	32
2055	4,927,656		

# Benefit Payments and Funding Projections

## District Benefit Payments

### Police Officers and Firefighters', and Teachers' Plans

<b>Fiscal Year Ending In</b>	<b>Benefits Paid by District (\$ millions)</b>	
1998-1999	\$	2.3
2000		3.9
2001		4.6
2002		6.7
2003		10.9
2004		16.2
2005		21.7
2006		28.6
2007		38.4
2008		47.1
2009		58.1
2010		65.5
2011		73.3
2012		86.0
2013		99.8
2014		112.6
2015		126.4
2016		146.0
2017		163.0

## Benefit Payments and Funding Projections

### 15-Year Funding Projections - Closed Group

Police Officers and Firefighters', and Teachers' Plans

Fiscal Year Ending In	Expected Return on Assets	Beginning of Year Assets	Federal Contribution (with Expense Reimbursement)	Net Benefit Payments	Expenses	Investment Return	End of Year Assets
2018	0.71%	\$ 3,851,858,284	\$ 474,600,000	\$ (544,328,636)	\$ (22,800,000)	\$ 25,334,887	\$ 3,784,664,535
2019	1.17%	3,784,664,535	498,000,000	(543,256,703)	(21,200,000)	40,996,901	3,759,204,733
2020	1.78%	3,759,204,733	516,700,000	(540,951,464)	(21,400,000)	61,990,033	3,775,543,302
2021	2.47%	3,775,543,302	542,700,000	(537,134,857)	(21,900,000)	86,201,795	3,845,410,240
2022	2.99%	3,845,410,240	501,600,000	(532,042,417)	(20,700,000)	106,653,842	3,900,921,665
2023	3.51%	3,900,921,665	501,500,000	(525,445,775)	(21,100,000)	127,388,233	3,983,264,123
2024	3.79%	3,983,264,123	511,900,000	(517,402,397)	(21,600,000)	140,821,944	4,096,983,670
2025	4.19%	4,096,983,670	505,500,000	(508,214,385)	(22,000,000)	160,729,537	4,232,998,822
2026	4.29%	4,232,998,822	519,200,000	(497,688,677)	(22,400,000)	170,548,022	4,402,658,167
2027	4.37%	4,402,658,167	489,900,000	(485,885,394)	(22,900,000)	181,331,356	4,565,104,129
2028	4.47%	4,565,104,129	136,600,000	(473,133,544)	(23,300,000)	192,987,184	4,398,257,769
2029	4.51%	4,398,257,769	133,800,000	(459,416,744)	(23,800,000)	187,434,033	4,236,275,058
2030	4.36%	4,236,275,058	93,600,000	(444,824,644)	(24,300,000)	174,320,325	4,035,070,739
2031	4.40%	4,035,070,739	83,600,000	(429,431,192)	(24,800,000)	167,384,651	3,831,824,198
2032	4.40%	3,831,824,198	77,200,000	(413,394,932)	(25,300,000)	159,129,342	3,629,458,608

## Benefit Payments and Funding Projections

### 15-Year Funding Projections - Open Group

#### Judges' Plan

Fiscal Year Ending In	Expected Return on Assets	Beginning of Year Assets	Employee Contributions	Federal Contribution (with Expense Reimbursement)	Net Benefit Payments	Expenses	Investment Return	End of Year Assets
2018	0.71%	\$ 162,650,267	\$ 550,098	\$ 17,100,000	\$ (13,122,126)	\$ (1,500,000)	\$ 1,104,861	\$ 166,783,100
2019	1.17%	166,783,100	556,039	16,957,240	(13,454,995)	(1,400,000)	1,868,552	171,309,936
2020	1.78%	171,309,936	562,044	16,415,098	(14,026,534)	(1,400,000)	2,920,845	175,781,389
2021	2.47%	175,781,389	568,114	16,973,581	(14,489,155)	(1,400,000)	4,145,370	181,579,299
2022	2.99%	181,579,299	574,250	16,532,696	(14,565,064)	(1,500,000)	5,194,690	187,815,871
2023	3.51%	187,815,871	580,452	16,992,449	(14,940,329)	(1,500,000)	6,316,860	195,265,303
2024	3.79%	195,265,303	586,721	16,252,847	(15,109,109)	(1,500,000)	7,100,477	202,596,239
2025	4.19%	202,596,239	593,057	13,313,898	(15,254,686)	(1,600,000)	8,156,927	207,805,435
2026	4.29%	207,805,435	599,462	13,275,608	(15,339,404)	(1,600,000)	8,569,802	213,310,903
2027	4.37%	213,310,903	605,937	12,737,985	(15,424,441)	(1,600,000)	8,965,521	218,595,905
2028	4.47%	218,595,905	612,481	10,401,035	(15,552,076)	(1,700,000)	9,400,429	221,757,774
2029	4.51%	221,757,774	619,095	10,264,766	(15,671,029)	(1,700,000)	9,621,936	224,892,542
2030	4.36%	224,892,542	625,782	11,129,186	(15,951,476)	(1,700,000)	9,425,809	228,421,843
2031	4.40%	228,421,843	632,540	9,794,301	(16,054,005)	(1,800,000)	9,662,143	230,656,822
2032	4.40%	230,656,822	639,372	9,760,119	(16,116,626)	(1,800,000)	9,779,886	232,919,573

# Basis for the Valuation

## Plan Member Summary

### Police Officers and Firefighters', and Teachers' Plans

	Police Officers	Firefighters	Teachers	Total
<b>Date Of Census Data:</b>	5/1/2017	5/1/2017	5/1/2017	5/1/2017
<b>Plan Member Counts:</b>				
Actives	899	456	486	1,841
Terminated Vested	37	14	165	216
Normal Retirees <sup>1</sup> - Current Benefits	3,744	1,128	5,056	9,928
Normal Retirees - Deferred Benefits	4	0	0	4
Beneficiaries	1,236	457	403	2,096
Disabled Retirees - Current Benefits	773	310	248	1,331
Disabled Retirees - Deferred Benefits	<u>133</u>	<u>23</u>	<u>27</u>	<u>183</u>
<b>Total</b>	<b>6,826</b>	<b>2,388</b>	<b>6,385</b>	<b>15,599</b>
<b>Active Plan Member Characteristics:</b>				
Total Pay	\$ 96,857,074	\$ 45,870,034	\$ 50,775,423	\$ 193,502,532
Average Age	50.31	50.97	57.87	52.47
Average Service	26.17	26.13	27.97	26.63
<b>Inactive Plan Member Characteristics:</b>				
<u>Average Age:</u>				
Terminated Vested	52.10	51.86	56.72	55.61
Normal Retirees	67.09	69.60	75.97	71.89
Beneficiaries	73.10	75.53	77.95	74.56
Disabled Retirees	69.21	73.84	75.76	71.42
<u>Total Annual Federal Benefits - Current:</u>				
Normal Retirees	\$ 176,943,258	\$ 63,006,746	\$ 186,328,644	\$ 426,278,647
Beneficiaries	37,668,159	14,077,332	8,043,180	59,788,671
Disabled Retirees	34,045,086	15,941,387	6,887,735	56,874,208
<u>Total Annual Federal Benefits - Deferred:</u>				
Terminated Vested	\$ 587,436	\$ 153,864	\$ 1,393,456	\$ 2,134,756
Normal Retirees	96,624	-	-	96,624
Disabled Retirees	1,431,012	207,912	255,120	1,894,044

<sup>1</sup> Throughout this report, "Normal Retirees" refer to Voluntary Retirements for the District of Columbia Teachers' Retirement Plan and Optional Retirements for the District of Columbia Police Officers and Firefighters' Retirement Plan.

# Basis for the Valuation

## Plan Member Summary

### Judges' Plan

**Date of Census Data** 5/1/2017

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#### Plan Member Counts:

Actives	64
Terminated Vested	0
Normal Retirees	78
Beneficiaries	13
Disabled Retirees	<u>1</u>
Total	156

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#### Active Plan Member Characteristics

Total Compensation for Covered Plan Members	\$ 13,214,900
Average Age	59.27
Average Service	12.82

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#### Inactive Plan Member Characteristics

<u>Average Age</u>	
Terminated Vested	N/A
Normal Retirees	75.41
Beneficiaries	82.38
Disabled Retirees	61.42
<u>Total Annual Benefits</u>	
Terminated Vested	N/A
Normal Retirees	\$ 11,252,855
Beneficiaries	883,973
Disabled Retirees	138,183

## Basis for the Valuation

### Plan Member Reconciliation

The following tables show a reconciliation of the number of plan members from the previous census date to the current census date.

#### Police Officers and Firefighters', and Teachers' Plans

	Actives	Terminated Vested	Normal Retirees	Beneficiaries	Disabled Retirees	Totals
<b>Plan Members as of May 1, 2016</b>	<b>2,191</b>	<b>222</b>	<b>9,870</b>	<b>2,087</b>	<b>1,602</b>	<b>15,972</b>
New Plan Members	0	0	0	0	0	0
Rehires	0	0	0	0	0	0
Vested Terminations	(12)	12	0	0	0	0
Retirements	(313)	(14)	327	0	0	0
Deaths - Beneficiary <sup>1</sup>	0	0	(84)	119	(33)	2
Deaths - No Beneficiary	(2)	(1)	(182)	(104)	(52)	(341)
Refund of Contributions	(1)	(1)	0	0	0	(2)
Disabled	0	0	0	0	0	0
Payments Reinstated/Ceased <sup>2</sup>	0	0	0	(12)	(2)	(14)
Data Corrections	(22)	(2)	1	6	(1)	(18)
<b>Plan Members as of May 1, 2017</b>	<b>1,841</b>	<b>216</b>	<b>9,932</b>	<b>2,096</b>	<b>1,514</b>	<b>15,599</b>

#### Police Officers

	Actives	Terminated Vested	Normal Retirees	Beneficiaries	Disabled Retirees	Totals
<b>Plan Members as of May 1, 2016</b>	<b>1,110</b>	<b>42</b>	<b>3,631</b>	<b>1,220</b>	<b>955</b>	<b>6,958</b>
New Plan Members	0	0	0	0	0	0
Rehires	0	0	0	0	0	0
Vested Terminations	(2)	2	0	0	0	0
Retirements	(199)	0	199	0	0	0
Deaths - Beneficiary <sup>1</sup>	0	0	(49)	75	(25)	1
Deaths - No Beneficiary	0	0	(30)	(55)	(22)	(107)
Refund of Contributions	0	(1)	0	0	0	(1)
Disabled	0	0	0	0	0	0
Payments Reinstated/Ceased <sup>2</sup>	0	0	0	(9)	(2)	(11)
Data Corrections	(10)	(6)	(3)	5	0	(14)
<b>Plan Members as of May 1, 2017</b>	<b>899</b>	<b>37</b>	<b>3,748</b>	<b>1,236</b>	<b>906</b>	<b>6,826</b>

<sup>1</sup> Includes deceased annuitants with multiple survivors.

<sup>2</sup> Payments ceased includes child survivors whose benefits expired upon attainment of age 23.

## Basis for the Valuation

### Plan Member Reconciliation

The following tables show a reconciliation of the number of plan members from the previous census date to the current census date.

#### Firefighters

	Actives	Terminated Vested	Normal Retirees	Beneficiaries	Disabled Retirees	Totals
<b>Plan Members as of May 1, 2016</b>	<b>502</b>	<b>18</b>	<b>1,099</b>	<b>465</b>	<b>347</b>	<b>2,431</b>
New Plan Members	0	0	0	0	0	0
Rehires	0	0	0	0	0	0
Vested Terminations	(1)	1	0	0	0	0
Retirements	(45)	(3)	48	0	0	0
Deaths - Beneficiary <sup>1</sup>	0	0	(12)	20	(7)	1
Deaths - No Beneficiary	0	(1)	(7)	(29)	(8)	(45)
Refund of Contributions	0	0	0	0	0	0
Disabled	0	0	0	0	0	0
Payments Reinstated/Ceased <sup>2</sup>	0	0	0	(1)	1	0
Data Corrections	0	(1)	0	2	0	1
<b>Plan Members as of May 1, 2017</b>	<b>456</b>	<b>14</b>	<b>1,128</b>	<b>457</b>	<b>333</b>	<b>2,388</b>

#### Teachers

	Actives	Terminated Vested	Normal Retirees	Beneficiaries	Disabled Retirees	Totals
<b>Plan Members as of May 1, 2016</b>	<b>579</b>	<b>162</b>	<b>5,140</b>	<b>402</b>	<b>300</b>	<b>6,583</b>
Plan Members	0	0	0	0	0	0
Rehires	0	0	0	0	0	0
Vested Terminations	(9)	9	0	0	0	0
Retirements	(69)	(11)	80	0	0	0
Deaths - Beneficiary	0	0	(23)	24	(1)	0
Deaths - No Beneficiary	(2)	0	(145)	(20)	(22)	(189)
Refund of Contributions	(1)	0	0	0	0	(1)
Disabled	0	0	0	0	0	0
Payments Reinstated/Ceased	0	0	0	(2)	(1)	(3)
Data Corrections	(12)	5	4	(1)	(1)	(5)
<b>Plan Members as of May 1, 2017</b>	<b>486</b>	<b>165</b>	<b>5,056</b>	<b>403</b>	<b>275</b>	<b>6,385</b>

<sup>1</sup> Includes deceased annuitants with multiple survivors.

<sup>2</sup> Payments ceased includes child survivors whose benefits expired upon attainment of age 23.

## Basis for the Valuation

### Plan Member Reconciliation

The following table shows a reconciliation of the number of plan members from the previous census date to the current census date.

#### Judges' Plan

	Actives	Terminated Vested	Normal Retirees	Beneficiaries	Disabled Retirees	Totals
<b>Plan Members as of May 1, 2016</b>	<b>67</b>	<b>0</b>	<b>73</b>	<b>17</b>	<b>1</b>	<b>158</b>
New Plan Members	3	0	0	0	0	3
Rehires	0	0	0	0	0	0
Vested Terminations	0	0	0	0	0	0
Retirements	(5)	0	5	0	0	0
Deaths - Beneficiary	0	0	0	0	0	0
Deaths - No Beneficiary	0	0	0	(4)	0	(4)
Refund of Contributions	(1)	0	0	0	0	(1)
Disabled	0	0	0	0	0	0
Payments Reinstated/Ceased	0	0	0	0	0	0
Data Corrections	0	0	0	0	0	0
<b>Plan Members as of May 1, 2017</b>	<b>64</b>	<b>0</b>	<b>78</b>	<b>13</b>	<b>1</b>	<b>156</b>

## Basis for the Valuation

### Age-Service Grid

#### Police Officers

Active Population																	
Service	Under 15		15-19		20-24		25-29		30-34		35-39		40+		All Service		
Age Group	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	
<b>0 - 34</b>	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	
<b>35 - 39</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>40 - 44</b>	-	-	-	-	54	105,917	4	101,477	-	-	-	-	-	-	58	105,611	
<b>45 - 49</b>	-	-	-	-	137	105,557	253	107,249	11	107,964	-	-	-	-	401	106,690	
<b>50 - 54</b>	-	-	-	-	80	102,612	252	110,181	9	117,020	-	-	-	-	341	108,586	
<b>55 - 59</b>	-	-	-	-	13	104,394	52	104,799	18	127,873	3	102,101	-	-	86	109,473	
<b>60 - 64</b>	-	-	-	-	3	113,144	2	107,952	3	111,368	4	128,056	1	104,601	13	115,867	
<b>65 - 69</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>70+</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>All Ages</b>	-	\$ -	-	\$ -	287	\$104,830	563	\$108,297	41	\$118,941	7	\$116,933	1	\$104,601	899	\$107,739	

## Basis for the Valuation

### Age-Service Grid

#### Firefighters

Active Population																	
Service	Under 15		15-19		20-24		25-29		30-34		35-39		40+		All Service		
Age Group	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	
0 - 34	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	
35 - 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40 - 44	-	-	-	-	14	92,425	14	94,416	-	-	-	-	-	-	28	93,421	
45 - 49	-	-	-	-	51	89,987	123	101,737	4	96,857	-	-	-	-	178	98,261	
50 - 54	-	-	-	-	56	87,779	82	103,575	25	136,548	-	-	-	-	163	103,205	
55 - 59	-	-	-	-	16	85,751	37	98,867	24	115,248	1	89,747	-	-	78	101,100	
60 - 64	-	-	-	-	-	-	-	-	8	120,337	1	92,945	-	-	9	117,293	
65 - 69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
70+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
All Ages	-	\$ -	-	\$ -	137	\$ 88,839	256	\$101,510	61	\$123,439	2	\$ 91,346	-	\$ -	456	\$100,592	

## Basis for the Valuation

### Age-Service Grid

#### Teachers

Active Population																	
Service	Under 15		15-19		20-24		25-29		30-34		35-39		40+		All Service		
Age Group	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	
0 - 34	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	
35 - 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40 - 44	-	-	-	-	5	108,220	-	-	-	-	-	-	-	-	5	108,220	
45 - 49	-	-	-	-	47	103,629	16	109,702	1	100,792	-	-	-	-	64	105,103	
50 - 54	-	-	-	-	31	103,432	47	103,443	21	104,265	-	-	-	-	99	103,614	
55 - 59	-	-	-	-	27	103,258	54	104,035	45	104,784	2	100,839	-	-	128	104,084	
60 - 64	-	-	-	-	19	107,484	38	105,232	50	101,716	9	104,811	1	121,738	117	104,204	
65 - 69	-	-	-	-	7	98,020	22	102,059	16	110,095	6	105,640	6	115,772	57	105,639	
70+	-	-	-	-	3	103,575	3	103,575	5	113,217	-	-	5	105,263	16	107,116	
All Ages	-	\$ -	-	\$ -	139	\$103,922	180	\$104,388	138	\$104,486	17	\$104,636	12	\$111,890	486	\$104,476	

## Basis for the Valuation

### Age-Service Grid

#### Judges

Service	Active Population																				All Service	
	Under 1		1-4		5-9		10-14		15-19		20-24		25-29		30-34		35+					
Age Group	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.
0 - 34	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -
35 - 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40 - 44	-	-	1	205,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	205,100	
45 - 49	-	-	1	205,100	6	207,183	1	205,100	-	-	-	-	-	-	-	-	-	-	-	8	206,663	
50 - 54	-	-	2	205,100	5	207,600	1	205,100	-	-	-	-	-	-	-	-	-	-	-	8	206,663	
55 - 59	-	-	4	205,100	4	208,225	1	205,100	9	206,544	-	-	-	-	-	-	-	-	-	18	206,517	
60 - 64	-	-	1	205,100	2	205,100	4	205,100	3	205,100	2	205,350	1	205,100	-	-	-	-	-	13	205,138	
65 - 69	-	-	-	-	2	205,100	2	211,350	3	209,267	3	205,100	1	205,100	-	-	-	-	-	11	207,373	
70+	-	-	-	-	-	-	1	217,600	1	205,100	-	-	1	205,100	1	205,100	1	205,100	1	205,100	5	207,600
All Ages	-	\$ -	9	\$205,100	19	\$207,074	10	\$207,600	16	\$206,694	5	\$205,200	3	\$205,100	1	\$205,100	1	\$205,100	1	\$205,100	64	\$206,483

## Basis for the Valuation

### Federal Allocation by Plan

#### Police Officers and Firefighters', and Teachers' Plans

Active Plan Members	Police Officers		Firefighters		Teachers	
Number	899		456		486	
Average Age	50.31		50.97		57.87	
Average Service	26.17		26.13		27.97	
Average Pay	\$	107,739	\$	100,592	\$	104,476

Inactive Plan Members	Police Officers		Firefighters		Teachers	
	100% Federal	Partial Federal	100% Federal	Partial Federal	100% Federal	Partial Federal
<b>Normal Retirees - Current Federal Benefit</b>						
Number	2,036	1,708	572	556	1,732	3,324
Average Age	73.29	59.74	77.02	61.96	84.38	71.58
Average Federal Benefit	\$ 53,452	\$ 39,880	\$ 62,353	\$ 49,174	\$ 44,996	\$ 32,610
Average Total Benefit	\$ 53,452	\$ 73,299	\$ 62,353	\$ 83,446	\$ 44,996	\$ 51,317
<b>Normal Retirees - Deferred Federal Benefit</b>						
Number	N/A	4	N/A	0	N/A	0
Average Age	N/A	49.50	N/A	N/A	N/A	N/A
Average Federal Benefit	N/A	\$ 24,156	N/A	N/A	N/A	N/A
Average Total Benefit	N/A	\$ 67,152	N/A	N/A	N/A	N/A
<b>Beneficiaries - Current Federal Benefit</b>						
Number	1,089	147	405	52	281	122
Average Age	75.91	52.24	79.13	47.52	81.78	69.11
Average Federal Benefit	\$ 31,730	\$ 21,188	\$ 32,591	\$ 16,881	\$ 22,719	\$ 13,599
Average Total Benefit	\$ 31,730	\$ 31,709	\$ 32,591	\$ 32,741	\$ 22,719	\$ 19,287
<b>Disabled Retirees - Current Federal Benefit</b>						
Number	656	117	269	41	184	64
Average Age	74.40	60.93	77.35	63.82	80.69	69.20
Average Federal Benefit	\$ 46,757	\$ 28,827	\$ 53,317	\$ 39,001	\$ 31,225	\$ 17,849
Average Total Benefit	\$ 46,757	\$ 47,688	\$ 53,317	\$ 53,127	\$ 31,225	\$ 34,878
<b>Disabled Retirees - Deferred Federal Benefit</b>						
Number	N/A	133	N/A	23	N/A	27
Average Age	N/A	50.92	N/A	50.64	N/A	57.71
Average Federal Benefit	N/A	\$ 10,759	N/A	\$ 9,040	N/A	\$ 9,449
Average Total Benefit	N/A	\$ 36,684	N/A	\$ 38,394	N/A	\$ 35,475
<b>Terminated Vested - Deferred Federal Benefit</b>						
Number	37	14	165			
Average Age	52.10	51.86	56.72			
Average Federal Benefit	\$ 15,877	\$ 10,990	\$ 8,445			

# Basis for the Valuation

## Plan Member Counts

### Judges' Plan

<b>Active Plan Members</b>	
Number	64
Average Age	59.27
Average Service	12.82
Average Pay	\$ 206,483
Number Eligible to Retire	34

<b>Inactive Plan Members</b>	
<b>Normal Retirees</b>	
Number	78
Average Age	75.41
Average Benefit	\$ 144,267
<b>Spouse Beneficiaries</b>	
Number	12
Average Age	84.96
Average Benefit	\$ 73,159
<b>Disabled Retirees</b>	
Number	1
Average Age	61.42
Average Benefit	\$ 138,183
<b>Child Beneficiaries</b>	
Number	1
Average Age	51.38
Average Benefit	\$ 6,069

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Police Officers - Current Benefits

Normal Retirees	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	-	\$ -	\$ -
35-39	-	-	-	-	-
40-44	-	-	-	-	-
45-59	-	-	-	-	-
50-54	-	-	472	22,090	68,592
55-59	1	5,232	473	29,872	71,841
60-64	67	43,814	392	47,191	74,113
65-69	546	47,378	266	65,321	80,200
70-74	739	53,954	91	72,914	79,959
75-79	412	56,254	14	75,048	84,019
80-84	195	58,115	-	-	-
85-89	59	71,396	-	-	-
90-94	15	82,262	-	-	-
95-100	2	95,550	-	-	-
100 and over	-	-	-	-	-
<b>Total</b>	<b>2,036</b>	<b>\$ 53,452</b>	<b>1,708</b>	<b>\$ 39,880</b>	<b>\$ 73,299</b>

Beneficiaries	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	8	\$ 16,274	25	\$ 4,305	\$ 13,248
35-39	-	-	-	-	-
40-44	1	29,364	-	-	-
45-59	6	22,508	23	15,701	31,286
50-54	9	29,260	19	16,170	32,401
55-59	31	33,435	21	22,853	36,177
60-64	77	31,372	24	31,999	39,423
65-69	169	30,707	20	28,722	35,271
70-74	211	31,308	12	35,790	39,636
75-79	191	32,063	1	26,376	31,272
80-84	175	33,007	2	30,222	38,310
85-89	115	33,515	-	-	-
90-94	67	30,539	-	-	-
95-100	26	32,887	-	-	-
100 and over	3	30,844	-	-	-
<b>Total</b>	<b>1,089</b>	<b>\$ 31,730</b>	<b>147</b>	<b>\$ 21,188</b>	<b>\$ 31,709</b>

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Police Officers - Current Benefits

Disabled Retirees	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	-	\$ -	\$ -
35-39	-	-	-	-	-
40-44	-	-	-	-	-
45-59	3	20,704	-	-	-
50-54	4	21,696	-	-	-
55-59	27	24,237	56	16,539	39,779
60-64	53	36,501	43	34,911	53,214
65-69	130	44,256	14	54,125	59,342
70-74	158	44,639	4	46,914	58,236
75-79	105	49,949	-	-	-
80-84	76	54,588	-	-	-
85-89	58	54,073	-	-	-
90-94	33	59,567	-	-	-
95-100	8	69,794	-	-	-
100 and over	1	74,628	-	-	-
<b>Total</b>	<b>656</b>	<b>\$ 46,757</b>	<b>117</b>	<b>\$ 28,827</b>	<b>\$ 47,688</b>

#### Inactive Police Officers - Deferred Benefits

Terminated Vested	Count	Average Federal Benefit
Under 35	-	\$ -
35-39	-	-
40-44	-	-
45-59	11	12,232
50-54	20	15,349
55-59	5	21,149
60-64	1	40,152
65-69	-	-
70-74	-	-
75-79	-	-
80-84	-	-
85-89	-	-
90-94	-	-
95-100	-	-
100 and over	-	-
<b>Total</b>	<b>37</b>	<b>\$ 15,877</b>

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Police Officers - Deferred Benefits

Normal Retirees	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	\$ -
35-39	-	-	-
40-44	-	-	-
45-59	3	17,720	26,104
50-54	1	43,464	190,296
55-59	-	-	-
60-64	-	-	-
65-69	-	-	-
70-74	-	-	-
75-79	-	-	-
80-84	-	-	-
85-89	-	-	-
90-94	-	-	-
95-100	-	-	-
100 and over	-	-	-
<b>Total</b>	<b>4</b>	<b>\$ 24,156</b>	<b>\$ 67,152</b>

Disabled Retirees	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	\$ -
35-39	-	-	-
40-44	4	4,560	39,273
45-59	39	9,353	38,921
50-54	81	11,166	35,485
55-59	9	15,951	36,635
60-64	-	-	-
65-69	-	-	-
70-74	-	-	-
75-79	-	-	-
80-84	-	-	-
85-89	-	-	-
90-94	-	-	-
95-100	-	-	-
100 and over	-	-	-
<b>Total</b>	<b>133</b>	<b>\$ 10,759</b>	<b>\$ 36,684</b>

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Firefighters - Current Benefits

Normal Retirees	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	-	\$ -	\$ -
35-39	-	-	-	-	-
40-44	-	-	-	-	-
45-59	-	-	-	-	-
50-54	-	-	46	27,539	78,207
55-59	-	-	163	33,650	78,629
60-64	8	41,487	197	46,424	80,090
65-69	43	49,839	107	67,436	88,154
70-74	169	59,741	39	94,836	107,517
75-79	202	63,938	4	132,375	144,564
80-84	94	65,415	-	-	-
85-89	42	71,203	-	-	-
90-94	14	74,252	-	-	-
95-100	-	-	-	-	-
100 and over	-	-	-	-	-
<b>Total</b>	<b>572</b>	<b>\$ 62,353</b>	<b>556</b>	<b>\$ 49,174</b>	<b>\$ 83,446</b>

Beneficiaries	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	2	\$ 4,080	16	\$ 7,820	\$ 18,386
35-39	1	28,428	-	-	-
40-44	-	-	1	8,496	40,620
45-59	1	29,940	5	10,807	55,337
50-54	2	26,160	7	14,698	31,834
55-59	7	26,465	7	14,971	31,301
60-64	20	29,771	4	28,704	36,828
65-69	33	30,226	9	29,315	38,233
70-74	65	32,131	2	36,318	37,518
75-79	90	31,537	-	-	-
80-84	55	32,294	1	31,212	82,644
85-89	63	34,969	-	-	-
90-94	50	35,787	-	-	-
95-100	13	37,646	-	-	-
100 and over	3	39,204	-	-	-
<b>Total</b>	<b>405</b>	<b>\$ 32,591</b>	<b>52</b>	<b>\$ 16,881</b>	<b>\$ 32,741</b>

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Firefighters - Current Benefits

Disabled Retirees	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	-	\$ -	\$ -
35-39	-	-	-	-	-
40-44	-	-	-	-	-
45-59	-	-	-	-	-
50-54	-	-	-	-	-
55-59	5	22,282	7	16,682	36,557
60-64	17	42,609	17	30,784	49,722
65-69	28	49,556	15	54,622	62,384
70-74	51	51,996	2	69,816	70,626
75-79	77	56,832	-	-	-
80-84	40	52,614	-	-	-
85-89	30	54,707	-	-	-
90-94	13	63,255	-	-	-
95-100	7	57,950	-	-	-
100 and over	1	117,444	-	-	-
<b>Total</b>	<b>269</b>	<b>\$ 53,317</b>	<b>41</b>	<b>\$ 39,001</b>	<b>\$ 53,127</b>

#### Inactive Firefighters - Deferred Benefits

Terminated Vested	Count	Average Federal Benefit
Under 35	-	\$ -
35-39	-	-
40-44	-	-
45-59	4	14,004
50-54	8	10,556
55-59	2	6,702
60-64	-	-
65-69	-	-
70-74	-	-
75-79	-	-
80-84	-	-
85-89	-	-
90-94	-	-
95-100	-	-
100 and over	-	-
<b>Total</b>	<b>14</b>	<b>\$ 10,990</b>

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Firefighters - Deferred Benefits

Disabled Retirees	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	\$ -
35-39	-	-	-
40-44	1	9,072	32,604
45-59	7	9,019	43,555
50-54	14	9,022	34,769
55-59	1	9,396	58,812
60-64	-	-	-
65-69	-	-	-
70-74	-	-	-
75-79	-	-	-
80-84	-	-	-
85-89	-	-	-
90-94	-	-	-
95-100	-	-	-
100 and over	-	-	-
<b>Total</b>	<b>23</b>	<b>\$ 9,040</b>	<b>\$ 38,394</b>

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Teachers - Current Benefits

Normal Retirees	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	-	\$ -	\$ -
35-39	-	-	-	-	-
40-44	-	-	-	-	-
45-59	-	-	-	-	-
50-54	-	-	6	13,140	47,054
55-59	-	-	66	15,296	49,736
60-64	1	40,248	314	21,273	52,839
65-69	18	16,973	880	28,820	52,278
70-74	110	32,621	1,231	36,426	51,775
75-79	315	46,353	582	36,737	49,713
80-84	495	49,067	195	34,812	45,729
85-89	441	44,219	41	47,876	59,560
90-94	242	42,650	8	31,836	43,152
95-100	94	47,064	1	39,204	45,180
100 and over	16	53,932	-	-	-
<b>Total</b>	<b>1,732</b>	<b>\$ 44,996</b>	<b>3,324</b>	<b>\$ 32,610</b>	<b>\$ 51,317</b>

Beneficiaries	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	1	\$ 6,924	4	\$ 3,498	\$ 6,696
35-39	-	-	-	-	-
40-44	1	6,960	2	7,314	15,588
45-59	2	7,698	-	-	-
50-54	1	2,016	1	10,044	12,528
55-59	5	13,613	7	13,034	24,355
60-64	2	27,558	13	14,371	24,594
65-69	12	21,170	28	15,063	19,789
70-74	39	21,224	32	14,438	19,865
75-79	54	21,911	24	10,819	14,431
80-84	49	22,293	8	17,727	22,998
85-89	54	24,798	3	19,040	24,072
90-94	43	24,670	-	-	-
95-100	15	24,888	-	-	-
100 and over	3	33,028	-	-	-
<b>Total</b>	<b>281</b>	<b>\$ 22,719</b>	<b>122</b>	<b>\$ 13,599</b>	<b>\$ 19,287</b>

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Teachers - Current Benefits

Disabled Retirees	100% Federal Count	100% Federal Average Benefit	Partial Federal Count	Partial Federal Average Benefit	Partial Federal Average Total Benefit
Under 35	-	\$ -	-	\$ -	\$ -
35-39	-	-	-	-	-
40-44	-	-	-	-	-
45-59	-	-	-	-	-
50-54	-	-	-	-	-
55-59	4	22,743	-	-	-
60-64	3	22,096	9	13,488	36,253
65-69	9	29,640	33	16,107	34,181
70-74	40	28,837	18	21,954	36,569
75-79	32	28,958	4	23,562	29,931
80-84	39	31,223	-	-	-
85-89	23	30,487	-	-	-
90-94	19	37,655	-	-	-
95-100	12	39,674	-	-	-
100 and over	3	43,592	-	-	-
<b>Total</b>	<b>184</b>	<b>\$ 31,225</b>	<b>64</b>	<b>\$ 17,849</b>	<b>\$ 34,878</b>

#### Inactive Teachers - Deferred Benefits

Terminated Vested	Count	Average Federal Benefit
Under 35	-	\$ -
35-39	-	-
40-44	4	1,692
45-59	25	4,186
50-54	38	8,022
55-59	46	8,036
60-64	39	11,826
65-69	11	9,364
70-74	1	30,880
75-79	-	-
80-84	-	-
85-89	1	12,420
90-94	-	-
95-100	-	-
100 and over	-	-
<b>Total</b>	<b>165</b>	<b>\$ 8,445</b>

## Basis for the Valuation

### Inactive Benefit Information

#### Inactive Teachers - Deferred Benefits

<b>Disabled Retirees</b>	<b>Partial Federal Count</b>	<b>Partial Federal Average Benefit</b>	<b>Partial Federal Average Total Benefit</b>
Under 35	-	\$ -	\$ -
35-39	-	-	-
40-44	-	-	-
45-59	3	5,104	33,744
50-54	3	7,820	37,516
55-59	10	10,519	37,744
60-64	11	10,105	33,328
65-69	-	-	-
70-74	-	-	-
75-79	-	-	-
80-84	-	-	-
85-89	-	-	-
90-94	-	-	-
95-100	-	-	-
100 and over	-	-	-
<b>Total</b>	<b>27</b>	<b>\$ 9,449</b>	<b>\$ 35,475</b>

**Basis for the Valuation**  
**Inactive Benefit Information**  
**Inactive Judges**

Normal Retirees	Count	Average Benefit
Under 35	-	\$ -
35-39	-	-
40-44	-	-
45-59	-	-
50-54	-	-
55-59	1	164,080
60-64	7	164,217
65-69	14	139,510
70-74	20	146,890
75-79	12	152,340
80-84	12	155,279
85-89	10	118,321
90-94	2	86,839
95-100	-	-
100 and over	-	-
<b>Total</b>	<b>78</b>	<b>\$ 144,267</b>

Beneficiaries	Count	Average Benefit
Under 35	-	\$ -
35-39	-	-
40-44	-	-
45-59	-	-
50-54	1	6,069
55-59	-	-
60-64	-	-
65-69	1	50,017
70-74	1	101,545
75-79	1	95,531
80-84	2	81,812
85-89	3	72,000
90-94	3	60,263
95-100	1	70,399
100 and over	-	-
<b>Total</b>	<b>13</b>	<b>\$ 67,998</b>

Disabled Retirees	Count	Average Benefit
Under 35	-	\$ -
35-39	-	-
40-44	-	-
45-59	-	-
50-54	-	-
55-59	-	-
60-64	1	138,183
65-69	-	-
70-74	-	-
75-79	-	-
80-84	-	-
85-89	-	-
90-94	-	-
95-100	-	-
100 and over	-	-
<b>Total</b>	<b>1</b>	<b>\$ 138,183</b>

Terminated Vested	Count	Average Benefit
Under 35	-	\$ -
35-39	-	-
40-44	-	-
45-59	-	-
50-54	-	-
55-59	-	-
60-64	-	-
65-69	-	-
70-74	-	-
75-79	-	-
80-84	-	-
85-89	-	-
90-94	-	-
95-100	-	-
100 and over	-	-
<b>Total</b>	<b>-</b>	<b>\$ -</b>

# APPENDIX A

## Actuarial Assumptions and Methods

### Methods

#### Liability Valuation Method

The funding method is the individual entry age normal method. The individual entry age normal method allocates the actuarial present value of the projected benefits of each individual on a level basis over the service of the individual between participation age and projected exit age.

The present value of future benefits is equal to the value of the projected benefit payable at retirement discounted back to the member's current age. Discounts include such items as interest and mortality. The difference between the present value of future benefits and the present value of future normal cost contributions represents the actuarial liability at the member's current age. When assets are subtracted from the actuarial liability, the remainder represents the unfunded liability.

For the purposes of determining the actuarial gains and losses during the year, liabilities as of October 1, 2017 for the Police Officers and Firefighters' and Teachers' Plans are based on 2017 spot rates implied by the 2016 spot rate yield curve. These spot rates used in gain/loss analysis were calculated by converting the 2016 spot rates to forward rates, removing the forward rate for FY 2017, and then converting the forward rates back to spot rates. See the table below for an example of the rates.

Fiscal Year	2016 Valuation Spot Rate Assumption	Forward Rate (rounded)	Implied 2017 Spot Rates used for (Gain)/Loss only
FY 2017	1.12%	1.12%	N/A
FY 2018	1.31%	1.50%	1.50%
FY 2019	1.56%	2.06%	1.78%
FY 2020	1.84%	2.68%	2.08%

Example: 2.08% adjusted FY 2020 spot rate =  $(1.0150 \times 1.0206 \times 1.0268)^{(1/3)} - 1$

#### Asset Valuation Method

The market value of assets projected to September 30, 2017 without smoothing is provided by ODCP and used for purposes of the valuation.

#### Funding Method

Under the individual entry age normal method, the normal cost is calculated as a dollar amount using the full yield curve. The normal cost to the Department of the Treasury is the full amount, less expected employee contributions. Changes in actuarial assumptions, changes in plan provisions, and differences in actual experience compared to expected experience are reflected as part of the annual amount of gain or loss, which is a component of the total amortization of Unfunded Accrued Liability.

The prior amortization periods and payments are fixed from year-to-year. Because of this, the balances of prior amortization bases are recalculated each year to reflect changes in the underlying interest rates. New amortization payments due to (Gain)/Loss are recognized over a 10-year period, while those due to assumption changes are recognized over a period of 20 years.

For the Police Officers', Firefighters' and Teachers' Plan, the outstanding amortization bases are re-calculated each year using the new spot rates. For the Judges' Plan, the outstanding amortization bases are re-calculated each year at the new funding effective interest rate (EIR).

The asset (Gain)/Loss is determined using the same interest rates as the liability (Gain)/Loss.

#### Mortality Adjustment from Census Date to Valuation Date

The census data is adjusted from the date it is provided to the valuation date. A factor is applied to the liabilities calculated using the census data to account for the estimated mortality between the census date and the valuation date.

# APPENDIX A

## Actuarial Assumptions and Methods

### Methods

#### Procedures

Financial and Census data: Financial and Census data were submitted by the Department of the Treasury. Information provided was reviewed for internal consistency and there is no reason to doubt its substantial accuracy.

No benefits of materiality were excluded from the valuation of the liabilities.

The limitations of the Internal Revenue Code 415(b) and 401(a)(17) have been incorporated into our calculations.

The Department of the Treasury provided us with data on employees who, as of the valuation date, had completed the plan's eligibility requirements.

#### Method Changes Since Last Year

None.

# APPENDIX A

## Actuarial Assumptions and Methods

### Assumptions

<b>Interest Rates</b>	The June 30, 2017 rates (averaged over 40 quarters, as published by the Department of the Treasury) shown below were used for the current valuation. The Police Officers and Firefighters', and Teachers' Plans are measured using the full yield curve for the liability interest rate, while the Judges' Plan is measured using the equivalent Effective Interest Rate (EIR).							
	<b>Duration</b>	<b>Return</b>	<b>Duration</b>	<b>Return</b>	<b>Duration</b>	<b>Return</b>	<b>Duration</b>	<b>Return</b>
	0-1	0.71%	25-26	3.72%	50-51	3.93%	75-76	4.00%
	1-2	0.94%	26-27	3.74%	51-52	3.93%	76-77	4.00%
	2-3	1.22%	27-28	3.75%	52-53	3.93%	77-78	4.00%
	3-4	1.53%	28-29	3.76%	53-54	3.94%	78-79	4.00%
	4-5	1.82%	29-30	3.77%	54-55	3.94%	79-80	4.00%
	5-6	2.10%	30-31	3.79%	55-56	3.94%	80-81	4.01%
	6-7	2.34%	31-32	3.80%	56-57	3.95%	81-82	4.01%
	7-8	2.57%	32-33	3.81%	57-58	3.95%	82-83	4.01%
	8-9	2.76%	33-34	3.82%	58-59	3.95%	83-84	4.01%
	9-10	2.92%	34-35	3.83%	59-60	3.96%	84-85	4.01%
	10-11	3.06%	35-36	3.84%	60-61	3.96%	85-86	4.01%
	11-12	3.18%	36-37	3.84%	61-62	3.96%	86-87	4.02%
	12-13	3.27%	37-38	3.85%	62-63	3.97%	87-88	4.02%
	13-14	3.35%	38-39	3.86%	63-64	3.97%	88-89	4.02%
	14-15	3.42%	39-40	3.87%	64-65	3.97%	89-90	4.02%
	15-16	3.47%	40-41	3.87%	65-66	3.97%	90-91	4.02%
	16-17	3.52%	41-42	3.88%	66-67	3.98%	91-92	4.02%
	17-18	3.56%	42-43	3.88%	67-68	3.98%	92-93	4.02%
	18-19	3.59%	43-44	3.89%	68-69	3.98%	93-94	4.02%
	19-20	3.62%	44-45	3.90%	69-70	3.98%	94-95	4.03%
	20-21	3.64%	45-46	3.90%	70-71	3.99%	95-96	4.03%
	21-22	3.66%	46-47	3.91%	71-72	3.99%	96-97	4.03%
	22-23	3.68%	47-48	3.91%	72-73	3.99%	97-98	4.03%
	23-24	3.70%	48-49	3.92%	73-74	3.99%	98-99	4.03%
	24-25	3.71%	49-50	3.92%	74-75	3.99%	99-100	4.03%
	The Effective Interest Rates (single rate that produces the same results when applied to all cash flows) for all plans are as follows:							
		<b>Police</b>	<b>Fire</b>	<b>Teachers</b>	<b>Judges</b>			
	EIR	3.32%	3.30%	3.21%	3.42%			
<b>Interest Rates for (Gain)/Loss</b>	The same interest rates were used for purposes of rolling forward plan assets and rolling forward plan liabilities for determining gains and losses. For Judges, the EIR (3.63%) was used for this purpose. For Police, Fire and Teachers, the first spot rate from the 2016 spot rate curve (1.12%) was used for this purpose.							
<b>Economic Assumptions</b>		<b>Police</b>	<b>Fire</b>	<b>Teachers</b>	<b>Judges</b>			
	COLA <sup>1</sup>	1.82%	1.82%	1.86%	1.69%			
	Wage Inflation	1.80%	2.20%	3.00%	1.08%			
	<sup>1</sup> The Cost of Living Adjustment assumption above does not apply to police officers and firefighters who retired prior to February 15, 1980, as they receive COLAs based on wage inflation.							

# APPENDIX A

## Actuarial Assumptions and Methods

### Assumptions

<b>Salary Growth</b>	<p>The additional salary increases (on top of the general wage increases for all employees as shown in the above table) are shown below, via representative rates:</p> <table border="1" data-bbox="500 411 1617 625"> <thead> <tr> <th>Years of Service</th> <th>Police</th> <th>Fire</th> <th>Teachers</th> <th>Judges</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>3.00%</td> <td>3.00%</td> <td>2.00%</td> <td>0.00%</td> </tr> <tr> <td>15</td> <td>2.10%</td> <td>7.36%</td> <td>1.60%</td> <td>0.00%</td> </tr> <tr> <td>20</td> <td>8.80%</td> <td>4.70%</td> <td>0.75%</td> <td>0.00%</td> </tr> <tr> <td>25</td> <td>3.60%</td> <td>3.75%</td> <td>0.60%</td> <td>0.00%</td> </tr> <tr> <td>30</td> <td>3.35%</td> <td>7.90%</td> <td>0.40%</td> <td>0.00%</td> </tr> </tbody> </table> <p>Police officers receive longevity increases of 5% of step 1 pay in the officers' pay class after 15 years of service and additional increases of 5% of step 1 pay in the officers' pay class after 20, 25 and 30 years of service. Longevity pay is included in pensionable compensation once the member has 25 years of service. Additionally, police officers receive an additional increase of 5% for the Base Retention Differential after 20 years of service.</p> <p>Firefighters are assumed to receive longevity increases of 5%, 10%, 15%, and 20% applied to base pay after 15, 20, 25, and 30 years of service, respectively, and are included in pensionable compensation for all years.</p>	Years of Service	Police	Fire	Teachers	Judges	10	3.00%	3.00%	2.00%	0.00%	15	2.10%	7.36%	1.60%	0.00%	20	8.80%	4.70%	0.75%	0.00%	25	3.60%	3.75%	0.60%	0.00%	30	3.35%	7.90%	0.40%	0.00%
Years of Service	Police	Fire	Teachers	Judges																											
10	3.00%	3.00%	2.00%	0.00%																											
15	2.10%	7.36%	1.60%	0.00%																											
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25	3.60%	3.75%	0.60%	0.00%																											
30	3.35%	7.90%	0.40%	0.00%																											
<b>Active Member Base Mortality</b>	<ul style="list-style-type: none"> <li>• <b>Police Officers and Firefighters:</b> 80% of RP-2000 Combined Healthy mortality with Blue Collar Adjustment with a 1-year setback for males and no setback for females.</li> <li>• <b>Teachers:</b> 80% of RP-2000 Combined Healthy mortality with White Collar Adjustment with a 4-year setback for males and a 3-year setback for females.</li> <li>• <b>Judges:</b> RP-2014 Non-Annuitant mortality with White Collar Adjustment, with no setbacks.</li> </ul>																														
<b>Inactive Member Base Mortality</b>	<ul style="list-style-type: none"> <li>• <b>Police Officers and Firefighters:</b> RP-2000 Combined Healthy mortality with Blue Collar Adjustment with a 1-year setback for males and no setback for females.</li> <li>• <b>Teachers:</b> RP-2000 Combined Healthy mortality with White Collar Adjustment with a 4-year setback for males and a 3-year setback for females.</li> <li>• <b>Judges:</b> RP-2014 Annuitant mortality with White Collar Adjustment, with no setbacks. For periods of deferral, RP-2014 Non-Annuitant mortality with White Collar Adjustment, with no setbacks.</li> </ul>																														

# APPENDIX A

## Actuarial Assumptions and Methods

### Assumptions

<b>Disabled Member Base Mortality</b>	<ul style="list-style-type: none"> <li>• <b>Police Officers and Firefighters:</b> RP-2000 Combined Healthy mortality with Blue Collar Adjustment with no set forward for males and a 1-year set forward for females.</li> <li>• <b>Teachers:</b> RP-2000 Combined Healthy mortality with White Collar Adjustment with a 1-year set forward for males and a 2-year set forward for females.</li> <li>• <b>Judges:</b> RP-2014 Annuitant mortality with White Collar Adjustment, with no setbacks.</li> </ul>																																													
<b>Longevity Improvement Projection Scale</b>	<ul style="list-style-type: none"> <li>• <b>Police Officers, Firefighters and Teachers:</b> Mortality tables are adjusted using generational projection from 2011 using Scale MP-2016.</li> <li>• <b>Judges:</b> Longevity improvements are removed from 2014 to 2006. Then, mortality tables are adjusted using generational projection from 2006 using Scale MP-2016.</li> </ul>																																													
<b>Mortality Adjustment from Census Date to Valuation Date</b>	<p>The liabilities are adjusted to account for mortality during the 5 month period between the census collection date of May 1, 2017 and the valuation date of October 1, 2017. The liabilities for inactive members in the Police Officers and Firefighters', and Teachers' plans are decreased by 0.1225% per month (0.993875 factor applied), while the liabilities for inactive members in the Judges' plan are reduced by 0.1900% per month (0.9905 factor applied). The liabilities for active members are unadjusted.</p>																																													
<b>Disability</b>	<p>No disabilities are assumed among Judges.</p> <p>Below are sample rates of disability assumed to occur:</p> <table border="1" data-bbox="500 1256 1617 1535"> <thead> <tr> <th>Age</th> <th>Police</th> <th>Fire</th> <th>Teachers</th> <th>Judges</th> </tr> </thead> <tbody> <tr> <td>30</td> <td>0.900%</td> <td>0.750%</td> <td>0.070%</td> <td>0.000%</td> </tr> <tr> <td>35</td> <td>0.900%</td> <td>0.750%</td> <td>0.120%</td> <td>0.000%</td> </tr> <tr> <td>40</td> <td>0.405%</td> <td>0.375%</td> <td>0.128%</td> <td>0.000%</td> </tr> <tr> <td>45</td> <td>0.405%</td> <td>0.375%</td> <td>0.208%</td> <td>0.000%</td> </tr> <tr> <td>50</td> <td>0.405%</td> <td>0.375%</td> <td>0.500%</td> <td>0.000%</td> </tr> <tr> <td>55</td> <td>0.000%</td> <td>0.000%</td> <td>0.800%</td> <td>0.000%</td> </tr> <tr> <td>59</td> <td>0.000%</td> <td>0.000%</td> <td>0.800%</td> <td>0.000%</td> </tr> <tr> <td>60</td> <td>0.000%</td> <td>0.000%</td> <td>0.000%</td> <td>0.000%</td> </tr> </tbody> </table> <p>Note that the Federal portion of the disability benefits for police officers and firefighters is the same for service and non-service related disabilities. Therefore, an assumption on percentage of service related disabilities was not necessary. All incidents of disability were assumed to result in members being 100% disabled.</p>	Age	Police	Fire	Teachers	Judges	30	0.900%	0.750%	0.070%	0.000%	35	0.900%	0.750%	0.120%	0.000%	40	0.405%	0.375%	0.128%	0.000%	45	0.405%	0.375%	0.208%	0.000%	50	0.405%	0.375%	0.500%	0.000%	55	0.000%	0.000%	0.800%	0.000%	59	0.000%	0.000%	0.800%	0.000%	60	0.000%	0.000%	0.000%	0.000%
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# APPENDIX A

## Actuarial Assumptions and Methods

### Assumptions

<b>Withdrawal</b>	<p>No terminations are assumed among judges and termination rates are not applied to members eligible for service retirement.</p> <p>Below are sample termination rates:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Age</th> <th>Police</th> <th>Fire</th> <th>Teachers- Male</th> <th>Teachers- Female</th> <th>Judges</th> </tr> </thead> <tbody> <tr><td>30</td><td>1.600%</td><td>1.500%</td><td>15.830%</td><td>7.920%</td><td>0.000%</td></tr> <tr><td>35</td><td>1.600%</td><td>1.250%</td><td>13.700%</td><td>6.850%</td><td>0.000%</td></tr> <tr><td>40</td><td>0.900%</td><td>1.000%</td><td>13.500%</td><td>6.760%</td><td>0.000%</td></tr> <tr><td>45</td><td>0.900%</td><td>0.750%</td><td>10.120%</td><td>5.060%</td><td>0.000%</td></tr> <tr><td>50</td><td>0.900%</td><td>0.500%</td><td>6.070%</td><td>3.040%</td><td>0.000%</td></tr> <tr><td>55</td><td>0.900%</td><td>0.250%</td><td>3.600%</td><td>2.160%</td><td>0.000%</td></tr> <tr><td>60</td><td>0.000%</td><td>0.000%</td><td>3.600%</td><td>2.160%</td><td>0.000%</td></tr> <tr><td>62+</td><td>0.000%</td><td>0.000%</td><td>0.000%</td><td>0.000%</td><td>0.000%</td></tr> </tbody> </table> <p>70% of terminations are assumed to result in the withdrawal of contributions, with no further benefits payable. All other members are assumed to receive deferred benefits.</p>	Age	Police	Fire	Teachers- Male	Teachers- Female	Judges	30	1.600%	1.500%	15.830%	7.920%	0.000%	35	1.600%	1.250%	13.700%	6.850%	0.000%	40	0.900%	1.000%	13.500%	6.760%	0.000%	45	0.900%	0.750%	10.120%	5.060%	0.000%	50	0.900%	0.500%	6.070%	3.040%	0.000%	55	0.900%	0.250%	3.600%	2.160%	0.000%	60	0.000%	0.000%	3.600%	2.160%	0.000%	62+	0.000%	0.000%	0.000%	0.000%	0.000%																																				
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<b>Retirement Age</b>	<p>Retirement is assumed to occur in accordance with the tables below:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Age</th> <th>Police- Male</th> <th>Police- Female</th> <th>Fire</th> <th>Teachers</th> <th>Judges</th> </tr> </thead> <tbody> <tr><td>45-49</td><td>10%</td><td>10%</td><td>10%</td><td>0%</td><td>0%</td></tr> <tr><td>50</td><td>40%</td><td>40%</td><td>15%</td><td>0%</td><td>0%</td></tr> <tr><td>51</td><td>25%</td><td>30%</td><td>17%</td><td>0%</td><td>0%</td></tr> <tr><td>52</td><td>25%</td><td>30%</td><td>19%</td><td>0%</td><td>0%</td></tr> <tr><td>53</td><td>25%</td><td>30%</td><td>21%</td><td>0%</td><td>0%</td></tr> <tr><td>54</td><td>25%</td><td>30%</td><td>23%</td><td>0%</td><td>0%</td></tr> <tr><td>55</td><td>25%</td><td>30%</td><td>25%</td><td>35%</td><td>0%</td></tr> <tr><td>56</td><td>22%</td><td>30%</td><td>27%</td><td>35%</td><td>0%</td></tr> <tr><td>57</td><td>22%</td><td>31%</td><td>29%</td><td>35%</td><td>0%</td></tr> <tr><td>58</td><td>22%</td><td>32%</td><td>31%</td><td>35%</td><td>10%</td></tr> <tr><td>59</td><td>22%</td><td>33%</td><td>33%</td><td>35%</td><td>10%</td></tr> <tr><td>60-62</td><td>100%</td><td>100%</td><td>100%</td><td>25%</td><td>10%</td></tr> <tr><td>63-69</td><td>100%</td><td>100%</td><td>100%</td><td>25%</td><td>10%</td></tr> <tr><td>70+</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr> </tbody> </table> <p>An additional 15% for Firefighters ages 50-59 with at least 30 years of service is assumed.</p>	Age	Police- Male	Police- Female	Fire	Teachers	Judges	45-49	10%	10%	10%	0%	0%	50	40%	40%	15%	0%	0%	51	25%	30%	17%	0%	0%	52	25%	30%	19%	0%	0%	53	25%	30%	21%	0%	0%	54	25%	30%	23%	0%	0%	55	25%	30%	25%	35%	0%	56	22%	30%	27%	35%	0%	57	22%	31%	29%	35%	0%	58	22%	32%	31%	35%	10%	59	22%	33%	33%	35%	10%	60-62	100%	100%	100%	25%	10%	63-69	100%	100%	100%	25%	10%	70+	100%	100%	100%	100%	100%
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<b>Return of Employee Contributions</b>	<p>In valuing return of contribution benefits for employees assumed to die without a spouse or to terminate and elect a refund of their contribution balance, the employee contributions balance was estimated based on the actual employee contribution balance when available (provided as of the census date for the Judges' plan and July 1, 1998 for the other plans), otherwise using estimated prior salaries.</p>																																																																																										
<b>Post Retirement Contributions</b>	<p>Retired Judges may elect to contribute 3.5% of their retirement benefit to provide a survivor benefit. The net amount of this benefit was included in benefit payments and projections, and the normal cost was not offset by these contributions.</p>																																																																																										

# APPENDIX A

## Actuarial Assumptions and Methods

### Assumptions

<b>Expenses</b>	The 15-Year Fund projections for all plans use expense projections provided by the Department of the Treasury. The 15-Year Fund projections for the Judges' Plan assumes employee contribution increases at the same rate as pay for actives.
<b>Percent Married</b>	For the purpose of active death benefits, 50% of teachers and 70% of police officers and firefighters are assumed to be married during employment and after retirement. Male spouses are assumed to be three years older than their female spouse when actual beneficiary data was unavailable.
<b>Benefit Form Election</b>	<ul style="list-style-type: none"><li>• <b>Police Officers and Firefighters:</b> All married plan members receive a Joint-and-57% Survivor Annuity, and all single members receive a Single Life Annuity. Any additional survivor benefit for police officers and firefighters whose average pay was less than class 1, step 6 pay was not valued.</li><li>• <b>Teachers:</b> 100% of active and terminated vested members were valued assuming benefits are payable as a Single Life Annuity. For retirees, 50% were assumed to elect a Joint-and-55% Survivor Annuity, and 50% to elect a Straight Life Annuity.</li><li>• <b>Judges:</b> Judges who have elected survivor benefits are assumed to have a covered spouse with a Joint-and-55% Survivor Annuity. All others assumed to have a Single Life Annuity.</li></ul>
<b>Open Group Projections for Judges</b>	All active judges were assumed to be replaced upon termination from the plan. The replacement is based on a 50/50 blend of a new age 45 judge and a new age 55 judge, assuming 50% male and 50% female. The starting salary is assumed to be \$205,100 for all new entrants.
<b>Data</b>	This actuarial valuation has been prepared based upon member data provided by the Department of the Treasury. We have reviewed the data for reasonableness, but have not independently audited the data. We have no reason to believe the data is not complete and accurate, and know of no further information that is essential to the preparation of the actuarial valuation.

# APPENDIX A

## Actuarial Assumptions and Methods

### Assumptions

#### Changes from Prior Report

##### Base Mortality

The base mortality for the Judges' Plan was updated from RP-2000 Combined Healthy mortality with White Collar Adjustment, with no setbacks for Active, Inactive, and Disabled Members to RP-2014 Annuitant/Non-Annuitant mortality with White Collar Adjustment, with no setbacks for Active, Inactive, and Disabled Members.

##### Longevity Improvement Projection Scale

The mortality projection scale was updated from Scale MP-2015 to Scale MP-2016.

##### Benefit Form Election for Active Participants

Benefit Form Election for active plan members updated to reflect that all married plan members receive a Joint-and-57% Survivor Annuity and all single plan members receive a Single Life Annuity.

##### Interest Rate

The interest rate assumption was changed to reflect average quarterly Treasury yield rates for the 10-year period ending on June 30, 2017. The June 30, 2016 rates (averaged over 40 quarters, as published by the Department of the Treasury) shown below were used for the prior valuation of the Police Officers and Firefighters', and Teachers' Plans. The prior year EIR for the Judges' Plan was 3.63%.

Duration	Return	Duration	Return	Duration	Return	Duration	Return
0-1	1.12%	25-26	3.92%	50-51	4.08%	75-76	4.14%
1-2	1.31%	26-27	3.93%	51-52	4.09%	76-77	4.15%
2-3	1.56%	27-28	3.93%	52-53	4.09%	77-78	4.15%
3-4	1.84%	28-29	3.94%	53-54	4.09%	78-79	4.15%
4-5	2.12%	29-30	3.95%	54-55	4.10%	79-80	4.15%
5-6	2.38%	30-31	3.96%	55-56	4.10%	80-81	4.15%
6-7	2.62%	31-32	3.97%	56-57	4.10%	81-82	4.15%
7-8	2.84%	32-33	3.98%	57-58	4.11%	82-83	4.16%
8-9	3.03%	33-34	3.99%	58-59	4.11%	83-84	4.16%
9-10	3.19%	34-35	4.00%	59-60	4.11%	84-85	4.16%
10-11	3.33%	35-36	4.01%	60-61	4.11%	85-86	4.16%
11-12	3.44%	36-37	4.01%	61-62	4.12%	86-87	4.16%
12-13	3.54%	37-38	4.02%	62-63	4.12%	87-88	4.16%
13-14	3.62%	38-39	4.03%	63-64	4.12%	88-89	4.16%
14-15	3.68%	39-40	4.03%	64-65	4.12%	89-90	4.16%
15-16	3.73%	40-41	4.04%	65-66	4.13%	90-91	4.17%
16-17	3.77%	41-42	4.04%	66-67	4.13%	91-92	4.17%
17-18	3.81%	42-43	4.05%	67-68	4.13%	92-93	4.17%
18-19	3.84%	43-44	4.05%	68-69	4.13%	93-94	4.17%
19-20	3.86%	44-45	4.06%	69-70	4.13%	94-95	4.17%
20-21	3.87%	45-46	4.06%	70-71	4.14%	95-96	4.17%
21-22	3.89%	46-47	4.07%	71-72	4.14%	96-97	4.17%
22-23	3.90%	47-48	4.07%	72-73	4.14%	97-98	4.17%
23-24	3.91%	48-49	4.08%	73-74	4.14%	98-99	4.17%
24-25	3.91%	49-50	4.08%	74-75	4.14%	99-100	4.17%

	Police	Fire	Teachers	Judges
<u>Prior Year</u>				
COLA	1.87%	1.87%	1.90%	1.99%
Wage Inflation	2.00%	2.20%	3.00%	1.15%
<u>Current Year</u>				
COLA	1.82%	1.82%	1.86%	1.69%
Wage Inflation	1.80%	2.20% <sup>1</sup>	3.00% <sup>1</sup>	1.08%

<sup>1</sup> Unchanged from prior report

# APPENDIX B

## Rationale Methods

<b>Funding Method</b>	SFFAS 5 permits the use of a funding method other than the Aggregate Entry Age Normal method if an explanation is provided and the difference in results are immaterial. Under the Aggregate Entry Age Normal method for Civil Service plans, the normal cost rate is calculated for new employees using the ratio of present value of benefits to present value of future salaries. Because the Police Officers and Firefighters' and the Teachers' Plans do not have a normal cost because the service is frozen, both the Individual and the Aggregate Entry Age Normal methods produce the same results. The Judges' plan has a normal cost due to continued accrual, but the results are similar under either method. Because the aggregate method creates unnecessary amortization bases and because the individual method is consistent with past practice as directed by the Department of the Treasury, the Individual Entry Age Normal method was applied.
<b>Interest Rate Application</b>	To calculate the present value of members' benefits for the Police Officers and Firefighters', and Teachers' Plans, spot rates were used in accordance with SSFAS 5 and SFFAS 33. For the Judges' Plan, an Effective Interest Rate (EIR) was used. The EIR is the single interest rate calculated to provide the same present value of benefits as the spot rates and allows for the appropriate liability calculation using the Entry Age Normal Funding Method with an active population.

# APPENDIX B

## Rationale Assumptions

<b>Interest Rates and Economic Assumptions</b>	The underlying interest rate, inflation, Cost-of-Living Adjustment (based on 10-year averages), and wage inflation assumptions (based on the 10-year average of actual negotiated pay increases) were prescribed by the Department of the Treasury, based on their analysis of investments and historical experience, and are intended to comply with SFFAS 5 and 33.
<b>Interest Rates for (Gain)/Loss</b>	The use of EIR for the Judges' Plan produced the same Present Value of Benefits as is produced using the yield curve. For an active plan, the EIR is used for the period of time between member entry and valuation date. The EIR is a good proxy for long term discount rate because it captures the weighted cash flows of the yield curve as a single rate. The use of the first spot rate for the other plans reflects the most relevant expectation of the discount rate over the course of the prior year.
<b>Salary Growth</b>	The underlying salary growth assumptions are based upon expectations of plan experience and the most recent experience study conducted in 2014.
<b>Base Mortality Table</b>	<ul style="list-style-type: none"><li>• <b>Police Officers, Firefighters and Teachers:</b> The base mortality tables were adjusted to reflect actual plan experience during the most recent experience study conducted in 2014.</li><li>• <b>Judges:</b> The RP-2014 base mortality table reflects the most recently developed mortality base table published by the Society of Actuaries.</li></ul>
<b>Longevity Improvement Projection Scale</b>	The MP-2016 projection scale reflects the most recently developed mortality improvement outlook from the Society of Actuaries.
<b>Mortality Adjustment from Census Date to Valuation Date</b>	The adjustment to the liability to account for assumed mortality experience during the gap between the census collection date and the valuation date is a de minimis assumption.
<b>Disability Rates</b>	Rates of disablement for included employees are based upon expectations of plan experience and the most recent experience study conducted in 2014.
<b>Withdrawal Rates</b>	Rates of withdrawal for included employees are based upon broad termination patterns and expectations of plan experience and the most recent experience study conducted in 2014.
<b>Retirement Rates</b>	Rates of retirement for included employees are based upon broad retirement patterns and expectations of plan experience and the most recent experience study conducted in 2014.
<b>Expenses</b>	The 15-Year Fund projections for all plans use expense projections provided by the Department of the Treasury. Due to the active nature of the Judges' Plan, employee contributions have a further increase factor to account for increases in pay rate for actives.

# APPENDIX B

## Rationale Assumptions

<b>Percent Married</b>	The marriage assumptions are based on expectations of plan experience and the most recent experience study conducted in 2014.
<b>Benefit Form Election</b>	The benefit form election assumptions are based on expectations of plan experience and the most recent experience study conducted in 2014.
<b>Open Group Projections</b>	Open group projections are based upon expectations of plan experience.
<b>Benefits Not Valued</b>	<p>The refund of employee contributions was not valued for the Police Officers and Firefighters' and the Teachers' Plans payable to retirees who died without eligible surviving beneficiaries. The Department of the Treasury is only responsible for the balance as of June 30, 1997 without interest; therefore, this liability, if any, was deemed immaterial.</p> <p>Survivor benefits for the Teachers' Plan are not valued for deferred benefits. The Teachers plan provides a reduction for Joint-and-Survivor benefits; therefore, the actuarial value of the life annuity is similar to the actuarial value of the Joint-and-Survivor annuity. Surviving children's benefits for active members in the Police Officers and Firefighters' Plan are valued indirectly, by assuming a Joint-and-57% Survivor annuity for married members.</p> <p>The COLA for surviving spouses in the Police Officers and Firefighters' Plan who retired prior to February 15, 1980 is based on the CPI. Due to the complexity of the calculation and immaterial impact on the liabilities, the same COLA that applies to the member was assumed to apply to the spouse.</p>

# APPENDIX C

## Plan Provisions Summary

### Police Officers and Firefighters' Plan

<b>Plan Year</b>	October 1 - September 30
<b>Eligibility for Participation</b>	All police officers and firefighters of the District of Columbia automatically become members on their date of employment. Police Cadets are not eligible.
<b>Contributions</b>	<p>Members hired before November 10, 1996 are required to contribute 7% of annual salary, including any differential for special assignment, but excluding overtime, longevity, holiday, or military pay. Members hired on or after November 10, 1996 contribute 8% of annual salary, including any differential for special assignment, but excluding overtime, holiday, or military pay. Interest is not credited to each member's accumulated contributions.</p> <p>Emerging inactive members not eligible for additional benefits will receive a refund of their contributions.</p>
<b>Departmental Service</b>	A member receives service for each full year and additional months of employment with either the Metropolitan Police Force or the D.C. Fire Department. Only service earned prior to July 1, 1997 is used to compute the plan benefits.
<b>Credited Service</b>	Service granted or purchased in addition to departmental service.
<b>Final Average Annual Earnings</b>	For those hired before February 15, 1980, basic pay for the highest 12 consecutive months. For those hired on or after February 15, 1980, basic pay for the highest 36 consecutive months divided by three.
<b>Longevity Pay - Police Officers</b>	<p>Members who complete 25 years of active service prior to retirement are entitled to have longevity pay included in pensionable compensation.</p> <p>Members hired before February 15, 1980, who complete 20 but less than 25 years of active service prior to retirement, are entitled to have longevity pay included in pensionable compensation (as this benefit adjustment was not included in June 30, 1997 plan provisions governing federal benefits, the District funds this benefit adjustment).</p>
<b>Normal form of benefit</b>	Straight Life Annuity (no eligible spouse survivor); Joint-and-Survivor Annuity (eligible spouse survivor)
<b>Optional form of benefits</b>	<p>Optional Additional Survivor Benefit:</p> <p>If elected by the member, the retiree benefit is reduced by 10% and the survivor is entitled to an additional survivor benefit equal to the amount of the benefit reduction; except the additional survivor benefit is reduced by 5% for each full five years the survivor is younger than the member, with this reduction not to exceed 40%.</p>

# APPENDIX C

## Plan Provisions Summary

### Police Officers and Firefighters' Plan

<b>Cost-of-Living Adjustments</b>	<p>Former employees (not beneficiaries) who retired prior to February 15, 1980, receive equalization, defined as a percentage increase in benefits equal to the percentage increase in pay active employees receive.</p> <p>All other retired members and their survivors receive an increase April 1 each year based on the annual change in the Consumer Price Index (All Urban Consumers) from December to December. The annual increase will not be less than 0% for any member, and is limited to a maximum of 3% for members hired on or after November 10, 1996.</p> <p>The cost-of-living adjustment for members disabled after June 30, 1997 and not eligible for an optional retirement benefit starts only with the payment of the Federal portion of the benefit at age 55.</p>
<b><u>Retirement Benefits</u></b>	
<b>Optional Retirement Date</b>	<p>For members hired before November 10, 1996:</p> <ul style="list-style-type: none"> <li>• Age 60; or</li> <li>• Age 50 with 25 years of departmental service; or</li> <li>• No age requirement with 20 years of service (only if hired before February 15, 1980.)</li> </ul> <p>For members hired on or after November 10, 1996:</p> <ul style="list-style-type: none"> <li>• Age 60; or</li> <li>• No age requirement with 25 years of service.</li> </ul>
<b>Optional Retirement Benefit</b>	<p>For members hired before November 10, 1996:</p> <ul style="list-style-type: none"> <li>• 2.5% of Average Pay times departmental service up to 25 years (20 years if hired before February 15, 1980), plus</li> <li>• 3.0% of Average Pay times departmental service over 25 (or 20) years, plus</li> <li>• 2.5% of Average Pay times credited service.</li> </ul> <p>For members hired on or after November 10, 1996:</p> <ul style="list-style-type: none"> <li>• 2.5% of Average Pay times total service.</li> </ul> <p>For all members, there is a maximum benefit of 80% of Average Pay. Service after June 30, 1997 is excluded from the calculation of the Federal portion of the benefit.</p>
<b>Vesting</b>	<p>5 years of departmental service.</p>
<b>Deferred Vested Benefit</b>	<p>Optional Retirement Benefit beginning at age 55.</p>

# APPENDIX C

## Plan Provisions Summary

### Police Officers and Firefighters' Plan

<u>Disability Benefits</u>	
<b>Service-Related Disability Benefit Eligibility</b>	Members who are disabled as a result of an illness or injury in the line of duty are eligible for this benefit. If disabled after June 30, 1997 and not eligible for an optional retirement benefit, the Federal portion of this benefit is payable beginning at age 55.
<b>Service-Related Disability Benefit</b>	<p>For members hired before February 15, 1980, 2.5% of Average Pay times total years of service, subject to a minimum benefit of 66-2/3% of Average Pay and subject to a maximum benefit of 70% of Average Pay.</p> <p>For members hired on or after February 15, 1980, 70% of final pay times percentage of disability, subject to a minimum benefit of 40% of final pay.</p> <p>The Federal portion of this benefit is a deferred vested benefit payable upon attainment of age 55, unless the conditions for optional retirement are met, in which case the Federal portion of this benefit is an optional retirement benefit. Service after June 30, 1997 is excluded from this calculation.</p>
<b>Non-Service-Related Disability Benefit Eligibility</b>	Eligible with 5 years of departmental service and a physical or mental disability that prevents the member from performing his/her job. If disabled after June 30, 1997 and not eligible for an optional retirement benefit, the Federal portion of this benefit is payable beginning at age 55.
<b>Non-Service-Related Disability Benefit</b>	<p>For members hired before February 15, 1980, 2.0% of Average Pay times total years of service, subject to a minimum benefit of 40% of average pay and subject to a maximum benefit of 70% of average pay.</p> <p>For members hired on or after February 15, 1980, 70% of final pay times percentage of disability, subject to a minimum benefit of 30% of final pay.</p> <p>The Federal portion of this benefit is a deferred vested benefit payable upon attainment of age 55, unless the conditions for optional retirement are met, in which case the Federal portion of this benefit is an optional retirement benefit. Service after June 30, 1997 is excluded from this calculation.</p>

# APPENDIX C

## Plan Provisions Summary

### Police Officers and Firefighters' Plan

<b><u>Death Benefits</u></b>	
<b>Lump Sum Death Benefit</b>	Lump sum of \$50,000 payable for death occurring in the line of duty, provided the death is not the result of willful misconduct or by intention to bring about his/her own death.
<b>Survivor Benefit (Spouse Only) - Death Outside Line of Duty after 12/29/93</b>	Eligible upon death and, if retired, married for at least one year or have a child by the marriage. The benefit will be 40% of the greater of Average Pay and the salary for class 1, step 6 of the D.C. Police and Fireman's Salary Act in effect at the date of death, adjusted for cost-of-living increases if death occurs after retirement. The benefit cannot exceed the rate of pay for the position occupied at death (or retirement if death occurs after retirement.)
<b>Survivor Benefit (Spouse Only) - Death In Line of Duty after 12/29/93</b>	Eligible upon death in the line of duty. The benefit will be 100% of final pay. The Federal portion of this benefit is 40% of average pay per June 30, 1997 plan provisions.
<b>Survivor Benefit - Spouse and Dependent Children</b>	<p>Eligibility for the spouse is the same as Spouse Only benefit; for the children, unmarried and under 18 (22 if full-time student), or any child dependent because of a disability incurred before age 18.</p> <p>Spouse benefit as described above, plus, provided death does not occur in the line of duty, a benefit per child (payable until the children are no longer eligible) equal to the smallest of:</p> <ul style="list-style-type: none"> <li>• 60% of Average Pay divided by the number of eligible children;</li> <li>• \$4,080 (\$3,996 if hired on or after November 1, 1996) - Federal portion is \$1,548;</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>• \$12,240 (\$11,988 if hired on or after November 1, 1996) divided by the number of children - Federal portion is \$4,644.</li> </ul> <p>These amounts are increased annually based on cost-of-living adjustments.</p>
<b>Survivor Benefit - Dependent Children Only</b>	Eligibility is same as the Dependent Children benefit above. The benefit will be 75% of Average Pay divided by the number of eligible children, adjusted for cost-of-living increases.
<b>Refund of Contributions</b>	Refund contributions if death before retirement and no eligible spouse or children. All Member contributions will be refunded to a named, or statutorily-designated if none named, beneficiary.
<b>Changes Since Prior Valuation</b>	None of which we are aware.

# APPENDIX C

## Plan Provisions Summary

### Teachers' Plan

<b>Plan Year</b>	October 1 - September 30
<b>Eligibility for Participation</b>	Permanent, temporary, and probationary teachers for the District of Columbia public day schools become members automatically on their date of employment. Other employees covered by the Retirement of Public School Teachers Act – including librarians, principals, and counselors – also become members on their date of employment. Substitute teachers and employees of the Department of School Attendance and Work Permits are not covered. Some former D.C. teachers working at charter schools are eligible to remain in the Plan.
<b>Contributions</b>	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.  Emerging inactive members not eligible for additional benefits will receive a refund of their contributions without interest.
<b>School Service</b>	One year of school service is granted for each year of employment with the D.C. public day schools.
<b>Credited Service</b>	Service granted or purchased in addition to school service.
<b>Final Average Annual Earnings</b>	Highest 36 consecutive months of pay, divided by three.
<b>Optional form of benefits</b>	<p><b><u>Reduced Annuity with a Maximum Survivor Annuity (to Spouse)</u></b> The original benefit is reduced by 2.5% of annual pension up to \$3,600, plus 10% of any amount over \$3,600. Spouse will receive 55% of Unreduced Annuity.</p> <p><b><u>Reduced Annuity with a Partial Survivor Annuity (to Spouse)</u></b> An annuity with a benefit payable to the spouse of between \$1 up to any amount less than 55% of the Unreduced Annuity. The original benefit is reduced by dividing the amount of the survivor's annuity by 55%, then reducing the original benefit by 2.5% of this amount up to \$3,600, plus 10% of any amount over \$3,600.</p> <p><b><u>Reduced Annuity with a Survivor Annuity to a Person with an Insurable Interest</u></b> A joint and 55% survivor annuity with the original benefit reduced 10% plus an additional 5% for each full 5 years, up to 25 years, the survivor is younger, with a total reduction of 40% for any survivor who is 25 or more years younger.</p> <p><b><u>Reduced Annuity with a Life Insurance Benefit</u></b> Benefits are reduced to provide a lump sum life insurance benefit to a designated beneficiary.</p>

# APPENDIX C

## Plan Provisions Summary

### Teachers' Plan

<b>Cost-of-Living Adjustments</b>	All members receive an increase on April 1 each year based on the annual change in the Consumer Price Index (all items – U.S. City average) from December to December. The annual increase will not be less than 0% for any member, and is limited to 3.0% for members hired on or after November 1, 1996. The cost-of-living adjustment for members who become disabled after June 30, 1997 starts only with the payment of the federal portion of the benefit at age 62.
<b><u>Retirement Benefits</u></b>	
<b>Voluntary Retirement Date</b>	<p>For member hired before November 1, 1996, earliest of:</p> <ul style="list-style-type: none"> <li>• Age 62 with 5 years of school service;</li> <li>• Age 60 with 20 years of total service, including 5 years of school service;</li> <li>• Age 55 with 30 years of total service, including 5 years of school service.</li> </ul> <p>For member hired on or after November 1, 1996, earliest of:</p> <ul style="list-style-type: none"> <li>• Age 62 with 5 years of school service;</li> <li>• Age 60 with 20 years of total service, including 5 years of school service;</li> <li>• Any age with 30 years of total service, including 5 years of school service.</li> </ul>
<b>Voluntary Retirement Benefit</b>	<p>For member hired before November 1, 1996:</p> <ul style="list-style-type: none"> <li>• 1.5% of Average Pay times service up to 5 years, plus;</li> <li>• 1.75% of Average Pay times service between 5 and 10 years, plus</li> <li>• 2.0% of Average Pay times service over 10 years.</li> </ul> <p>For member hired on or after November 1, 1996:</p> <ul style="list-style-type: none"> <li>• 2.0% of Average Pay times service.</li> </ul> <p>For all members, there is a minimum benefit of 1.0% of Average Pay plus \$25 for each year of service.</p> <p>Service after June 30, 1997 is excluded from the calculation of the Federal portion of the benefit.</p>
<b>Involuntary Retirement Date</b>	<p>Retired involuntarily for reasons other than misconduct or delinquency with:</p> <ul style="list-style-type: none"> <li>• 25 years of total service, including 5 years of school service; or</li> <li>• Age 50 with 20 years of total service, including 5 years of school service.</li> </ul>
<b>Involuntary Retirement Amount</b>	Voluntary Retirement Benefit reduced by 1/6% per month (2% per year) that date of retirement precedes age 55.
<b>Vesting</b>	5 years of school service.
<b>Deferred Vested Benefit</b>	The benefit amount is calculated as a Voluntary Retirement Benefit beginning at age 62, based on service earned as of the termination of employment.

# APPENDIX C

## Plan Provisions Summary

### Teachers' Plan

<b>Disability Benefits</b>	
<b>Disability Benefit Eligibility</b>	5 years of school service and a physical or mental disability that prevents the member from performing the job.
<b>Disability Benefit</b>	Voluntary Retirement benefit, subject to a minimum of the lesser of 40% of Average Pay and the benefit that the member would receive, projecting service to age 60. If disabled after June 30, 1997 and not eligible for voluntary retirement, the Federal portion of this benefit is a deferred vested benefit payable upon attainment of age 62. Service after June 30, 1997 is excluded from this calculation.
<b>Death Benefits</b>	
<b>Lump Sum Death Benefit - No Survivor</b>	Teachers who die before retirement and before completing 18 months of school service or who die without an eligible spouse, child, or parent, will receive a lump sum death benefit. The benefit will be a refund of Member contributions without interest.
<b>Survivor Benefit - Spouse Only</b>	Teachers who die before retirement and were married for at least two years or have a child by the marriage will provide their survivors a benefit. The benefit will be 55% of the Voluntary Retirement benefit subject to minimums.
<b>Survivor Benefit - Spouse and Dependent Children</b>	<p>Eligibility for the spouse is the same as Spouse Only benefit; for the children, unmarried and under 18 (22 if a full-time student); or any child dependent because of a disability incurred before age 18. Death does not have to occur before retirement for the children's benefits. The benefit will be:</p> <p>Spouse benefit as described above, plus a benefit per child (payable until the children are no longer eligible) equal to the smallest of:</p> <ul style="list-style-type: none"> <li>• 60% of Average Pay divided by the number of eligible children;</li> <li>• \$6,924 (if hired before January 1, 1980), \$6,696 (if hired between January 1, 1980 and October 31, 1996), or \$6,528 (if hired on or after November 1, 1996) per child; or</li> <li>• \$20,772 (if hired before January 1, 1980), \$20,088 (if hired between January 1, 1980 and October 31, 1996), or \$19,584 (if hired on or after November 1, 1996) divided by the number of children.</li> </ul> <p>These amounts are increased annually based on cost-of-living adjustments.</p>

# APPENDIX C

## Plan Provisions Summary

### Teachers' Plan

<b>Survivor Benefit - Dependent Children Only</b>	<p>Eligibility is the same as for the children's benefit when there is a surviving spouse.</p> <p>Benefit Amount Per child (payable until the children are no longer eligible), the smallest of:</p> <ul style="list-style-type: none"><li>• 75% of Average Pay divided by the number of eligible children;</li><li>• \$8,472 (if hired before January 1, 1980), \$8,160 (if hired between January 1, 1980 and October 31, 1996), or \$7,908 (if hired on or after November 1, 1996) per child; or</li><li>• \$25,416 (if hired before January 1, 1980), \$24,480 (if hired between January 1, 1980 and October 31, 1996), or \$23,724 (if hired on or after November 1, 1996) divided by the number of children</li></ul> <p>These amounts are increased annually based on cost-of-living adjustments.</p>
<b>Survivor Benefit - Surviving Parents Only</b>	<p>Eligible if death before retirement and no eligible spouse or children, and parents receive at least one-half of their total income from member. The benefit will be the same as the Surviving Spouse benefit.</p>
<b>Changes Since Prior Valuation</b>	<p>None of which we are aware.</p>

# APPENDIX C

## Plan Provisions Summary

### Judges' Plan

<b>Plan Year</b>	October 1 - September 30
<b>Eligibility for Participation</b>	All Judges of the District of Columbia Court of Appeals or the Superior Court are members in the Plan. The Executive Officer of the Court System is also eligible.
<b>Contributions</b>	All Judges contribute 3.5% of their salaries to the Fund. Judges electing survivor coverage pay an additional 3.5% of annual salary (or retirement benefit if retired). Member contributions for survivor coverage do not end at retirement.  Emerging inactive members not eligible for additional benefits will receive a refund of their contributions without interest.
<b>Judicial Service</b>	A member receives credit for each full year and additional months of employment as a Judge with the District of Columbia Courts.
<b>Credited Service</b>	Service granted or purchased in addition to judicial service.
<b>Cost-of-Living Adjustments</b>	All pensioners will receive cost-of-living increases in line with those applicable to retirees in the Civil Service Retirement System. Cost-of-living adjustments are paid on January 1.
<b><u>Retirement Benefits</u></b>	
<b>Normal Retirement Date</b>	Earlier of: <ul style="list-style-type: none"> <li>• Age 50 with 20 years of Judicial Service; or</li> <li>• Age 60 with 10 years of Judicial Service.</li> </ul>
<b>Normal Retirement Benefit</b>	Basic salary at retirement times the ratio of Judicial Service to 30, plus An additional benefit for any Credited Service (non Judicial) as follows: <ul style="list-style-type: none"> <li>• 1.50% of basic salary times Credited Service up to 5 years, plus</li> <li>• 1.75% of basic salary times Credited Service from 5 to 10 years, plus</li> <li>• 2.00% of basic salary times Credited Service in excess of 10 years.</li> </ul> <p>The maximum total benefit is 80% of basic salary.</p>
<b>Vesting</b>	10 years of Judicial Service.

# APPENDIX C

## Plan Provisions Summary

### Judges' Plan

<b>Mandatory Retirement Date</b>	Mandatory retirement is at age 74.
<b>Early Retirement Eligibility</b>	Age 55 with 10 years of Judicial Service.
<b>Early Retirement Benefit</b>	1/12% per month prior to age 60 reduction in Judicial Service benefit.
<b>Deferred Vested Benefit</b>	The deferred vested benefit is the same as the Early Retirement Benefit beginning at age 55 or the Normal Retirement Benefit beginning at age 60, but only reflecting service to the date of employment termination.
<b>Disability Benefits</b>	
<b>Disability Benefit Eligibility</b>	A member is eligible for disability retirement after 5 years of Judicial and Credited Service and becoming physically or mentally disabled to an extent that interferes with proper performance of judicial duties. No service requirement applies to involuntary disability retirement.
<b>Disability Benefit</b>	Normal Retirement Benefit, subject to a minimum of 50% of basic salary (if an involuntary disability retirement).
<b>Death Benefits</b>	
<b>Survivor Benefit Eligibility</b>	Judges who contribute an additional 3.5% of salary during their working career and during retirement will provide a survivor benefit to their surviving spouse and/or children. The judge must also have completed at least 5 years of Judicial and Credited Service, and have been married for 2 years or have a child by marriage. A refund of excess contributions, less benefits paid to the retiree, will be paid if there are no eligible survivors.
<b>Survivor Benefit</b>	<p>Spouse Benefit: If judge was retired, 55% of the benefit the judge was receiving. If judge was active, 55% of the benefit the judge would have received had the judge retired on the day prior to death, not less than 55% of the benefit that would be provided to a judge with 15 years of Judicial Service without adjustment for early retirement.</p> <p>Dependent Children Benefit: A benefit will be paid to the children under the age of 18 (22 if full time student), or to any unmarried child incapable of self-support due to a disability which occurred before age 18. Benefit per child is the smallest of:</p> <ul style="list-style-type: none"> <li>• 50% of the spouse's annuity</li> <li>• \$6,068.52 (\$7,283.28 if no spouse benefits apply) as of 12/01/2016, increased annually</li> <li>• \$18,205.56 (\$21,849.84 if no spouse benefits apply) divided by the number of children as of 12/01/2016, increased annually.</li> </ul>
<b>Changes Since Prior Valuation</b>	None of which we are aware.