

Buck

Ohio Police & Fire

Pension Fund

Actuarial Valuation Report

Plan Year

January 1, 2018 – December 31, 2018

October 2018

October 2018

Board of Trustees
Ohio Police & Fire Pension Fund
140 East Town Street
Columbus, Ohio 43215

Members of the Board:

Buck is pleased to present this report on the results of the actuarial valuation of the Ohio Police & Fire Pension Fund (OP&F). This report presents the results of the annual actuarial valuation of the assets and liabilities of OP&F as of January 1, 2018, prepared in accordance with Chapter 742 of the Ohio Revised Code (ORC), as amended by Senate Bill No. 340. The valuation takes into account all of the promised benefits to which members are entitled, including pension and survivor benefits.

The principal results of the valuation do not take into account Medicare Part B premium reimbursements or any other health care benefits. However, at the request of the Ohio Retirement Study Council (ORSC), supplemental results have been prepared that do take into account the liability for Medicare Part B premium reimbursements and are presented in Table 1A in the report.

The purpose of the valuation is to determine the financial status of OP&F on an actuarial basis. Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Buck will not accept any liability for any statement made about the report without prior review by Buck.

Where presented, references to “funded ratio” and “unfunded accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

This report does not include accounting disclosure information under Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68. Buck will provide disclosure information under Statement Nos. 67 and 68 in a separate report after OP&F’s 2018 year-end. Buck prepares a separate valuation of OP&F retiree health care benefits.

The valuation was based on the actuarial assumptions and methods that have been adopted by the Board of Trustees, including a valuation interest rate of 8.00 percent per annum compounded annually. The assumptions were effective January 1, 2017 and recommended by the actuary based on a five-year experience review covering the period 2012-2016. The next experience review will cover the five-year period 2017-2021. Actuarial Standards of Practice require that the likelihood and extent of future mortality improvements be considered. We have reflected future mortality improvement in the valuation.

Assets and Membership Data

OP&F reported to the actuary the individual data for members as of the valuation date. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the pension trust fund taken into account in the valuation was based on financial statements prepared for us by OP&F.

An assumption is made by Buck to account for salary adjustments reported by employers assumed to occur after the census information has been provided to Buck by OP&F.

Funding Objectives and Progress

The actuary uses an actuarial cost method to determine the portion of OP&F's liabilities accrued by the members as of the valuation date and the portion that is attributable to future years of service. The rate of contribution necessary to systematically fund the future service liabilities, the normal cost rate, is calculated under the cost method to be a level percentage of active member payroll. The portion of the liabilities accrued as of the valuation date, the actuarial accrued liability (AAL), is compared to a market-related, actuarial value of OP&F's assets. The amount of liabilities in excess of the assets is called the unfunded actuarial accrued liability (UAAL).

The actuary determines how many years are required by OP&F to completely amortize the UAAL (the funding period), using the member and employer contributions reduced by the amount allocated to health care and the amount of normal cost for the year. For 2003-2012, the funding period was infinite years, meaning the annual contribution toward the unfunded when compared to the unfunded amount was not sufficient to pay it off. As a result of benefit and member contribution changes under Senate Bill No. 340, changes to the DROP program, and a reduction in the contribution allocation to the Health Care Stabilization Fund by the Board of Trustees, and favorable asset investment gains, the pension funding period has decreased to 47 years, 33 years, 30 years, 29 years and 28 years for 2013, 2014, 2015, 2016 and 2017, respectively. As of January 1, 2018, the funding period remained at 28 years.

Section 742.16 of the ORC, as adopted by Senate Bill No. 82, sets forth an objective that the funding period is no more than 30 years. If the funding period exceeds 30 years, a plan shall be developed and presented by the Board of Trustees to the ORSC to reduce the funding period to not more than 30 years. Section 742.14 of the ORC, as amended by Senate Bill No. 340, sets forth that the 30-year funding analysis be performed every three years and the 30-year funding plan, if necessary, be developed and presented not later than 90 days after the Board of Trustees' receipt of the actuarial valuation and 30-year funding analysis. The most recent triennial analysis was based on the January 1, 2016 actuarial valuation, which showed the funding period was 29 years, so no 30-year funding plan is required. The next analysis will be performed based on the January 1, 2019 actuarial valuation.

The funded ratio (i.e., the ratio of actuarial assets to the AAL) determined as of January 1, 2018 is 69.9 percent, compared to 69.8 percent determined as of January 1, 2017. If measured using the market value of assets, the funded ratio would be higher at 71.6 percent on account of net investment gains not yet reflected in the actuarial assets. Taking into account the AAL for Medicare Part B premium reimbursements, the funded ratio would be 69.0 percent using the actuarial assets and 70.7 percent using the market value of assets. The funded ratio is not intended to measure the adequacy of funding in any analysis of a possible settlement of plan liabilities.

Supporting Schedules and Certification

The valuation report shows detailed summaries of the financial results of the valuation and membership data used in preparing this valuation. The actuary prepared the following supporting schedules for inclusion in the Actuarial and Statistical Sections of the OP&F Comprehensive Annual Financial Report: Analysis of Financial Experience, Short-Term Solvency Test, Schedule of Funding Progress, Calculation of Actuarial Value of Assets, and Retirees and Beneficiaries Added to and Removed from the Rolls.

The valuation assumptions were chosen by the Board of Trustees with the advice of the actuary. The assumptions used to develop the January 1, 2018 valuation are individually reasonable and in combination represent our best estimate of anticipated experience under the plan.

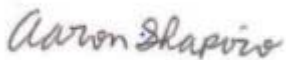
Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Buck performed no analysis of the potential range of such future differences.

This report was prepared under the supervision of Aaron Shapiro and Wendy Ludbrook who are pension actuaries, Enrolled Actuaries, Fellows of the Society of Actuaries and Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the pension actuarial opinions contained in this report. Bob Besenhofer is a health care actuary, Associate of the Society of Actuaries and Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report regarding the liability adjustments provided in Table 1A for Medicare Part B reimbursements. This report has been prepared in accordance with all Applicable Actuarial Standards of Practice. We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate.


Buck is completely independent of OP&F and its officers and key personnel. Neither we, nor anyone closely associated with us, has any relationship with them that would impair our independence.

Buck Global, LLC (Buck)

Respectfully submitted,



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Summary of Principal Results

Introduction

This report presents the results of the actuarial valuation as of January 1, 2018 of pension benefits for the OP&F Pension Fund.

The principal valuation results include:

- The unfunded actuarial accrued liability funding period, which is 28 years.
- The funded status of the plan determined as of January 1, 2018 based on the actuarial accrued liability and the actuarial value of assets as of that date, which is 69.9 percent.
- The determination of the experience gain or loss as of January 1, 2018, which is a loss of \$85.1 million.

This valuation report does not contain information under GASB Statement Nos. 67 and 68. Buck will provide disclosure information under Statement Nos. 67 and 68 in a separate report after OP&F's 2018 year-end.

The valuation was completed based upon membership and financial data submitted by OP&F.

An assumption is being made for late reported salary adjustments from employers. Thus, any salary amounts in this report are the amounts reported to Buck by OP&F increased by an assumed percentage. The reported salaries for 2018 have been increased by 1.258 percent.

A separate valuation is performed for all health care benefits. However, at the request of the ORSC, this report includes a supplemental table, Table 1A, that shows what the valuation results would be if the normal cost and AAL for Medicare Part B premium reimbursements were included in this valuation.

Changes since Last Year

The plan provisions used in this valuation are unchanged from last year.

Buck has adjusted the census data reported by OP&F to account for member salaries accrued but not reported by the time of the valuation. The late reported salaries for 2017 have been estimated by Buck based on the percentage of late reported salaries for 2014, 2015 and 2016. The increase adjustment for 2017 late reported salaries is 1.258 percent for the 2018 valuation. The analogous assumption for 2016 was 1.246 percent and 2017 was 1.427 percent.

Summary of Principal Results

Summarized below are the principal financial results for the OP&F Pension Fund based upon the actuarial valuation as of January 1, 2018. Comparable results from the January 1, 2017 valuation are also shown.

Item	Jan. 1, 2018	Jan. 1, 2017
Membership Data		
Active Members		
➤ Number	28,212	27,990
➤ Annualized Salaries	\$ 2,174,667,031	\$ 2,144,265,467
➤ Average Pay	77,083	76,608
➤ Membership Payroll	2,209,258,449	2,180,910,604
Retirees and Beneficiaries		
➤ Number	29,361	28,913
➤ Annual Allowances	\$ 1,067,769,083	\$ 1,021,509,077
➤ Average Benefit Payment	36,367	35,330
Vested Former Members		
➤ Number	346	200
Contribution Rates (as a Percentage of Payroll)		
Statutory Contribution Rates:		
➤ Employer Average	21.62 %	21.61 %
➤ Member	<u>12.25</u>	<u>12.25</u>
➤ Total	33.87 %	33.86 %
Allocation of Employer Contribution Rate:		
➤ Pension Contribution Rate:		
— Employer Normal Cost	3.73 %	3.78 %
— Accrued Liability Rate	<u>17.39</u>	<u>17.33</u>
— Total Employer Pension Rate	21.12 %	21.11 %
➤ Health Care Contribution Rate	<u>0.50</u>	<u>0.50</u>
➤ Total Employer Contribution Rate	21.62 %	21.61 %
Actuarial Funded Status		
➤ Actuarial Accrued Liability (AAL)	\$ 20,887,227,279	\$ 20,290,393,633
➤ Actuarial Assets	14,594,562,053	14,162,487,807
➤ Unfunded Accrued Liability (UAAL)	6,292,665,226	6,127,905,826
➤ Funded Ratio	69.9 %	69.8 %
➤ Funding Period	28 Years	28 Years

Actuarial Funded Status

OP&F's funded status is measured by comparing the actuarial value of assets with the AAL. The AAL is the present value of benefits attributed to past service under OP&F's funding method and reflects future pay increases for active members. The actuarial value of assets is a value based on OP&F's market value, but defers recognition over four years of any market returns that are greater than or less than the assumed valuation assumption that was in effect during those years. The use of this asset valuation method mitigates, or smooths, market fluctuation in the valuation assets from year to year. The actuarial valuation method includes a 20 percent corridor around the market value, so that the actuarial value must be no less than 80 percent and no greater than 120 percent of the market value.

As of January 1, 2018, the AAL exceeds the actuarial value of assets, resulting in an unfunded actuarial accrued liability of \$6.3 billion. The funded ratio, which is the ratio of the assets to the AAL, is 69.9 percent. These figures are based on an actuarial value of assets of \$14,594,562,053 and an AAL of \$20,887,227,279.

Reasons for Change in the Funded Ratio

The funded ratio increased from 69.8 percent as of January 1, 2017 to 69.9 percent as of January 1, 2018, an increase of 0.1 percentage points. The primary reasons for the increase are as follows:

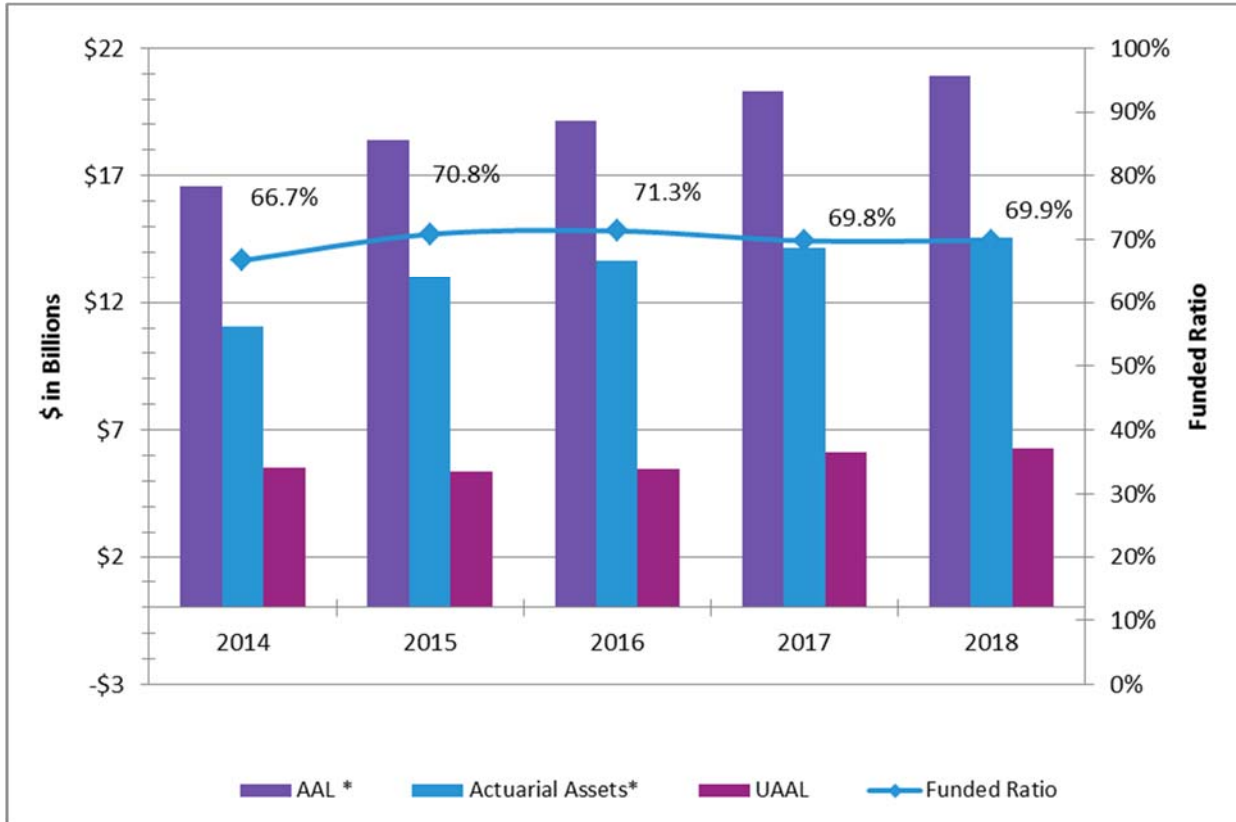
	Increase or (Decrease)
Investment loss based on actuarial value of assets	(0.7)%
Net liability gain due to plan experience	0.2%
Contribution level	0.6%
Net increase (decrease)	0.1%

Five-Year History of Actuarial Funded Status

Valuation as of Jan. 1	Actuarial Accrued Liability (AAL) *	Actuarial Assets*	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio
2018	\$ 20,887,227,279	\$ 14,594,562,053	\$ 6,292,665,226	69.9 %
2017	20,290,393,633	14,162,487,807	6,127,905,826	69.8
2016	19,135,875,916	13,653,004,516	5,482,871,400	71.3
2015	18,395,592,476	13,029,291,146	5,366,301,330	70.8
2014	16,577,754,827	11,063,198,418	5,514,556,409	66.7

* AAL and asset values shown prior to 2015 exclude DROP balances

Five-Year History of Liabilities, Assets and Funded Ratio



Net Actuarial Gain (Loss)

The results of the valuation as of January 1, 2018 determine the net actuarial gain or loss due to plan experience for the year ended December 31, 2017. There was a net experience loss of \$85.1 million, consisting of a loss of \$148.3 million on the actuarial value of assets and a gain of \$63.2 million on liabilities. The asset loss reflects investment performance on a market value basis during 2017 and the previous three years. The liability gain reflects \$54.2 million gain from demographic experience and a \$9.0 million gain due to the change in the late reported pay assumption. The analysis of the net experience gain/loss is shown in Table 5.

Five-Year History of Actuarial Gains or (Losses)

Fiscal Year Ended		Net Gain or (Loss)
Dec. 31		
2017	\$	(85,099,004)
2016		(569,516,945)
2015		(10,335,098)
2014		291,700,284
2013		454,507,614

Rate of Return on Assets

The investment returns of the trust fund on a market value basis (i.e., total return including both realized and unrealized gains and losses) for years ended December 31, 2013 through December 31, 2017 are shown below. Also shown are the rates of return on the actuarial value of assets used to determine OP&F's actuarial funded status.

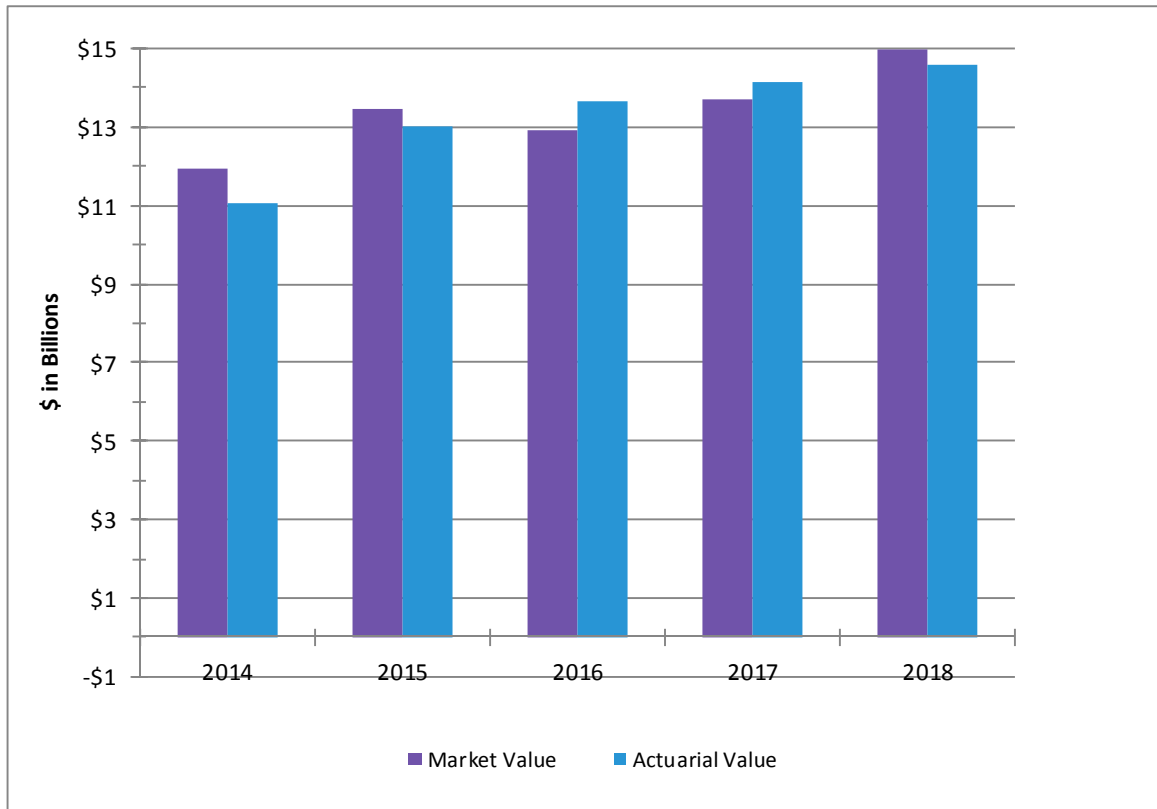
Five-Year History of Rates of Return

Year Ended Dec. 31	Rate of Return Based on	
	Market Value*	Actuarial Assets**
2017	14.30 %	6.90 %
2016	11.51	7.33
2015	0.65	8.94
2014	6.79	10.11
2013	16.94	13.63

* Rate of return gross of fees, as reported in the OP&F CAFR

** Rate of return on actuarial value of assets is net of fees

Five-Year History of Market Value and Actuarial Assets as of January 1



Asset values shown prior to 2015 exclude DROP balances.

Funding Period

The actuary determines how many years are required to completely amortize the UAAL (the funding period), using the member and employer contributions reduced by the amount allocated to health care and the amount of normal cost for the year. The calculation of the funding period takes into account future payroll growth, currently assumed at 3.25 percent per year. The calculation also takes into account adjustments in the normal cost rate and changes in the statutory contribution rates as a result of Senate Bill No. 340.

The funding period based on the January 1, 2018 valuation is 28 years. This is the number of years it will take to pay off the \$6.3 billion UAAL as of January 1, 2018. The funding period remained at 28 years from as of January 1, 2017.

If all assumptions are met on an actuarial basis, the funding period will decrease each year. However, if all assumptions are not met, the period could increase. Two assumptions that greatly impact the funding period are investment returns and future payroll growth. OP&F has experienced overall favorable investment results the last four years through 2017, but returns for 2014 and 2015 were below the assumed 8.25 percent rate of return, resulting in investment losses to be recognized over four years. As those losses are recognized, and if no significant gains are realized in the next few years to offset the losses, the funding period may increase. If future returns are lower than the assumed 8.00 percent, projected contributions may not be sufficient to keep the funding period at or below 30 years. If the investment assumption is met, but payroll growth is less than 3.25 percent over time, then future contributions will be less than projected and may be insufficient to pay off the UAAL over 30 years.

Recent white papers regarding public sector actuarial practice favor a funding period for a system's UAAL of 15 to 20 years. Similar to a mortgage, the shorter the amortization period, the higher the annual payments needed, the faster the UAAL is paid off and the lesser the overall interest costs.

Five-Year History of Contribution Rates and Funding Period

Member contribution rates increased from 10.75 to 11.50 percent on July 2, 2014 and to 12.25 percent on July 2, 2015. The member rates shown in the table below for 2014 and 2015 are the average, or blended, rates for the year. A funding period of infinity means the contribution level is not sufficient to pay down the unfunded over any number of years.

Valuation as of Jan. 1	Contribution Rates				Allocation		Funding Period
	Member	Police Employer	Fire Employer	Employer Average	Health Care	Pension	
2018	12.25 %	19.50 %	24.00 %	21.62 %	0.50 %	33.37 %	28 Years
2017	12.25	19.50	24.00	21.61	0.50	33.36	28 Years
2016	12.25	19.50	24.00	21.61	0.50	33.36	29 Years
2015	11.88	19.50	24.00	21.61	0.50	32.99	30 Years
2014	11.13	19.50	24.00	21.61	0.50	32.24	33 Years

The remainder of this report consists of tables and exhibits.

Table 1 - Summary of Results of Actuarial Valuation as of January 1, 2018

Item	Police	Firefighters	Total
Membership Data			
1. Number of Members			
a) Active Members			
i) Vested Actives	7,505	6,764	14,269
ii) Non-Vested Actives	<u>7,567</u>	<u>6,376</u>	<u>13,943</u>
iii) Total Actives	15,072	13,140	28,212
b) Vested Former Members	206	140	346
c) Rehired Retirees	142	54	196
d) Retirees and Disableds	12,268	9,139	21,407
e) Beneficiaries and Survivors	4,540	3,414	7,954
f) Contributions Refund Due	<u>2,580</u>	<u>684</u>	<u>3,264</u>
g) Total	34,808	26,571	61,379
2. Annualized Salaries	\$ 1,151,449,430	\$ 1,023,217,601	\$ 2,174,667,031
3. Membership Payroll	1,169,124,050	1,040,134,399	2,209,258,449
4. Annual Allowances	608,405,599	459,363,484	1,067,769,083
Valuation Results			
5. Present Value of Future Benefits (PVFB)			
a) Active Members	\$ 6,072,867,652	\$ 5,610,484,268	\$ 11,683,351,920
b) Vested Former Members	77,873,256	60,247,513	138,120,769
c) Rehired Retirees	10,172,875	3,857,407	14,030,282
d) Retirees and Disableds	6,436,913,466	4,853,071,440	11,289,984,906
e) Beneficiaries and Survivors	433,509,700	297,008,245	730,517,945
f) Contributions Refund Due	<u>25,672,763</u>	<u>8,717,423</u>	<u>34,390,186</u>
g) Total PVFB	\$ 13,057,009,712	\$ 10,833,386,296	\$ 23,890,396,008
6. Normal Cost			
a) Normal Cost	\$ 172,253,806	\$ 156,133,537	\$ 328,387,343
b) Administrative Expenses	14,262,464	10,759,403	25,021,867
c) State Subsidy	<u>197,491</u>	<u>148,984</u>	<u>346,475</u>
d) Total: (a) + (b) - (c)	\$ 186,318,779	\$ 166,743,956	\$ 353,062,735
e) Normal Cost Rate: (d) / (3)	15.94%	16.03%	15.98%
7. Present Value of Future Normal Cost	\$ 1,522,634,664	\$ 1,463,371,309	\$ 2,986,005,973

**Table 1 - Summary of Results of Actuarial Valuation as of January 1, 2018
(continued)**

Item	Police	Firefighters	Total
8. Actuarial Accrued Liability (AAL)			
a) Active Members	\$ 4,550,232,988	\$ 4,147,112,959	\$ 8,697,345,947
b) Vested Former Members	77,873,256	60,247,513	138,120,769
c) Rehired Retirees	10,172,875	3,857,407	14,030,282
d) Retirees and Disableds	6,436,913,466	4,853,071,440	11,289,984,906
e) Beneficiaries and Survivors	433,509,700	297,008,245	730,517,945
f) Contributions Refund Due	<u>25,672,763</u>	<u>8,717,423</u>	<u>34,390,186</u>
g) Total	\$ 11,534,375,048	\$ 9,370,014,987	\$ 20,904,390,035
h) Employer Accrued Liability	<u>(9,850,288)</u>	<u>(7,312,468)</u>	<u>(17,162,756)</u>
i) Adjusted AAL	\$ 11,524,524,760	\$ 9,362,702,519	\$ 20,887,227,279
9. Actuarial Value of Assets *	\$ 8,052,547,593	\$ 6,542,014,460	\$ 14,594,562,053
10. Unfunded Accrued Liability: (8) - (9)	\$ 3,471,977,167	\$ 2,820,688,059	\$ 6,292,665,226
11. Funding Period			28 Years
12. Funded Ratio	69.9%	69.9%	69.9%
Allocation of Employer Contribution Rate			
13. Employer Contribution Rate			
a) Total Employer Rate (by law)	19.50%	24.00%	21.62%
b) Health Care Stabilization Fund Allocation	<u>0.50%</u>	<u>0.50%</u>	<u>0.50%</u>
c) Employer Pension Rate: (a) - (b)	19.00%	23.50%	21.12%
d) Total Normal Cost Rate	15.94%	16.03%	15.98%
e) Member Rate (by law)	<u>12.25%</u>	<u>12.25%</u>	<u>12.25%</u>
f) Employer Normal Cost Rate: (d) - (e)	3.69%	3.78%	3.73%
g) Unfunded Accrued Liability Amortization Rate: (c) - (f)	15.31%	19.72%	17.39%

* The Actuarial Value of Assets is split between Police and Firefighters in proportion to the Actuarial Accrued Liability.

Table 1A - Valuation Results as of January 1, 2018 Adjusted for Medicare Part B Reimbursement Liabilities

Item	Police	Firefighters	Total
Valuation Results			
1. Present Value of Future Benefits			
a) Pension Benefits	\$ 13,057,009,712	\$ 10,833,386,296	\$ 23,890,396,008
b) Medicare Part B Benefits	<u>157,527,907</u>	<u>132,508,335</u>	<u>290,036,242</u>
c) Total	\$ 13,214,537,619	\$ 10,965,894,631	\$ 24,180,432,250
2. Normal Cost			
a) Pension Benefits	15.94%	16.03%	15.98%
b) Medicare Part B Benefits	<u>0.10%</u>	<u>0.10%</u>	<u>0.10%</u>
c) Total	16.04%	16.13%	16.08%
3. Actuarial Accrued Liability			
a) Pension Benefits	\$ 11,524,524,760	\$ 9,362,702,519	\$ 20,887,227,279
b) Medicare Part B Benefits	<u>148,499,544</u>	<u>123,534,030</u>	<u>272,033,574</u>
c) Total	\$ 11,673,024,304	\$ 9,486,236,549	\$ 21,159,260,853
4. Actuarial Value of Assets *	\$ 8,052,547,593	\$ 6,542,014,460	\$ 14,594,562,053
5. Unfunded Accrued Liability	\$ 3,620,476,711	\$ 2,944,222,089	\$ 6,564,698,800
6. Funded Ratio	69.0%	69.0%	69.0%
Allocation of Employer Contribution Rate			
7. Employer Contribution Rate			
a) Total Employer Rate (by law)	19.50%	24.00%	21.62%
b) Health Care Stabilization Fund Allocation	<u>0.50%</u>	<u>0.50%</u>	<u>0.50%</u>
c) Employer Pension Rate: (a) - (b)	19.00%	23.50%	21.12%
d) Pension Normal Cost Rate	15.94%	16.03%	15.98%
e) Medicare Part B Normal Cost Rate	<u>0.10%</u>	<u>0.10%</u>	<u>0.10%</u>
f) Total Normal Cost Rate: (d) + (e)	16.04%	16.13%	16.08%
g) Member Rate (by law)	<u>12.25%</u>	<u>12.25%</u>	<u>12.25%</u>
h) Employer Normal Cost Rate: (f) - (g)	3.79%	3.88%	3.83%
i) Unfunded Accrued Liability Amortization Rate: (c) - (h)	15.21%	19.62%	17.29%

* The Actuarial Value of Assets is split between Police and Firefighters in proportion to the pension Actuarial Accrued Liability. While the Actuarial Accrued Liability and Normal Cost have been adjusted in this illustration to reflect the liability for Medicare Part B reimbursements, the Actuarial Value of Assets is unadjusted for any Health Care Stabilization Fund assets that might be associated with Medicare Part B reimbursements.

Table 2
Summary of Market Value of Plan Assets as of December 31, 2017

Item	Amount
1. Market Value of Assets as of Dec. 31, 2016*	\$ 13,682,389,240
2. Contributions During 2017	
a) Member	\$ 282,006,793
b) Employer	462,047,728
c) State Subsidy	<u>346,475</u>
d) Total	\$ 744,400,996
3. Benefit Payments During 2017	1,256,254,446
4. Administrative Expenses During 2017	19,487,358
5. Income During 2017	
a) Interest, Dividends and Other Income	\$ 367,830,928
b) Appreciation/(Depreciation)	1,488,638,754
c) Investment Expenses	<u>48,318,984</u>
d) Investment Return After Expenses (a) + (b) - (c)	\$ 1,808,150,698
e) Other Income	<u>4,414,874</u>
f) Total Income (d) + (e)	\$ 1,812,565,572
6. Market Value of Assets as of Dec. 31, 2017*	
(1) + (2d) - (3) - (4) + (5f)	\$ 14,963,614,004
7. Rate of Return	13.47 %
(5d) / [(1) + 0.5 * ((2d) - (3) - (4) + (5e))]	

* The Market Value of Assets includes the DROP accrual balances of \$1,462,807,757 at Dec. 31, 2016 and \$1,559,194,293 at Dec. 31, 2017.

Table 3
Derivation of Actuarial Value of Assets as of January 1, 2018

		Item	Amount		
1. Market Value of Assets as of Dec. 31, 2017			\$ 14,963,614,004		
2. Determination of Deferred Gain (Loss)					
		Return on Market Value of Assets			
<u>Year</u>	<u>Actual</u>	<u>Expected</u>	<u>Gain/(Loss)</u>	<u>% Deferred</u>	<u>Deferred Amount</u>
2017	\$ 1,808,150,698	\$ 1,073,514,102	\$ 734,636,596	75%	\$ 550,977,447
2016	1,232,569,108	1,046,667,736	185,901,372	50%	92,950,686
2015	(11,259,198)	1,088,245,528	(1,099,504,726)	25%	(274,876,182)
2014	786,522,451	1,065,611,384	(279,088,933)	0%	-
					\$ 369,051,951
3. Adjustment for 20% corridor					\$ -
4. Actuarial Value of Assets as of Jan. 1, 2018: (1) - (2) + (3)					\$ 14,594,562,053
5. Actuarial Rate of Return *					
a) Actuarial Value of Assets as of Jan. 1, 2017					\$ 14,162,487,807
b) Contributions During 2017					744,400,996
c) Benefits Paid During 2017					1,256,254,446
d) Expenses During 2017					19,487,358
e) Other Income					4,414,874
f) Return on an Actuarial Basis					959,000,180
g) Actuarial Rate of Return: (f) / [(a) + 0.5 * ((b) - (c) - (d) + (e))]					6.90%

* The actuarial rate of return is the rate of return based on the change in the actuarial value of assets from last year to this year. The rate of return is calculated assuming contributions and disbursements occur halfway through the year.

Table 4 Analysis of Change in Unfunded Actuarial Accrued Liability as of January 1, 2018

Item	Amount
1. Unfunded Accrued Liability at Jan. 1, 2017	\$ 6,127,905,826
2. Contributions Toward Unfunded Accrued Liability	\$ 394,780,837
3. Interest Credit at 8.00% to Dec. 31, 2017	\$ 474,441,233
4. Expected Unfunded Accrued Liability at Dec. 31, 2017 (1) - (2) + (3)	\$ 6,207,566,222
5. Actual Unfunded Accrued Liability at Jan. 1, 2018	\$ 6,292,665,226
6. Net Gain (Loss) (4) - (5)	\$ (85,099,004)
7. Reasons for Net Gain (Loss)	
(a) Experience Gains (Losses)	
(i) Gain (Loss) from Investment Return on Actuarial Value of Assets	\$ (148,330,338)
(ii) Gain (Loss) from Demographic Experience and Other	<u>\$ 54,196,117</u>
Subtotal	\$ (94,134,221)
(b) Gain (Loss) from Pay Load Adjustment for Late Reported Pays	<u>\$ 9,035,217</u>
(c) Total	\$ (85,099,004)

Table 5

Detailed Analysis of Gains and Losses due to Plan Experience Resulting In Differences between Assumed and Actual Experience

Type of Activity	Gain (Loss)	
	Jan. 1, 2018	Jan. 1, 2017
Plan Experience:		
Turnover If more liabilities are released by withdrawal separations from active membership than assumed, there is a gain. If smaller releases, there is a loss.	\$ (27,220,946)	\$ (15,352,380)
Retirement If members retire at older ages than assumed, there is a gain. If younger, there is a loss.	(6,766,327)	(2,247,634)
Death among retired members and beneficiaries If more deaths occur than assumed, there is a gain. If fewer deaths than assumed, there is a loss.	(19,519,180)	(66,348,845)
Disability retirements If disability claims are less than assumed, there is a gain. If more claims, a loss.	3,477,918	27,852,993
Salary increase/decrease If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	107,318,122	(78,167,764)
Return to work If participants return to work with previous service restored, there is a loss.	(1,185,692)	(2,786,430)
New Entrants If new entrants join OP&F, there is a loss.	(6,304,990)	(6,622,672)
Deaths among actives If claims costs are less than assumed, there is a gain. If more claims, a loss.	(1,236,303)	1,591,296
Investment If there is greater investment return than assumed, there is a gain. If less return, a loss.	(148,330,338)	(114,867,133)
Other Experience and Payroll Growth If other experience, including less than expected payroll growth, increases the unfunded liability, there is a loss. Otherwise, there is a gain.	<u>5,633,515</u>	<u>11,616,684</u>
Net gain (or loss) during the year due to plan experience	\$ (94,134,221)	\$ (245,331,885)

Table 6 Schedule of Funding Progress

(\$ Amounts in Millions)

Valuation as of Jan. 1	Valuation Assets	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Ratio of Assets to AAL	Active Member Payroll	UAAL as Percentage of Active Member Payroll
2018	\$ 14,594.6	20,887.2	\$ 6,292.6	69.9 %	\$ 2,209.3	284.8 %
2017	14,162.5	20,290.4	6,127.9	69.8 %	2,180.9	281.0 %
2016	13,653.0	19,135.9	5,482.9	71.3 %	2,060.9	266.1 %
2015	13,029.3	18,395.6	5,366.3	70.8 %	1,986.6	270.1 %
2014	11,063.2	16,577.8	5,514.6	66.7 %	1,942.3	283.9 %
2013	10,278.0	16,007.9	5,729.9	64.2 %	1,913.4	299.5 %
2012	10,309.0	16,346.7	6,037.7	63.1 %	1,897.4	318.2 %
2011	10,681.0	15,384.4	4,703.4	69.4 %	1,868.5	251.7 %
2010	10,794.1	14,830.7	4,036.6	72.8 %	1,895.2	213.0 %
2009	9,309.2	14,307.1	4,997.9	65.1 %	1,900.9	262.9 %

Note: Actuarial Assets and Liabilities prior to Jan. 1, 2015 are net of DROP balances.

Note: The amounts reported in this schedule do not include assets or liabilities for post-employment health care benefits.

Table 7
Unfunded Actuarial Accrued Liability Funding Period

Year	Plan Year	Outstanding Balance at Beginning of Year of January 1, 2018 UAAL (a)	Assumed Amortization Contribution Rate ¹ (b)	Assumed Payroll 3.25% Growth Rate (c)	Mid-Year Amortization Contribution Amount ² (d)	Outstanding Balance at End of Year of January 1, 2018 UAAL ³ (e)
1	2018	6,292,665,226	17.39%	2,245,343,709	390,465,271	6,390,295,031
2	2019	6,390,295,031	17.48%	2,318,317,380	405,241,878	6,480,378,921
3	2020	6,480,378,921	17.56%	2,393,662,694	420,327,169	6,561,992,427
4	2021	6,561,992,427	17.64%	2,471,456,732	435,964,968	6,633,883,736
5	2022	6,633,883,736	17.69%	2,551,779,076	451,409,718	6,695,475,695
6	2023	6,695,475,695	17.75%	2,634,711,896	467,661,361	6,745,105,807
7	2024	6,745,105,807	17.80%	2,720,340,032	484,220,526	6,781,497,540
8	2025	6,781,497,540	17.85%	2,808,751,083	501,362,068	6,802,986,598
9	2026	6,802,986,598	17.89%	2,900,035,494	518,816,350	6,808,055,759
10	2027	6,808,055,759	17.93%	2,994,286,647	536,875,596	6,794,762,734
11	2028	6,794,762,734	17.97%	3,091,600,963	555,560,693	6,760,988,145
12	2029	6,760,988,145	18.01%	3,192,077,994	574,893,247	6,704,420,609
13	2030	6,704,420,609	18.05%	3,295,820,529	594,895,606	6,622,540,609
14	2031	6,622,540,609	18.08%	3,402,934,696	615,250,593	6,512,956,686
15	2032	6,512,956,686	18.10%	3,513,530,074	635,948,943	6,373,095,692
16	2033	6,373,095,692	18.11%	3,627,719,801	656,980,056	6,200,189,646
17	2034	6,200,189,646	18.13%	3,745,620,695	679,081,032	5,990,483,108
18	2035	5,990,483,108	18.14%	3,867,353,368	701,537,901	5,740,662,183
19	2036	5,740,662,183	18.15%	3,993,042,352	724,737,187	5,446,746,180
20	2037	5,446,746,180	18.16%	4,122,816,229	748,703,427	5,104,410,449
21	2038	5,104,410,449	18.17%	4,256,807,756	773,461,969	4,708,958,028
22	2039	4,708,958,028	18.18%	4,395,154,008	799,038,999	4,255,288,985
23	2040	4,255,288,985	18.19%	4,537,996,513	825,461,566	3,737,867,280
24	2041	3,737,867,280	18.20%	4,685,481,400	852,757,615	3,150,684,954
25	2042	3,150,684,954	18.21%	4,837,759,545	880,956,013	2,487,223,406
26	2043	2,487,223,406	18.22%	4,994,986,731	910,086,582	1,740,411,558
27	2044	1,740,411,558	18.23%	5,157,323,799	940,180,129	902,580,632
28	2045	902,580,632	18.24%	5,324,936,823	971,268,477	-
29	2046	-	18.25%	5,497,997,270	1,003,384,502	-
30	2047	-	18.25%	5,676,682,181	1,035,994,498	-

Resulting Funding Period = 28 Years

¹ The amortization contribution rate is the total statutory contribution rate, minus the total normal cost rate, minus the health care contribution rate. The statutory contribution rate is assumed to remain unchanged except for any legislated increases, for which none are assumed after the July 1, 2015 member contribution rate increase. The impact of SB 340 and changes adopted by OP&F that will impact new members will reduce the total normal cost rate over time, and, thus, increase the amortization contribution rate, as reflected above.

² The contribution amount is the product of (b) the amortization contribution rate and (c) the assumed payroll amount.

³ The outstanding balance at the end of the year is derived from the outstanding balance at the beginning of the year with interest minus the mid-year amortization contribution with interest.

$$(e) = [(a) \times 1.08] - [(d) \times 1.08^{0.5}]$$

Table 8 Solvency Test - Comparative Summary of Actuarial Accrued Liability and Actuarial Value of Assets

(\$ Amounts in Thousands)

POLICE

Valuation as of January 1	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets		
					(1)	(2)	(3)
2018	\$ 1,515,993	\$ 6,870,423	\$ 3,138,109	\$ 8,052,548	100 %	95 %	0 %
2017	1,451,473	6,576,192	3,184,383	7,825,895	100 %	97 %	0 %
2016	1,386,649	6,085,896	3,002,889	7,473,979	100 %	100 %	0 %
2015	1,210,400	5,857,146	3,015,390	7,141,575	100 %	100 %	2 %
2014	1,171,496	5,368,637	2,583,711	6,088,816	100 %	92 %	0 %
2013	1,131,664	5,166,808	2,532,580	5,670,069	100 %	88 %	0 %
2012	1,100,146	4,960,051	2,969,900	5,694,783	100 %	93 %	0 %
2011	1,100,251	4,368,659	3,008,219	5,885,449	100 %	100 %	14 %

FIREFIGHTERS

Valuation as of January 1	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets		
					(1)	(2)	(3)
2018	\$ 1,345,237	\$ 5,150,080	\$ 2,867,386	\$ 6,542,014	100 %	100 %	2 %
2017	1,276,582	4,922,990	2,878,774	6,336,593	100 %	100 %	5 %
2016	1,213,330	4,614,250	2,832,862	6,179,025	100 %	100 %	12 %
2015	1,062,097	4,337,819	2,912,741	5,887,716	100 %	100 %	17 %
2014	1,028,465	3,924,388	2,501,058	4,974,383	100 %	100 %	1 %
2013	974,362	3,751,279	2,451,195	4,607,962	100 %	97 %	0 %
2012	965,598	3,581,800	2,769,204	4,614,176	100 %	100 %	2 %
2011	956,559	3,132,521	2,818,228	4,795,563	100 %	100 %	25 %

TOTAL

Valuation as of January 1	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets		
					(1)	(2)	(3)
2018	\$ 2,861,230	\$ 12,020,503	\$ 6,005,495	\$ 14,594,562	100 %	98 %	0 %
2017	2,728,055	11,499,182	6,063,157	14,162,488	100 %	99 %	0 %
2016	2,599,979	10,700,146	5,835,751	13,653,004	100 %	100 %	6 %
2015	2,272,496	10,194,965	5,928,132	13,029,291	100 %	100 %	9 %
2014	2,199,961	9,293,025	5,084,769	11,063,199	100 %	95 %	0 %
2013	2,106,027	8,918,087	4,983,774	10,278,031	100 %	92 %	0 %
2012	2,065,744	8,541,851	5,739,104	10,308,959	100 %	97 %	0 %
2011	2,056,810	7,501,180	5,826,447	10,681,012	100 %	100 %	19 %

Note: Actuarial Assets and Liabilities prior to Jan. 1, 2015 are net of DROP balances

Table 9

Description of Actuarial Assumptions and Methods

Assumptions

The actuarial assumptions were adopted as of January 1, 2017, based on a five-year experience review covering the period 2012 through 2016. The next review of the actuarial assumptions is to be completed for adoption with the January 1, 2022 valuation.

Interest Rate

8.00 percent per annum, compounded annually.

Salary Increase Rates

Assumed annual salary increases are as follows:

Years of Service	Salary Increase Rate
Less than 1	10.50%
1	9.00%
2	8.00%
3	6.00%
4	4.50%
5 or more	3.75%

Payroll Growth Rate

3.25 percent per annum, compounded annually, consisting of inflation rate of 2.75 percent plus productivity increase rate of 0.5 percent.

DROP Interest Crediting Rate

4.0 percent per annum, compounded annually.

CPI-Based COLA

2.2 percent simple for increases based on the lesser of the increase in CPI and three percent.

Withdrawal Rates

The following sample withdrawal rates are based on age and service (for causes other than death, disability, or retirement):

Table 9
Description of Actuarial Assumptions and Methods (continued)

Police

Years of Service	Age							
	25	30	35	40	45	50	55	60
0	9.62%	9.94%	15.93%	17.85%	15.22%	22.00%	18.68%	19.23%
1	5.88%	5.54%	6.49%	7.65%	5.99%	10.15%	11.21%	11.54%
2	3.27%	4.21%	3.92%	5.87%	5.80%	9.90%	9.34%	9.62%
3	4.11%	3.35%	4.66%	5.74%	5.61%	9.17%	8.78%	9.04%
4	3.64%	3.06%	4.29%	5.23%	4.95%	7.95%	7.47%	7.69%
5	2.59%	2.65%	3.49%	4.22%	4.22%	7.57%	8.79%	6.50%
6	2.64%	2.56%	3.28%	3.57%	3.44%	5.86%	7.03%	5.20%
7	2.58%	2.21%	3.18%	3.46%	3.44%	5.71%	6.90%	5.10%
8	2.39%	1.95%	2.56%	1.95%	2.06%	5.57%	6.63%	4.90%
9	2.12%	1.59%	1.74%	1.62%	1.18%	4.43%	6.09%	4.50%
10	1.56%	1.56%	1.66%	1.59%	1.09%	4.31%	6.03%	4.46%
11	1.49%	1.49%	1.58%	1.56%	1.00%	4.20%	5.98%	4.42%
12	1.41%	1.41%	1.50%	1.52%	0.91%	4.09%	5.92%	4.38%
13	1.31%	1.31%	1.42%	1.49%	0.83%	3.97%	5.87%	4.34%
14	1.21%	1.21%	1.33%	1.46%	0.74%	3.86%	5.82%	4.30%
15+	1.17%	1.17%	1.17%	0.91%	0.79%	0.91%	1.10%	1.96%

Firefighters

Years of Service	Age							
	25	30	35	40	45	50	55	60
0	2.69%	3.46%	3.66%	6.22%	8.48%	6.93%	8.73%	19.11%
1	2.11%	1.46%	2.96%	4.98%	7.01%	5.00%	7.16%	15.66%
2	1.53%	1.64%	1.83%	3.04%	4.98%	4.54%	7.16%	15.66%
3	1.44%	1.55%	1.74%	2.90%	4.80%	4.32%	7.16%	15.66%
4	1.15%	1.46%	1.66%	2.77%	4.61%	3.97%	5.73%	12.53%
5	0.83%	0.94%	1.33%	1.64%	2.05%	2.91%	5.33%	11.94%
6	0.78%	0.87%	1.24%	1.53%	1.72%	2.58%	3.66%	8.19%
7	0.78%	0.80%	1.19%	1.42%	1.51%	2.37%	3.35%	7.51%
8	0.72%	0.73%	1.05%	1.31%	1.40%	2.26%	3.05%	6.82%
9	0.73%	0.73%	0.86%	1.10%	1.18%	1.62%	2.29%	5.12%
10	0.73%	0.73%	0.84%	1.07%	1.16%	1.55%	2.21%	4.95%
11	0.71%	0.71%	0.82%	1.05%	1.14%	1.49%	2.13%	4.78%
12	0.68%	0.68%	0.80%	1.03%	1.12%	1.42%	2.06%	4.60%
13	0.65%	0.65%	0.78%	1.01%	1.10%	1.36%	1.98%	4.43%
14	0.61%	0.61%	0.76%	0.99%	1.07%	1.29%	1.91%	4.26%
15+	0.90%	0.90%	0.90%	0.47%	0.50%	0.59%	0.92%	1.21%

Table 9 Description of Actuarial Assumptions and Methods (continued)

Rates of Disability

The following are sample rates of disability and occurrence of disability by type:

Age	Police		Fire	
	Hired Before July 2, 2013	Hired After July 1, 2013	Hired Before July 2, 2013	Hired After July 1, 2013
20	0.001%	0.001%	0.001%	0.001%
25	0.007%	0.007%	0.005%	0.005%
30	0.089%	0.089%	0.022%	0.022%
35	0.154%	0.154%	0.091%	0.091%
40	0.403%	0.403%	0.204%	0.204%
45	0.533%	0.533%	0.347%	0.347%
50	1.351%	0.691%	1.337%	0.475%
55	1.119%	1.119%	2.025%	2.025%
60	2.078%	2.078%	3.060%	3.060%
64	3.099%	3.099%	7.190%	7.190%

Upon attainment of normal retirement eligibility, the rate is 0.300%.

Type of disability

On duty permanent and total	17%
On duty partial	58%
Off duty ordinary	25%

Retirement Rates

The following rates of retirement apply to members who have not elected to be in DROP:

Age	Police	Firefighters
48	0%	0%
49-50	5%	4%
51	6%	4%
52	6%	6%
53	10%	6%
54	10%	7%
55-57	11%	11%
58	5%	16%
59	10%	16%
60	18%	20%
61	19%	20%
62	25%	50%
63	25%	20%
64	25%	25%
65-69	35%	25%
70	100%	100%

Table 9 Description of Actuarial Assumptions and Methods (continued)

Deferred Retirement Option Plan Elections

90 percent of members who do not retire when first eligible are assumed to elect DROP.

DROP Retirement Rates

The following rates of retirement apply to members in DROP on or before July 1, 2013:

Police

Age	Years in DROP								
	0	1	2	3	4	5	6	7	8
48	5%	0%	0%	0%	0%	0%	0%	0%	0%
49	4%	4%	0%	0%	0%	0%	0%	0%	0%
50	4%	4%	4%	0%	0%	0%	0%	0%	0%
51	4%	4%	4%	10%	0%	0%	0%	0%	0%
52	3%	4%	4%	9%	9%	0%	0%	0%	0%
53	3%	4%	4%	9%	8%	12%	0%	0%	0%
54	4%	5%	5%	10%	9%	13%	13%	0%	0%
55	5%	5%	5%	16%	16%	14%	18%	44%	0%
56	5%	5%	5%	15%	15%	13%	17%	41%	100%
57	5%	5%	5%	16%	15%	14%	17%	43%	100%
58	5%	5%	5%	16%	15%	14%	17%	42%	100%
59	15%	5%	5%	15%	16%	16%	18%	44%	100%
60	17%	5%	5%	16%	17%	18%	19%	47%	100%
61	17%	5%	5%	17%	18%	18%	20%	48%	100%
62	16%	5%	5%	16%	17%	17%	19%	46%	100%
63	18%	6%	6%	18%	19%	19%	21%	50%	100%
64	19%	5%	5%	17%	17%	18%	19%	49%	100%
65	24%	6%	6%	23%	22%	22%	25%	59%	100%
66	24%	5%	6%	20%	19%	22%	22%	54%	100%
67	24%	5%	5%	20%	19%	22%	22%	53%	100%
68	24%	5%	5%	15%	19%	22%	22%	53%	100%
69	24%	5%	5%	20%	19%	22%	22%	47%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 9
Description of Actuarial Assumptions and Methods (continued)

Firefighters

Age	Years in DROP								
	0	1	2	3	4	5	6	7	8
48	2%								
49	4%	3%							
50	5%	4%	4%						
51	3%	3%	3%	9%					
52	3%	3%	3%	8%	9%				
53	4%	3%	4%	10%	11%	13%			
54	4%	3%	3%	9%	11%	13%	13%		
55	6%	4%	4%	13%	13%	15%	17%	38%	
56	5%	3%	4%	13%	12%	14%	17%	37%	100%
57	5%	3%	4%	13%	12%	14%	17%	37%	100%
58	5%	3%	4%	17%	15%	15%	18%	46%	100%
59	6%	3%	4%	17%	15%	16%	19%	46%	100%
60	6%	3%	4%	18%	16%	16%	19%	48%	100%
61	6%	3%	4%	17%	15%	15%	18%	45%	100%
62	6%	3%	4%	17%	15%	16%	18%	46%	100%
63	29%	3%	4%	20%	18%	20%	18%	52%	100%
64	32%	3%	4%	21%	20%	22%	19%	55%	100%
65	33%	4%	4%	22%	21%	23%	20%	57%	100%
66	38%	4%	5%	26%	24%	23%	24%	64%	100%
67	38%	4%	5%	26%	24%	23%	24%	65%	100%
68	38%	4%	5%	26%	24%	23%	24%	65%	100%
69	38%	4%	5%	20%	25%	23%	24%	65%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%

The same rates apply for members entering DROP after July 1, 2013, except the rates for years three and four are replaced with the rates for year two.

Table 9 Description of Actuarial Assumptions and Methods (continued)

The following rates of retirement apply to members who are not yet in DROP but may become eligible in the future:

Police

Age	Years Eligible for DROP									
	0	1	2	3	4	5	6	7	8	9+
47	6%									
48	12%									
49	7%	5%								
50	6%	5%	5%							
51	6%	5%	5%	5%						
52	6%	5%	5%	5%	5%					
53	11%	5%	5%	5%	5%	12%				
54	10%	5%	5%	5%	5%	13%	13%			
55	12%	6%	6%	6%	6%	14%	18%	43%		
56	12%	6%	5%	5%	5%	13%	17%	41%	96%	
57	13%	6%	5%	5%	5%	14%	17%	43%	94%	100%
58	7%	5%	5%	5%	5%	13%	17%	43%	98%	100%
59	10%	5%	5%	5%	5%	17%	18%	45%	97%	100%
60	20%	8%	6%	6%	6%	18%	20%	48%	98%	100%
61	32%	6%	5%	5%	5%	18%	19%	46%	93%	100%
62	29%	9%	5%	5%	5%	16%	17%	42%	92%	100%
63	33%	5%	7%	7%	7%	18%	19%	46%	95%	100%
64	31%	11%	7%	7%	7%	18%	19%	49%	93%	100%
65	47%	13%	6%	6%	6%	20%	22%	54%	100%	100%
66	47%	13%	5%	5%	5%	20%	20%	50%	100%	100%
67	47%	13%	18%	18%	18%	20%	20%	46%	100%	100%
68	47%	13%	18%	18%	18%	20%	20%	46%	100%	100%
69	47%	13%	18%	18%	18%	20%	20%	46%	100%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 9
Description of Actuarial Assumptions and Methods (continued)

Firefighters

Age	Years Eligible for DROP									
	0	1	2	3	4	5	6	7	8	9+
47	3%									
48	6%									
49	6%	4%								
50	6%	4%	4%							
51	5%	3%	4%	4%						
52	5%	3%	3%	3%	3%					
53	5%	4%	4%	4%	4%	13%				
54	5%	3%	4%	4%	4%	13%	13%			
55	8%	5%	5%	5%	5%	15%	18%	38%		
56	8%	5%	4%	4%	4%	14%	17%	38%	95%	
57	8%	4%	5%	5%	5%	15%	17%	38%	98%	100%
58	8%	5%	4%	4%	4%	16%	19%	46%	97%	100%
59	9%	5%	5%	5%	5%	16%	19%	46%	97%	100%
60	10%	5%	7%	7%	7%	17%	20%	49%	86%	100%
61	11%	5%	4%	4%	4%	16%	19%	45%	93%	100%
62	15%	7%	12%	12%	12%	16%	20%	49%	95%	100%
63	33%	7%	4%	4%	4%	19%	16%	48%	100%	100%
64	37%	7%	3%	3%	3%	20%	18%	49%	100%	100%
65	37%	7%	8%	8%	8%	20%	18%	51%	100%	100%
66	37%	7%	4%	4%	4%	23%	23%	61%	100%	100%
67	37%	7%	4%	4%	4%	23%	23%	53%	100%	100%
68	37%	7%	4%	4%	4%	23%	23%	53%	100%	100%
69	37%	7%	4%	4%	4%	23%	23%	47%	100%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Retirement Age for Inactive Vested Participants

Commencement at age 48 and 25 years of service from full-time hire date, whichever is later.

Table 9 Description of Actuarial Assumptions and Methods (continued)

Healthy Mortality

Mortality for non-disabled participants is based on the RP-2014 Total Employee and Healthy Annuitant Mortality Tables rolled back to 2006, adjusted according to the rates in the following table, and projected with the Buck Modified 2016 Improvement Scale. Rates for surviving beneficiaries are adjusted by 120%.

Age	Police	Fire
67 or less	77%	68%
68 – 77	105%	87%
78 and up	115%	120%

Disabled Mortality

Mortality for disabled participants is based on the RP-2014 Disabled Mortality Tables rolled back to 2006, adjusted according to the rates in the following table, and projected with the Buck Modified 2016 Improvement Scale.

Age	Police	Fire
59 or less	35%	35%
60 – 69	60%	45%
70 – 79	75%	70%
80 and up	100%	90%

Credited Service

Credited service on the valuation date, as provided by OP&F, includes all service credited under the plan, including service transferred from other municipal plans and purchased service. The valuation assumes future service will be credited at the rate of one year per year worked, with no assumed future crediting of transferred service or purchased service.

415 Limits

Benefits are limited by the IRC Section 415, assumed to increase 2.75 percent per annum.

Future Expenses

The normal cost is increased by all administrative expenses budgeted, net of the State Subsidy received from the State of Ohio.

Unknown Data for Members

Same as those exhibited by members with similar known characteristics. Deferred benefits are estimated at termination until OP&F has determined the actual amount at retirement. Reported salaries that are less than \$10,000 when annualized are assumed to be anomalous and are reset to \$60,000. The adjustment for late reported salaries is not applied in this case.

Table 9

Description of Actuarial Assumptions and Methods (continued)

Late Reported Salaries

1.258 percent load to 2017 reported salaries to account for salaries accrued but not reported for the valuation. This adjustment is based on plan experience for the prior year. This adjustment will be reviewed annually for future late reported salaries.

Percent Married

75 percent of active members are assumed to be married.

Age of Spouse

Wives are assumed to be three years younger than their husbands.

Optional Form Election

33 percent of service retirees and 10 percent of disability retirees are assumed to elect the 40 percent Joint and Survivor pension at retirement. If the joint annuitant predeceases the retiree, the increase, or pop-up, in the retiree's benefit associated with the 40 percent Joint and Survivor pension is assumed to be 14.36 percent for disability retirees and 10.50 percent for all other retirees.

DROP Account Distributions

For members who terminate DROP before the required three or five years, distribution of the account balance is assumed to be made in a lump sum payment at the end of the three or five year period. Distributions for other members are assumed to be made in a lump sum or installments at retirements in a pattern equivalent to 25 percent receiving lump sums, 30 percent receiving installments over two years, and 45 percent receiving installments over 10 years.

Dependent Parents

None anticipated, but dependency of any dependent parent in receipt of benefits is assumed to continue for the parent's lifetime.

Dependent Children

Each member is assumed to have two children, born when the member was age 26. Dependency is assumed to cease when the child is 22.

Medicare Part B Premium Reimbursement

For service and disability retirements, as well as survivors, Ohio Police & Fire reimburses the standard Medicare Part B premium (\$107.00 per month for 2018) provided the retiree is not eligible for reimbursement from any other sources.

90 percent of members are assumed to be eligible for reimbursement once they reach age 65.

The Medicare Part B Premium assumptions are only used to determine the cost if the Medicare Part B reimbursement payments were to be paid from the pension trust instead of the Health Care Stabilization Fund.

Table 9

Description of Actuarial Assumptions and Methods (continued)

Methods

Actuarial Cost Method

Projected benefit method with individual level percentage entry age normal cost and actuarial accrued liability. Gains and losses are reflected in the actuarial accrued liability. Prior to January 1, 2015, to be consistent with the asset methodology employed by OP&F, DROP balances were netted out of the liabilities.

Adjustment for Re-Employed Retirees

The present value of future benefits and the actuarial accrued liability are increased by an amount for the re-employed retirees' defined contribution plan benefit equal to two times the re-employed retirees' post-retirement contribution balances on the valuation date.

Adjustment for Employer Accrued Liability

The actuarial accrued liability is reduced by the present value of special employer contributions -- referred to as "Local Funds." Local governments are required by state statute to pay the unfunded portion of the actuarially-determined liability of the local police and firefighter's relief and pension funds that were merged to form OP&F in 1967. The ORC designates this obligation of the local governments to the Employers' Accrued Liability. Interest on the outstanding balance is being accrued at the rate of 4.25 percent, compounded semiannually. Local governments began repayment in 1969 and payments are required to be made until 2035. The present value of the remaining payments on the valuation date is determined using the valuation interest rate.

Asset Valuation Method

A four-year moving average market value of assets that spreads the difference between the actual investment income and the expected income on the market value (based on the valuation interest rate) over a period of four years. The actuarial value shall not be less than 80 percent or more than 120 percent of market value.

Data

Census and Assets

The valuation was based on members of OP&F as of the valuation date and does not take into account future members. All census and asset data was supplied by OP&F. Salaries and benefits tabulated in the tables in this report were summed to pennies, but displayed to whole dollars, thus, totals may not be consistent with amounts displayed due to rounding.

Table 10

Plan Summary

Summary of Benefit and Contribution Provisions

The following is intended to summarize the key provisions valued in this valuation. Members of OP&F and other parties should not rely on this summary as a substitute for or legal interpretation of the laws and rules covering this retirement plan.

Membership

Membership in OP&F is mandatory under Ohio Law for all full-time police officers employed by Ohio municipalities and appointed under the required statutory provisions. Membership is also mandatory for all full-time firefighters employed by Ohio municipalities, townships, villages, joint fire districts or other political subdivisions. In order to become members of OP&F, full-time firefighters are required to satisfactorily complete, or have satisfactorily completed, a firefighter training course approved under former Section 3303.07, Section 4765.55 or conducted under Section 3737.33 of the ORC.

Eligibility for Membership

Full-time police officers or firefighters are eligible for membership in OP&F immediately upon commencement of employment as a full-time police officer or firefighter.

Contributions

Employer and member contributions are established by statute and both are due monthly. Employers of police officers pay 19.5 percent of salary; employers of firefighters pay 24 percent of salary. Members contributed 10 percent of salary through July 1, 2013. On July 2, 2013 the member contribution rate increased by 0.75 percent to 10.75 percent. The member contribution rate increased annually by 0.75 percent until it reached the current 12.25 percent on July 2, 2015.

Employer Contribution Rates – Percentage of Active Member Payroll:

Time Frame of Rates	Police	Fire
Jan 1, 1986 thru Present	19.50%	24.00%

Member Contribution Rates – Percentage of Active Member Payroll:

Time Frame of Rates	Police	Fire
July 2, 2015 and Thereafter	12.25%	12.25%
July 2, 2014 thru July 1, 2015	11.50%	11.50%
July 2, 2013 thru July 1, 2014	10.75%	10.75%
Sept. 9, 1988 thru July 1, 2013	10.00%	10.00%

Table 10

Plan Summary (continued)

Benefits

Service Retirement

Upon attaining a qualifying age with sufficient years of service, a member of OP&F may retire and receive a lifetime monthly pension. OP&F offers four types of service retirement: normal, service commuted, age/service commuted and actuarially reduced. Each type has different eligibility guidelines and is calculated using the member's average annual salary.

Since average annual salary is subject to certain statutory and administrative limitations, not all salary, earnings, or compensation may be used in the calculation. OP&F calculates allowable average annual salary as follows:

- For OP&F members with 15 or more years of service credit as of July 1, 2013, average annual salary is an average of the three years of highest allowable earnings, regardless of when in their career the highest years occurred.
- For OP&F members with less than 15 years of service credit as of July 1, 2013, average annual salary is an average of the five years of highest allowable earnings, regardless of when in their career the highest years occurred.
- A "salary benchmark" is established for members with 15 or more years of service credit as of July 1, 2013, under which certain increases are excluded from salary for the purpose of determining allowable average annual salary. This benchmarking does not apply to members with less than 15 years of service credit as of July 1, 2013.

Normal Service Retirement

Eligibility

For members hired into an OP&F-covered position after July 1, 2013, minimum retirement age is 52 with at least 25 years of service credit.

For members hired into an OP&F-covered position on or before July 1, 2013, minimum retirement age is 48 with 25 years of service credit.

Benefit

An annual pension equal to a percentage of the allowable average annual salary. The percentage equals 2.5 percent for each of the first 20 years of service, 2.0 percent for each of the next five years of service, and 1.5 percent for each year of service in excess of 25 years. The maximum pension of 72 percent of the allowable average annual salary is paid after 33 years of service.

Service Commuted Retirement

Eligibility

For members hired into an OP&F-covered position after July 1, 2013, the minimum retirement age is 52, they must have at least 15 years of service credit and 25 years have elapsed from the date of their full-time hire.

For members hired into an OP&F-covered position on or before July 1, 2013, the minimum retirement age is 48, they must have at least 15 years of service credit and 25 years of service and 25 years have elapsed from the date of their full-time hire.

Table 10

Plan Summary (continued)

Benefit

An annual pension equal to 1.5 percent of the allowable average annual salary multiplied by the number of full years of service credit (up to 25 years).

Age/Service Commuted Retirement

Eligibility

Age 62, 15 years of service credit and still working as a full-time police officer or firefighter.

Benefit

An annual pension that uses the same formula as for the Normal Service Retirement benefit.

Actuarially Reduced

Eligibility

For members hired into an OP&F-covered position after July 1, 2013, age 48 with 25 years of service.

Benefit

An annual pension reduced to the actuarial equivalent of the amount payable had the member retired at age 52.

Rights Upon Separation From Service

Deferred Pension

If a member meets the years of service credit required for any of the service retirement pensions but leaves service before attaining the minimum retirement age, a pension becomes payable upon attainment of the qualifying age and filing the appropriate paperwork with OP&F.

Refund of Employee Contributions

Upon separation from service, a member can receive the contributions that he or she made to the plan or the employee share of member contributions picked-up on the member's behalf by their employer. Employer contributions are not refundable.

Termination before Retirement with 25 Years of Service Credit

Benefit

Same as the Normal Service Retirement benefit, except benefit commences once the member reaches minimum retirement age.

- For members hired into an OP&F-covered position after July 1, 2013, minimum retirement age is 52.
- For members hired into an OP&F-covered position on or before July 1, 2013, minimum retirement age is 48.

Table 10

Plan Summary (continued)

Termination before Retirement with 15 Years of Service Credit

Benefit

Same as the Service Commuted Retirement, except benefit commences once the member reaches minimum retirement age and 25 years have elapsed from the date of full-time hire.

- For members hired into an OP&F-covered position after July 1, 2013, the minimum retirement age is 52.
- For members hired into an OP&F-covered position on or before July 1, 2013, the minimum retirement age is 48.

Termination Before Retirement With Less Than 15 Years of Service Credit

Benefit

A lump sum amount equal to the sum of the member's contributions to OP&F.

Deferred Retirement Option Plan

Eligibility

When a member is eligible for a normal service retirement they can enter DROP by delaying retirement and continuing to work as a full-time police officer or firefighter.

- For members hired into an OP&F-covered position after July 1, 2013, normal service retirement eligibility is age 52 with at least 25 years of service credit.
- For members hired into an OP&F-covered position on or before July 1, 2013, normal service retirement eligibility is age 48 with at least 25 years of service credit.

Benefit

DROP is a cost neutral benefit offered by OP&F. Upon the DROP effective date, the member's pension is calculated as if that were their date of retirement. While the member continues to work and draw their normal salary, the amount they would have received in retirement benefits accumulates tax-deferred at OP&F on their behalf, as well as a portion of their OP&F employee contributions and interest. Since the member's pension has already been calculated:

- The years of DROP service do not apply towards the member's normal service retirement.
- If a member earns a higher salary after their DROP effective date due to a raise, job promotion, etc., it will not be used to recalculate their pension and, therefore, will not result in that member receiving a higher pension upon retirement.

The DROP interest rate is set by administrative rule and is subject to change at any time. OP&F credits interest to all DROP balances each month at a rate equal to the 10-year United States (U.S.) Treasury Note Business Day Series, as published by the U.S. Department of the Treasury, with a cap of five percent. This variable interest rate is adjusted quarterly to match the published 10-year U.S. Treasury Note rate for the last trading business day of the preceding quarter and is in effect for the subsequent quarter.

Members whose election to participate in DROP is effective after July 1, 2013 do not qualify for annual cost-of-living allowances (COLA) at any time during DROP. Members whose election to participate in DROP is effective on or before July 1, 2013 will continue to receive a cost-of-living allowance during DROP, but only when they reach 55 years of age and have been participating in DROP for at least one year. Those members whose enrollment date into DROP qualify them for a cost-of-living allowance during DROP will receive three percent of their base pension.

Table 10 Plan Summary (continued)

Member contributions are credited to their DROP account based on the number of years of DROP service. For those members whose election to participate in DROP is effective after July 1, 2013, OP&F applies contributions to DROP in the following manner:

Years of DROP Service	Percentage of Member Contributions
Years 1-3	50 percent of member's contributions
Year 4-5	75 percent of member's contribution
Years 6-8	100 percent of member's contributions

For this group of members, the minimum participation in DROP, without penalty, is five years and the maximum is eight.

- If a member terminates employment within the first five years of joining DROP, then the member forfeits all of their DROP interest. In addition to losing their accumulated interest, members who choose to terminate employment before completing their required participation period cannot withdraw any of the funds in their DROP account until the minimum participation period has expired. The only exception to this rule is if the member dies during the minimum participation period. The member's surviving spouse, designated beneficiary or estate, as applicable will receive the entire DROP account balance determined at the time of death.
- If a member chooses to continue working after eight years in DROP, the member forfeits all DROP benefits and receives the Normal Service Retirement benefit upon retirement, which will be calculated to include the service credit earned during the DROP participation period.

For those members whose election to participate in DROP was on or before July 1, 2013, member contributions are applied to DROP under the following schedule:

Years of DROP Service	Percentage of Member Contributions
Years 1-2	50 percent of member's contributions
Year 3	75 percent of member's contribution
Years 4-8	100 percent of member's contributions

For this group of members, the minimum participation in DROP, without penalty, is three years and the maximum is eight.

- If a member terminates employment within the first three years of joining DROP, then the member forfeits all of their DROP interest. In addition to losing their accumulated interest, members who choose to terminate employment before completing their required participation period cannot withdraw any of the funds in their DROP account until the minimum participation period has expired. The only exception to this rule is if the member dies during the minimum participation period. The member's surviving spouse, designated beneficiary or estate, as applicable will receive the entire DROP account balance determined at the time of death.
- If a member chooses to continue working after eight years in DROP, the member forfeits all DROP benefits and receives the Normal Service Retirement benefit upon retirement, which will be calculated to include the service credit earned during the DROP participation period.

All DROP members retiring before the eight-year max receive their Normal Service Retirement benefit determined at the time of DROP entry, with the COLA adjustment (if applicable) to date of retirement when eligible. These members will also receive the DROP account balance as a lump sum or monthly annuity.

Table 10

Plan Summary (continued)

If a member dies while participating in DROP, the member's surviving spouse, designated beneficiary or estate will receive the entire DROP account balance determined at the time of death. The surviving spouse or contingent dependent beneficiary will receive the greater of the retirement allowance made at the time of DROP entry or the Normal Service Retirement benefit paid with COLA adjustments (if applicable) to the date of death, paid as if the member had elected a 50 percent joint and survivor option at death. All other statutory death benefits will apply.

If the member becomes disabled while in DROP, and has not terminated employment, the member must choose either to receive a disability benefit or a service retirement with DROP. If the member chooses the disability benefit, the member forfeits all DROP benefits and receives the disability benefit, with service credit during the DROP period included.

Disability Benefits

Members who become unable to perform their official duties and whose earning capacities are impaired may qualify for disability benefits. Disability benefits are classified as either service-incurred (on-duty) or non-service-incurred (off-duty) and differ in eligibility requirements and benefit formulas. Annual medical evaluations are required for disability benefit recipients who would not have met the age and service requirements for a Normal Service Retirement, unless the Board of Trustee waives this requirement based upon an OP&F physician's certification that the disability is ongoing and further evaluation would not be cost effective. Annual earnings statements are also required to be submitted to OP&F.

Permanent and Total Disability (On-Duty)

Eligibility

No age or service requirement.

Benefit

An annual benefit equal to 72 percent of the allowable average annual salary.

Partial Disability (On-Duty)

Eligibility

No age or service requirement.

Benefit

If the member has less than 25 years of service credit an annual benefit fixed by the Board of Trustees to be a certain percent up to 60 percent of the allowable average annual salary. If the member has 25 or more years of service credit, the annual disability benefit is equal to the Normal Service Retirement amount.

Non-Service Incurred Disability (off-Duty)

Eligibility

Any age and five years of service credit.

Benefit

An annual amount is the percent awarded by the Board of Trustees and may not exceed 60 percent of the allowable average annual salary. Service over 25 years cannot be used in calculating an off-duty disability award.

Table 10

Plan Summary (continued)

Pre-Retirement Survivor Annuity

Eligibility

Upon death before retirement, but after having satisfied the requirements for a Normal Service Retirement or an Age/Service Commuted retirement.

Benefit

The surviving spouse or contingent dependent beneficiary will receive the equivalent of a 50 percent joint and survivor annuity, calculated under the assumption that the decedent had retired effective the day following his/her death.

Statutory Survivor Benefits

Eligibility

Upon death of any active or retired member of OP&F.

Benefit

- **Surviving Spouse's Benefit**

An annual amount equal to \$6,600 (\$550 monthly), plus an annual COLA of three percent of the original base benefit, paid each July 1, beginning July 1, 2000. The benefit is paid to the surviving spouse for life.

If the spouse is receiving a full death benefit under the Death Fund Benefit statute, the spouse's statutory survivor benefit is \$4,920 (\$410 monthly). The Death Benefit Fund is funded by the State of Ohio and provides special benefits to eligible survivors of public safety officers who are killed in the line of duty or who die from injuries or disease incurred in the performance of official duties. These eligible survivors are entitled to receive the member's full monthly salary, which will be reduced at the member's retirement eligibility date. These death benefit payments are in addition to any optional payment plan benefits elected by the member.

- **Surviving Child's Benefit**

An annual amount equal to \$1,800 (\$150 monthly), payable until such child attains age 18 or marries, whichever occurs first. The payment can continue to an unmarried full-time student until age 22. A dependent disabled child, regardless of age at time of member's death, is entitled to a benefit until death or recovery from disability. A COLA of three percent of the original base is payable each July 1.

- **Dependent Parents' Benefit**

If there is no surviving spouse or dependent children, an annual amount of \$2,400 (\$200 monthly) is payable to one dependent parent or \$1,200 (\$100 monthly) each to two dependent parents for life or until dependency ceases or remarriage. A COLA of three percent of the original base is payable each July 1.

**Table 10
Plan Summary (continued)**

Survivors	Monthly Pension	Causes of Termination
Widow / Widower	current amount + future COLA	* Death
Minor child	current amount + future COLA	* Death * Marriage * Attainment of age 18
Dependent disabled child	current amount + future COLA	* Death * Recovery from disability
Student	current amount + future COLA	* Death * Marriage * Attainment of age 22 * Loss of student status
One dependent parent	current amount + future COLA	* Death
Two dependent parents	½ current amount (each) + future COLA	* Re-marriage * Termination of dependency

Benefit Type	Base Monthly Benefit Amount	Base Monthly Benefit Amount Plus Increases Through July 1, 2017	Monthly Increases Effective July 1, 2018
Spouse *	\$550	\$842.60 **	\$16.50
Child	150	229.80 ***	4.50
One Parent	200	306.40 ****	6.00
Two Parents	100	153.20	3.00

* Spouse's benefit is \$410 if spouse is receiving a full death benefit under the Death Fund Benefit statute. There is no annual increase on this benefit payment.

** On July 1, 2000 the Statutory Surviving Spouse Benefit increased by \$12.10 per month. This increase was a percentage of the original benefit amount, equaling the percentage increase in the CPI plus unused prior increases, to a maximum of three percent. Every year after 2000, the monthly increase was \$16.50 or three percent of the base benefit.

*** On July 1, 2000 the Statutory Child Benefit increased by \$3.30 per month. This increase was a percentage of the original benefit amount, equaling the percentage increase in the CPI plus unused prior increases, to a maximum of three percent. Every year after 2000, the monthly increase was \$4.50 or three percent of base benefit.

**** On July 1, 2000 the Statutory Surviving One Parent Benefit increased by \$4.40 per month. This increase was a percentage of the original benefit amount, equaling the percentage increase in the CPI plus unused prior increases, to a maximum of three percent. Every year after 2000, the monthly increase was \$6.00 or three percent of base benefit.

Table 10

Plan Summary (continued)

Lump Sum Death Benefit

Eligibility

Upon death of any retired or disabled member of OP&F.

Benefit

A lump sum payment of \$1,000 is paid to the member's surviving spouse or, if no surviving spouse, to a designated beneficiary. If there is no surviving spouse or beneficiary, then it is paid to the member's estate.

Annuities

Effective Feb. 28, 1980, for those members who are retiring on either a service pension or a disability benefit, optional annuity plans can be chosen, subject to certain limitations. The member can elect actuarially reduced benefits under a joint and survivor annuity, life annuity certain and continuous, or multiple beneficiary annuity plan. The optional annuity plans allow the member's beneficiary(ies) to receive a lifetime payment upon the member's death.

Annuity Types

Single Life Annuity

For unmarried members, this is the standard annuity plan. Married members may elect this plan only if the spouse consents to the selection in writing. This plan pays the maximum retirement allowance that the member is entitled to receive and, upon the member's death, none of the pension or benefit is continued to any beneficiary.

Joint and Survivor Annuity (JSA)

Under this plan, a member designates that, upon his or her death, a certain percentage of the member's actuarially reduced benefit is continued to a surviving designated beneficiary for life.

Any percentage between one percent and 100 percent of the member's reduced pension may be continued to the surviving designated beneficiary, but the percent continued may be limited based on the beneficiary's age. If a member is married at the time benefits are elected, the standard plan is a 50 percent JSA continuing one-half of the member's reduced monthly benefit to his or her surviving spouse. If the member wants to select a plan which provides for the continuation of benefits for someone other than the spouse or less than 50 percent JSA to the spouse, the spouse must consent in writing to this choice. This plan automatically terminates upon death of the beneficiary, to be effective the month following OP&F's receipt of notice of death, or it may be cancelled upon divorce with the consent of the member's spouse or a specific court order, at which point the annuity reverts to the single life annuity to the member. Elected option may be cancelled within one year after benefits commence, with the consent of the beneficiary.

Multiple Beneficiary Annuity

Under the multiple beneficiary annuity plan, a member may designate up to four beneficiaries at the time of retirement so that, upon death, a certain percentage of the member's actuarially reduced benefit is continued to the surviving beneficiaries for their lives. If the member is married at the time of retirement, the spouse must consent in writing for an annuity selection that provides for less than 50 percent JSA payable to the spouse.

Table 10

Plan Summary (continued)

Life Annuity Certain and Continuous (LACC)

This plan provides a lifetime allowance to the member and will only be paid to a designated beneficiary if the member dies and the period elected by the member has not expired. The minimum guarantee period is five years and the maximum is 20 years. 100 percent of the member's reduced pension continues to the beneficiary for the guarantee period selected. Elected option may be cancelled within one-year after benefits commence, with the consent of the beneficiary. If the member is married at the time of retirement, the spouse must consent in writing for an annuity selection that provides for less than a 50 percent JSA payable to the spouse.

Tiered Retirement Plan – COLA or Terminal Pay (Non-COLA)

Members retiring on or after July 24, 1986, who had 15 or more years of service credit as of January 1, 1989, are eligible to select between two different pension calculation plans. Under the terminal pay method, a member's monthly pension benefit is calculated using terminal payouts at the time of retirement such as accrued sick leave and vacation compensation to increase the amount of the average annual salary, but subject to certain limitations, and these members are not eligible to receive cost-of-living allowance adjustments. Under the COLA method, terminal payments are not included in the calculation of a member's average annual salary, but the member is eligible to receive COLA increases. The COLA method is the automatic calculation method for any active member with fewer than 15 years of service as of January 1, 1989.

Under the COLA method, members who are at least 55 years old and have been receiving OP&F pension benefits for at least one year are eligible for cost-of-living allowance adjustments. The age 55 provision for receiving a COLA does not apply to those who are receiving a permanent and total disability benefit, surviving beneficiaries under optional plans and statutory survivors.

The COLA amount for members who have 15 or more years of service credit as of July 1, 2013 and members who are receiving a pension benefit that became effective before July 1, 2013 will be equal to three percent of the member's base pension benefit.

The COLA amount for members who have less than 15 years of service credit as of July 1, 2013, and members whose pension benefit became effective on or after July 1, 2013, will be equal to a percentage of the member's base pension benefit where the percentage is the lesser of three percent or the percentage increase in the consumer price index, if any, over the twelve-month period that ends on the thirtieth day of September of the immediately preceding year, rounded to the nearest one-tenth of one percent.

Members who retired prior to July 24, 1986 or their surviving beneficiaries under optional plans are entitled to cost-of-living allowance increases. The annual increase is paid on July 1st of each year. The annual COLA increase is \$360 under a Single Life Annuity Plan with proportional reductions for optional payment plans.

Re-employed Retiree's Defined Contribution Plan Benefit

Effective June 30, 1991, every person who is retired under an Ohio public pension plan and who is re-employed in an OP&F covered position must contribute to OP&F at the same rate as other police officers or firefighters. The employer pays the normal rate as well. If the re-employed member terminates employment before age 60, Ohio law allows the member to receive a lump sum payment of post-retirement employee contributions made during the period of re-employment, plus interest. If the member waits until age 60 to receive this benefit, he or she can choose to receive either a lump sum payment in an amount equal to twice his or her contributions, plus

Table 10

Plan Summary (continued)

interest, or a lifetime annuity paid monthly. If, after calculation, the member's lifetime monthly annuity is less than \$25, the member may only select the lump sum payment option. If the member is married spousal consent is required before payment can occur.

Group Health Insurance and Medicare

Commencing January 1, 1974, the Board of Trustees may contract for group health insurance on the basis of part or all of the cost of the premium for the coverage to be paid by OP&F. Medical and prescription drug coverage sponsored by OP&F are not vested rights and are subject to change at any time upon action of the Board of Trustees.

Effective January 1, 1977, OP&F is mandated to pay the premium for supplemental Medicare (Part B) up to the statutory maximum provided the benefit recipient is not eligible for reimbursement from any other sources. By law, OP&F is required to pay monthly to each recipient of service benefits, disability benefits and survivor benefits not less than \$96.40, with the exception that OP&F cannot pay an amount that exceeds the amount paid by the recipient for the coverage. Once OP&F obtains the proper documentation from the service retiree, disability retiree or surviving beneficiary of their enrollment in the Medicare program, Medicare (Part B) premium payments begin.

Note: This benefit is not included in the principal valuation results, but is included in the retiree health care valuation results.

Effective July 1992, retirees and survivors make monthly medical benefit contributions, which are credited to the Health Care Stabilization Fund. These contributions are reviewed on an annual basis to determine adequacy with the rising cost of health care. In 2004, a new contribution strategy was implemented. Retirees and survivors now pay a percentage of the full cost of the benefit. The percentage ranges from 25 percent to 100 percent for themselves and dependents based on the year of retirement.

Table 11
Summary of Membership Data as of January 1, 2018

Active Members

POLICE

Item	Male	Female	Total
Number of Members	13,599	1,473	15,072
Annual Salaries	\$ 1,042,977,676	\$ 108,471,754	\$ 1,151,449,430
Average Annual Salary	\$ 76,695	\$ 73,640	\$ 76,397
Average Age	41.9	41.3	41.8
Average Service	14.6	13.7	14.5

FIREFIGHTERS

Item	Male	Female	Total
Number of Members	12,788	352	13,140
Annual Salaries	\$ 997,474,088	\$ 25,743,513	\$ 1,023,217,601
Average Annual Salary	\$ 78,001	\$ 73,135	\$ 77,870
Average Age	42.6	41.2	42.6
Average Service	15.1	12.5	15.0

TOTAL

Item	Male	Female	Total
Number of Members	26,387	1,825	28,212
Annual Salaries	\$ 2,040,451,763	\$ 134,215,267	\$ 2,174,667,031
Average Annual Salary	\$ 77,328	\$ 73,543	\$ 77,083
Average Age	42.2	41.3	42.1
Average Service	14.8	13.5	14.7

Table 11
Summary of Membership Data as of January 1, 2018 (continued)

Inactive Members

POLICE

Item	Male	Female	Total
Eligible for Allowances	188	18	206
Eligible for Refunds Only	<u>2,228</u>	<u>352</u>	<u>2,580</u>
Total	2,416	370	2,786

FIREFIGHTERS

Item	Male	Female	Total
Eligible for Allowances	134	6	140
Eligible for Refunds Only	<u>625</u>	<u>59</u>	<u>684</u>
Total	759	65	824

TOTAL

Item	Male	Female	Total
Eligible for Allowances	322	24	346
Eligible for Refunds Only	<u>2,853</u>	<u>411</u>	<u>3,264</u>
Total	3,175	435	3,610

Table 11
Summary of Membership Data as of January 1, 2018 (continued)

Retirees and Beneficiaries

POLICE

Item	Number	Annual Allowance	Average Allowance	Average Age
Service Retirees	8,558	\$ 411,675,524	\$ 48,104	68.1
Survivors and Beneficiaries	4,540	50,087,099	11,032	71.7
Disability Retirees	<u>3,710</u>	<u>146,642,976</u>	39,526	63.3
Total	16,808	\$ 608,405,599	\$ 36,197	68.0

FIREFIGHTERS

Item	Number	Annual Allowance	Average Allowance	Average Age
Service Retirees	6,612	\$ 317,332,828	\$ 47,993	68.9
Survivors and Beneficiaries	3,414	36,982,285	10,833	73.8
Disability Retirees	<u>2,527</u>	<u>105,048,371</u>	41,570	65.1
Total	12,553	\$ 459,363,484	\$ 36,594	69.5

TOTAL

Item	Number	Annual Allowance	Average Allowance	Average Age
Service Retirees	15,170	\$ 729,008,352	\$ 48,056	68.5
Survivors and Beneficiaries	7,954	87,069,384	10,947	72.6
Disability Retirees	<u>6,237</u>	<u>251,691,347</u>	40,355	64.0
Total	29,361	\$ 1,067,769,083	\$ 36,367	68.7

Exhibit I

Active Membership Data as of January 1, 2018

Number and Allowable Average Annual Salary

Police

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 25	500 \$49,553									500 \$49,553
25-29	1,575 \$58,809	189 \$76,086								1,764 \$60,660
30-34	989 \$59,730	844 \$75,510	270 \$82,666							2,103 \$69,008
35-39	385 \$58,948	462 \$73,392	841 \$80,250	286 \$85,440	2 \$85,808					1,976 \$75,253
40-44	145 \$52,130	194 \$70,892	457 \$78,075	1,034 \$83,705	357 \$88,070	3 \$98,126				2,190 \$80,036
45-49	97 \$52,658	97 \$69,292	288 \$76,141	745 \$79,075	1,502 \$87,571	412 \$91,467	5 \$96,452			3,146 \$83,397
50-54	20 \$53,253	38 \$61,969	90 \$72,677	221 \$76,068	579 \$84,590	926 \$89,929	309 \$92,159	6 \$86,444	1 \$79,584	2,190 \$85,890
55-59	15 \$52,364	10 \$66,799	33 \$67,291	52 \$69,811	160 \$76,712	295 \$85,054	311 \$92,632	28 \$101,425	1 \$49,632	905 \$84,384
60-64	8 \$45,403	6 \$61,922	9 \$71,950	12 \$55,831	50 \$78,163	73 \$77,020	69 \$87,692	20 \$95,918	5 \$104,120	252 \$79,653
Over 64		5 \$ 55,012		4 \$ 70,741	5 \$ 80,113	14 \$ 76,206	6 \$ 85,183	4 \$ 66,013	8 \$ 107,565	46 \$ 79,590
Total	3,734 \$57,324	1,845 \$73,800	1,988 \$78,887	2,354 \$81,262	2,655 \$86,141	1,723 \$88,818	700 \$91,900	58 \$95,534	15 \$100,689	15,072 \$76,397

Note: Excludes rehired retirees.

Exhibit I

Active Membership Data as of January 1, 2018

Number and Allowable Average Annual Salary (continued)

Firefighters

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 25	353 \$51,425									353 \$51,425
25-29	1,097 \$58,180	170 \$71,162								1,267 \$59,922
30-34	906 \$60,532	722 \$74,867	206 \$80,787	2 \$69,169						1,836 \$68,451
35-39	405 \$60,176	566 \$75,992	684 \$79,533	312 \$85,585	2 \$93,594					1,969 \$75,507
40-44	118 \$58,686	189 \$75,796	439 \$79,400	894 \$84,170	293 \$87,919	6 \$109,644				1,939 \$81,368
45-49	32 \$58,579	64 \$76,267	260 \$75,887	728 \$82,603	952 \$87,811	333 \$93,667	2 \$78,814			2,371 \$85,013
50-54	10 \$61,846	19 \$74,259	68 \$74,398	264 \$81,991	575 \$86,061	713 \$88,401	285 \$93,361	4 \$88,911		1,938 \$86,797
55-59	7 \$68,770	12 \$76,586	27 \$74,423	94 \$83,101	219 \$84,789	409 \$87,080	308 \$91,018	40 \$97,812	4 \$89,923	1,120 \$87,242
60-64	1 \$68,436	4 \$50,674	13 \$75,975	18 \$73,306	64 \$86,906	85 \$80,734	92 \$92,453	16 \$98,341	7 \$89,145	300 \$85,686
Over 64		1 \$ 55,000	3 \$ 81,987	1 \$ 74,829	12 \$ 80,681	16 \$ 76,670	8 \$ 97,186	4 \$ 85,519	2 \$ 68,142	47 \$ 81,416
Total	2,929 \$58,435	1,747 \$74,961	1,700 \$78,784	2,313 \$83,474	2,117 \$86,976	1,562 \$88,722	695 \$92,204	64 \$96,620	13 \$86,153	13,140 \$77,870

Note: Excludes rehired retirees.

Exhibit I

Active Membership Data as of January 1, 2018

Number and Allowable Average Annual Salary (continued)

Total

Age	Years of Service									Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
Under 25	853 \$50,327										853 \$50,327
25-29	2,672 \$58,551	359 \$73,754									3,031 \$60,351
30-34	1,895 \$60,113	1,566 \$75,213	476 \$81,853	2 \$69,169							3,939 \$68,748
35-39	790 \$59,577	1,028 \$74,823	1,525 \$79,929	598 \$85,516	4 \$89,701						3,945 \$75,380
40-44	263 \$55,071	383 \$73,312	896 \$78,724	1,928 \$83,920	650 \$88,002	9 \$105,805					4,129 \$80,661
45-49	129 \$54,127	161 \$72,065	548 \$76,021	1,473 \$80,819	2,454 \$87,664	745 \$92,450	7 \$91,412				5,517 \$84,092
50-54	30 \$56,117	57 \$66,066	158 \$73,418	485 \$79,292	1,154 \$85,323	1,639 \$89,264	594 \$92,736	10 \$87,431	1 \$79,584		4,128 \$86,316
55-59	22 \$57,584	22 \$72,137	60 \$70,501	146 \$78,367	379 \$81,379	704 \$86,231	619 \$91,829	68 \$99,300	5 \$81,865		2,025 \$85,965
60-64	9 \$47,962	10 \$57,423	22 \$74,328	30 \$66,316	114 \$83,071	158 \$79,018	161 \$90,413	36 \$96,995	12 \$95,385		552 \$82,932
Over 64		6 \$ 55,010	3 \$ 81,987	5 \$ 71,558	17 \$ 80,514	30 \$ 76,454	14 \$ 92,042	8 \$ 75,766	10 \$ 99,680		93 \$ 80,513
Total	6,663 \$57,813	3,592 \$74,365	3,688 \$78,840	4,667 \$82,358	4,772 \$86,511	3,285 \$88,772	1,395 \$92,052	122 \$96,104	28 \$93,940		28,212 \$77,083

Note: Excludes rehired retirees.

Exhibit II

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances

Police

Annual Allowances as of January 1, 2018				
Group	Number	Basic	Cost-of-Living Increases	Total
Service Retirees				
Males	8,088	\$ 287,806,355	\$ 100,938,871	\$ 388,745,226
Females	<u>470</u>	<u>18,298,824</u>	<u>4,631,474</u>	<u>22,930,298</u>
Subtotal	8,558	\$ 306,105,179	\$ 105,570,345	\$ 411,675,524
Survivors and Beneficiaries				
Males	189	\$ 818,627	\$ 359,551	\$ 1,178,178
Females	<u>4,351</u>	<u>32,959,036</u>	<u>15,949,885</u>	<u>48,908,921</u>
Subtotal	4,540	\$ 33,777,663	\$ 16,309,436	\$ 50,087,099
Disability Retirees				
Males	3,207	\$ 92,394,938	\$ 34,816,840	\$ 127,211,778
Females	<u>503</u>	<u>14,713,964</u>	<u>4,717,234</u>	<u>19,431,198</u>
Subtotal	3,710	\$ 107,108,902	\$ 39,534,074	\$ 146,642,976
Grand Total	16,808	\$ 446,991,744	\$ 161,413,855	\$ 608,405,599

Exhibit II

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances (continued)

Firefighters

Group	Number	Annual Allowances as of January 1, 2018		
		Basic	Cost-of-Living Increases	Total
Service Retirees				
Males	6,554	\$ 233,959,129	\$ 80,661,584	\$ 314,620,713
Females	<u>58</u>	<u>2,402,819</u>	<u>309,296</u>	<u>2,712,115</u>
Subtotal	6,612	\$ 236,361,948	\$ 80,970,880	\$ 317,332,828
Survivors and Beneficiaries				
Males	116	\$ 253,931	\$ 132,633	\$ 386,564
Females	<u>3,298</u>	<u>24,766,362</u>	<u>11,829,359</u>	<u>36,595,721</u>
Subtotal	3,414	\$ 25,020,293	\$ 11,961,992	\$ 36,982,285
Disability Retirees				
Males	2,421	\$ 74,664,148	\$ 26,589,159	\$ 101,253,307
Females	<u>106</u>	<u>3,072,458</u>	<u>722,606</u>	<u>3,795,064</u>
Subtotal	2,527	\$ 77,736,606	\$ 27,311,765	\$ 105,048,371
Grand Total	12,553	\$ 339,118,847	\$ 120,244,637	\$ 459,363,484

Exhibit II

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances (continued)

Total

Group	Number	Annual Allowances as of January 1, 2018		
		Basic	Cost-of-Living Increases	Total
Service Retirees				
Males	14,642	\$ 521,765,484	\$ 181,600,455	\$ 703,365,939
Females	<u>528</u>	<u>20,701,643</u>	<u>4,940,770</u>	<u>25,642,413</u>
Subtotal	15,170	\$ 542,467,127	\$ 186,541,225	\$ 729,008,352
Survivors and Beneficiaries				
Males	305	\$ 1,072,558	\$ 492,184	\$ 1,564,742
Females	<u>7,649</u>	<u>57,725,398</u>	<u>27,779,244</u>	<u>85,504,642</u>
Subtotal	7,954	\$ 58,797,956	\$ 28,271,428	\$ 87,069,384
Disability Retirees				
Males	5,628	\$ 167,059,086	\$ 61,405,999	\$ 228,465,085
Females	<u>609</u>	<u>17,786,422</u>	<u>5,439,840</u>	<u>23,226,262</u>
Subtotal	6,237	\$ 184,845,508	\$ 66,845,839	\$ 251,691,347
Grand Total	29,361	\$ 786,110,591	\$ 281,658,492	\$ 1,067,769,083

Exhibit III

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Average Annual Allowance

Police

Age Last Birthday	Number	Annual Allowance	Average Annual Allowance
Service Retirees			
Under 60	1,580	\$ 76,372,566	\$ 48,337
60 - 64	1,755	92,095,633	52,476
65 - 69	1,812	93,789,843	51,760
70 - 74	1,551	77,196,275	49,772
75 - 79	999	42,999,509	43,043
Over 79	861	29,221,697	33,939
Total	8,558	\$ 411,675,524	\$ 48,104
Survivors and Beneficiaries			
Under 60	729	\$ 7,369,360	\$ 10,109
60 - 64	372	4,706,941	12,653
65 - 69	617	7,809,657	12,657
70 - 74	622	7,193,256	11,565
75 - 79	679	7,495,771	11,039
Over 79	1,521	15,512,114	10,199
Total	4,540	\$ 50,087,099	\$ 11,032
Disability Retirees			
Under 60	1,401	\$ 55,760,493	\$ 39,800
60 - 64	594	25,780,134	43,401
65 - 69	616	25,368,455	41,183
70 - 74	570	22,510,754	39,493
75 - 79	299	10,452,895	34,960
Over 79	230	6,770,245	29,436
Total	3,710	\$ 146,642,976	\$ 39,526

Exhibit III

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Average Annual Allowance (continued)

Firefighters

Age Last Birthday	Number	Annual Allowance	Average Annual Allowance
Service Retirees			
Under 60	1,217	\$ 60,717,768	\$ 49,891
60 - 64	1,377	73,507,822	53,383
65 - 69	1,265	65,783,952	52,003
70 - 74	1,040	50,124,917	48,197
75 - 79	772	34,684,789	44,928
Over 79	941	32,513,580	34,552
Total	6,612	\$ 317,332,828	\$ 47,993
Survivors and Beneficiaries			
Under 60	493	\$ 4,909,284	\$ 9,958
60 - 64	200	2,685,120	13,426
65 - 69	318	4,116,443	12,945
70 - 74	408	4,753,712	11,651
75 - 79	523	5,668,979	10,839
Over 79	1,472	14,848,747	10,087
Total	3,414	\$ 36,982,285	\$ 10,833
Disability Retirees			
Under 60	788	\$ 32,042,726	\$ 40,663
60 - 64	420	19,243,731	45,818
65 - 69	463	20,642,674	44,585
70 - 74	388	16,283,152	41,967
75 - 79	271	10,759,968	39,705
Over 79	197	6,076,120	30,843
Total	2,527	\$ 105,048,371	\$ 41,570

Exhibit III

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Average Annual Allowance (continued)

Total

Age Last Birthday	Number	Annual Allowance	Average Annual Allowance
Service Retirees			
Under 60	2,797	\$ 137,090,334	\$ 49,013
60 - 64	3,132	165,603,455	52,875
65 - 69	3,077	159,573,795	51,860
70 - 74	2,591	127,321,192	49,140
75 - 79	1,771	77,684,298	43,865
Over 79	<u>1,802</u>	<u>61,735,277</u>	<u>34,259</u>
Total	15,170	\$ 729,008,352	\$ 48,056
Survivors and Beneficiaries			
Under 60	1,222	\$ 12,278,644	\$ 10,048
60 - 64	572	7,392,061	12,923
65 - 69	935	11,926,100	12,755
70 - 74	1,030	11,946,968	11,599
75 - 79	1,202	13,164,750	10,952
Over 79	<u>2,993</u>	<u>30,360,861</u>	<u>10,144</u>
Total	7,954	\$ 87,069,384	\$ 10,947
Disability Retirees			
Under 60	2,189	\$ 87,803,219	\$ 40,111
60 - 64	1,014	45,023,865	44,402
65 - 69	1,079	46,011,129	42,642
70 - 74	958	38,793,906	40,495
75 - 79	570	21,212,863	37,216
Over 79	<u>427</u>	<u>12,846,365</u>	<u>30,085</u>
Total	6,237	\$ 251,691,347	\$ 40,355

Exhibit IV - 10-Year History of Membership Data

ACTIVE MEMBERS

(Dollars in Thousands)

Valuation as of Jan. 1	Number of Members *	Percentage Change in Membership	Valuation Membership Payroll	Percentage Change in Payroll
2018	28,408	0.83%	\$ 2,185,127	1.46% ***
2017	28,175	1.99%	2,153,765	4.51% **
2016	27,624	(0.52%)	2,060,851	3.74%
2015	27,769	0.59%	1,986,569	2.28%
2014	27,605	0.59%	1,942,269	1.51%
2013	27,444	(0.65%)	1,913,383	0.84%
2012	27,623	(2.12%)	1,897,413	1.55%
2011	28,222	(1.39%)	1,868,502	(1.41%)
2010	28,619	(1.52%)	1,895,196	(0.30%)
2009	29,062		1,900,935	

* Includes rehired retirees

** Increase for 2017 includes 1.427% assumed increase for late reported salaries

*** Increase for 2018 includes 1.258% assumed increase for late reported salaries

RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

(Dollars in Thousands)

Year Ended Dec. 31	Added to Rolls		Removed from Rolls		Number on Rolls End of Year	Annual Allowances	Percentage Change in Allowances	Average Annual Allowances	Percentage Change in Membership
	Number	Annual Allowances	Number	Annual Allowances					
2017	1,458	\$ 50,476	1,010	\$ 24,321	29,361	\$ 1,067,769	4.53%	\$ 36.37	1.55%
2016	1,401	47,436	890	21,186	28,913	1,021,509	4.67%	35.33	1.80%
2015	1,450	48,864	1,011	22,141	28,402	975,929	4.81%	34.36	1.57%
2014	1,261	41,378	859	17,204	27,963	931,176	4.59%	33.30	1.46%
2013	1,362	44,842	1,044	23,851	27,561	890,288	4.42%	32.30	1.17%
2012	1,390	48,249	1,225	19,469	27,243	852,602	5.58%	31.30	0.61%
2011	1,783	65,572	779	16,397	27,078	807,550	8.52%	29.82	3.85%
2010	1,165	34,553	803	15,721	26,074	744,144	4.74%	28.54	1.41%
2009	1,128	30,920	733	14,566	25,712	710,463	4.52%	27.63	1.56%
2008	1,046	25,590	607	12,825	25,317	679,769		26.85	1.76%

Exhibit V

Reconciliation of Membership Data from January 1, 2017 to January 1, 2018

Police

	Active Members	Vested Former Members	Rehired Retirees	Disableds	Service Retirees	Beneficiaries	Total
Number as of January 1, 2017	15,070	128	135	3,732	8,307	4,484	31,856
New participants	922	0	0	0	0	0	922
Vested terminations	(96)	96	0	0	0	0	0
Non-vested terminations	(226)	0	0	0	0	0	(226)
Retirements	(444)	(7)	(11)	0	451	0	(11)
Disabilities	(63)	(6)	0	69	0	0	0
Return to work	35	(3)	0	0	0	0	32
Died with beneficiary	(12)	0	(1)	(62)	(122)	275	78
Died without beneficiary	(5)	0	0	(29)	(86)	(211)	(331)
Rehired retirees	0	0	13	0	0	0	13
Cessation of benefits/ cash out	(97)	(2)	(1)	0	(2)	(26)	(128)
Data corrections	<u>(12)</u>	<u>0</u>	<u>7</u>	<u>0</u>	<u>10</u>	<u>18</u>	<u>23</u>
Number as of January 1, 2018	15,072	206	142	3,710	8,558	4,540	32,228

Exhibit V

Reconciliation of Membership Data from January 1, 2017 to January 1, 2018 (continued)

Firefighters

	Active Members	Vested Former Members	Rehired Retirees	Disableds	Service Retirees	Beneficiaries	Total
Number as of January 1, 2017	12,920	72	50	2,551	6,406	3,433	25,432
New participants	789	0	0	0	0	0	789
Vested terminations	(81)	81	0	0	0	0	0
Non-vested terminations	(43)	0	0	0	0	0	(43)
Retirements	(341)	(10)	(6)	0	351	0	(6)
Disabilities	(59)	0	0	59	0	0	0
Return to work	7	(1)	0	0	0	0	6
Died with beneficiary	(6)	0	0	(52)	(79)	210	73
Died without beneficiary	(4)	(1)	0	(32)	(67)	(215)	(319)
Rehired retirees	0	0	10	0	0	0	10
Cessation of benefits/ Cash out	(42)	(1)	(1)	0	(1)	(22)	(67)
Data corrections	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>8</u>	<u>12</u>
Number as of January 1, 2018	13,140	140	54	2,527	6,612	3,414	25,887

Exhibit V

Reconciliation of Membership Data from January 1, 2017 to January 1, 2018 (continued)

Total

	Active Members	Vested Former Members	Rehired Retirees	Disableds	Service Retirees	Beneficiaries	Total
Number as of January 1, 2017	27,990	200	185	6,283	14,713	7,917	57,288
New participants	1,711	0	0	0	0	0	1,711
Vested terminations	(177)	177	0	0	0	0	0
Non-vested terminations	(269)	0	0	0	0	0	(269)
Retirements	(785)	(17)	(17)	0	802	0	(17)
Disabilities	(122)	(6)	0	128	0	0	0
Return to work	42	(4)	0	0	0	0	38
Died with beneficiary	(18)	0	(1)	(114)	(201)	485	151
Died without beneficiary	(9)	(1)	0	(61)	(153)	(426)	(650)
Rehired retirees	0	0	23	0	0	0	23
Cessation of benefits	(139)	(3)	(2)	0	(3)	(48)	(195)
Data corrections	<u>(12)</u>	<u>0</u>	<u>8</u>	<u>1</u>	<u>12</u>	<u>26</u>	<u>35</u>
Number as of January 1, 2018	28,212	346	196	6,237	15,170	7,954	58,115

Exhibit VI
Detailed Tabulations of the Data

Exhibit VI-1

Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Age

Police

Age	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
20	4	\$ 154,178			4	\$ 154,178
21	23	980,072	3	\$ 138,631	26	1,118,702
22	50	2,300,236	10	537,492	60	2,837,728
23	146	7,164,721	19	956,782	165	8,121,503
24	211	10,886,203	34	1,658,006	245	12,544,209
25	227	12,761,289	49	2,586,170	276	15,347,459
26	288	16,356,247	41	2,538,927	329	18,895,173
27	330	19,953,012	42	2,460,395	372	22,413,408
28	345	21,934,891	50	2,891,893	395	24,826,783
29	366	23,961,977	26	1,559,625	392	25,521,602
30	394	26,055,604	30	1,827,866	424	27,883,470
31	365	24,134,348	40	2,574,572	405	26,708,920
32	395	27,410,454	31	2,168,675	426	29,579,129
33	391	27,566,050	42	2,862,075	433	30,428,125
34	377	27,856,708	38	2,666,666	415	30,523,373
35	377	26,740,016	36	2,633,807	413	29,373,823
36	350	26,254,520	41	2,981,960	391	29,236,480
37	372	28,313,220	44	3,294,989	416	31,608,209
38	343	26,487,942	41	2,876,574	384	29,364,516
39	337	26,355,487	35	2,761,512	372	29,116,999
40	385	30,586,637	21	1,598,954	406	32,185,590
41	358	28,055,627	39	2,944,942	397	31,000,569
42	393	31,679,952	37	3,107,935	430	34,787,887
43	411	33,260,457	45	3,407,903	456	36,668,360
44	448	36,327,629	53	4,308,095	501	40,635,723
45	528	43,416,854	55	4,450,478	583	47,867,331
46	591	48,678,173	56	4,575,280	647	53,253,454
47	642	53,609,536	79	6,497,964	721	60,107,500
48	563	47,748,659	62	5,072,001	625	52,820,660
49	525	44,538,149	45	3,780,295	570	48,318,444
50	445	38,276,142	54	4,412,424	499	42,688,565
51	434	37,077,765	53	4,290,361	487	41,368,126
52	410	36,012,394	41	3,091,499	451	39,103,893
53	383	33,118,104	44	3,651,668	427	36,769,773
54	292	25,359,293	34	2,809,510	326	28,168,803
55	264	22,956,927	21	1,683,980	285	24,640,908
56	202	17,148,364	20	1,729,651	222	18,878,015
57	158	13,160,296	14	1,151,692	172	14,311,988
58	117	9,722,511	11	906,544	128	10,629,055
59	84	6,769,844	14	1,137,370	98	7,907,214

Exhibit VI-1

Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Age

Police (continued)

Age	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
60	69	5,637,638	9	830,163	78	6,467,801
61	64	4,861,161	5	363,052	69	5,224,213
62	46	3,844,426	5	476,998	51	4,321,424
63	26	1,985,609	2	69,131	28	2,054,739
64	25	1,927,960	1	76,499	26	2,004,459
65	18	1,461,130			18	1,461,130
66	8	685,471	1	70,750	9	756,221
67	4	254,186			4	254,186
68	6	481,967			6	481,967
69	5	428,299			5	428,299
70	2	175,506			2	175,506
71	1	62,503			1	62,503
72						
73						
74	1	41,332			1	41,332
Total	13,599	\$1,042,977,676	1,473	\$ 108,471,754	15,072	\$1,151,449,430

Exhibit VI-2 Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Years of Service

Police

Years of Service	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
0	851	\$ 39,410,503	125	\$ 5,573,227	976	\$ 44,983,730
1	689	37,484,890	115	6,387,653	804	43,872,543
2	654	40,589,951	88	5,386,089	742	45,976,040
3	580	37,119,626	52	3,072,257	632	40,191,884
4	537	36,124,355	43	2,900,380	580	39,024,735
5	482	33,905,991	33	2,330,075	515	36,236,066
6	371	27,714,946	29	2,164,423	400	29,879,369
7	284	21,692,979	16	1,092,284	300	22,785,263
8	202	14,655,583	17	1,316,388	219	15,971,971
9	372	28,377,818	39	2,910,899	411	31,288,717
10	489	37,640,854	59	4,580,044	548	42,220,898
11	386	30,667,942	47	3,657,429	433	34,325,370
12	279	22,143,567	41	3,208,149	320	25,351,715
13	312	25,245,809	38	2,950,823	350	28,196,632
14	304	24,208,922	33	2,524,628	337	26,733,550
15	380	30,557,563	47	3,834,264	427	34,391,827
16	412	33,032,209	53	4,398,391	465	37,430,600
17	401	32,489,480	32	2,578,068	433	35,067,548
18	428	35,043,335	50	4,180,299	478	39,223,634
19	498	41,120,000	53	4,058,079	551	45,178,079
20	487	41,045,862	49	4,191,100	536	45,236,961
21	489	41,577,552	55	4,654,544	544	46,232,097
22	509	44,444,946	55	4,345,374	564	48,790,320
23	477	41,843,792	50	4,186,496	527	46,030,289
24	430	37,938,190	54	4,476,988	484	42,415,177
25	362	31,466,689	44	3,863,641	406	35,330,330
26	307	27,034,544	24	2,074,314	331	29,108,858
27	343	30,344,271	32	2,726,862	375	33,071,133
28	288	26,164,489	27	2,306,180	315	28,470,669
29	274	25,160,762	22	1,891,362	296	27,052,124
30	250	23,005,559	20	1,787,536	270	24,793,094
31	171	15,549,116	5	420,422	176	15,969,537
32	136	12,520,484	15	1,364,669	151	13,885,153
33	69	6,534,787	4	381,309	73	6,916,096
34	28	2,621,072	2	145,035	30	2,766,108
35	16	1,599,138	2	172,601	18	1,771,740
36	17	1,597,665			17	1,597,665
37	9	845,894	1	87,785	10	933,680
38	7	580,281	2	291,686	9	871,968
39	4	365,927			4	365,927

Exhibit VI-2 Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Years of Service

Police (continued)

Years of Service	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
40	9	854,339			9	854,339
41	2	148,402			2	148,402
42						
43						
44	1	175,875			1	175,875
45	1	79,584			1	79,584
46	1	108,341			1	108,341
47	1	143,794			1	143,794
Total	13,599	\$1,042,977,676	1,473	\$ 108,471,754	15,072	\$1,151,449,430

Exhibit VI-3

Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Age

Firefighters

Age	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
17	1	\$ 60,000			1	\$ 60,000
18	1	26,560			1	26,560
19	2	86,809	1	\$ 60,000	3	146,809
20	15	693,815	1	49,601	16	743,416
21	40	1,889,194	1	61,781	41	1,950,975
22	54	2,742,363	3	130,172	57	2,872,535
23	94	4,713,786	5	270,184	99	4,983,971
24	130	7,117,922	5	250,734	135	7,368,655
25	186	10,454,363	3	148,592	189	10,602,955
26	214	12,558,129	6	354,044	220	12,912,173
27	258	15,321,147	7	391,065	265	15,712,212
28	282	17,412,724	5	293,618	287	17,706,341
29	293	18,146,775	13	840,174	306	18,986,949
30	339	22,277,093	11	672,417	350	22,949,510
31	340	22,856,330	12	651,248	352	23,507,577
32	374	25,498,057	10	684,282	384	26,182,339
33	364	25,464,963	14	897,066	378	26,362,029
34	357	25,681,935	15	992,822	372	26,674,757
35	375	27,436,812	12	862,486	387	28,299,298
36	374	27,438,945	10	657,954	384	28,096,899
37	375	28,232,225	14	1,074,605	389	29,306,830
38	392	30,168,652	10	804,024	402	30,972,676
39	396	31,152,062	11	845,229	407	31,997,291
40	349	27,752,603	12	849,088	361	28,601,691
41	372	30,029,145	12	797,587	384	30,826,731
42	389	31,752,147	14	1,096,276	403	32,848,423
43	392	32,593,768	6	510,301	398	33,104,069
44	382	31,504,190	11	887,545	393	32,391,735
45	443	37,074,778	10	767,890	453	37,842,668
46	480	40,306,903	14	1,013,914	494	41,320,817
47	492	41,807,287	8	628,827	500	42,436,114
48	488	42,265,384	13	1,175,617	501	43,441,001
49	411	35,478,819	12	1,046,535	423	36,525,354
50	373	32,347,217	5	478,168	378	32,825,385
51	377	32,833,176	7	626,288	384	33,459,465
52	393	34,104,112	5	412,387	398	34,516,499
53	425	37,209,247	8	675,944	433	37,885,191
54	336	28,834,901	9	690,903	345	29,525,803

Exhibit VI-3 Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Age

Firefighters (continued)

Age	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
55	314	28,009,339	6	478,233	320	28,487,572
56	258	22,715,262	6	447,458	264	23,162,720
57	213	18,404,131	6	558,614	219	18,962,745
58	163	13,996,671	3	241,217	166	14,237,888
59	148	12,624,533	3	236,081	151	12,860,614
60	103	9,150,789	5	375,622	108	9,526,410
61	71	5,918,404	2	159,819	73	6,078,223
62	51	4,073,312	4	411,598	55	4,484,910
63	38	3,373,056	1	121,321	39	3,494,377
64	24	2,057,715	1	64,185	25	2,121,900
65	17	1,413,353			17	1,413,353
66	9	751,326			9	751,326
67	6	414,860			6	414,860
68	3	281,400			3	281,400
69	4	324,416			4	324,416
70	4	317,301			4	317,301
71	1	64,919			1	64,919
72	1	101,189			1	101,189
73	1	66,038			1	66,038
74						
75	1	91,734			1	91,734
Total	12,788	\$ 997,474,088	352	\$ 25,743,513	13,140	\$1,023,217,601

Exhibit VI-4

Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Years of Service

Firefighters

Years of Service	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
0	735	\$ 35,234,750	34	\$ 1,533,615	769	\$ 36,768,365
1	614	34,253,793	17	912,520	631	35,166,313
2	509	30,494,062	12	661,446	521	31,155,508
3	485	31,743,138	23	1,512,392	508	33,255,530
4	481	33,584,513	19	1,226,367	500	34,810,881
5	370	26,853,698	11	728,125	381	27,581,823
6	393	29,036,065	10	774,028	403	29,810,093
7	321	25,080,229	10	780,648	331	25,860,877
8	249	18,464,589	6	424,436	255	18,889,025
9	369	28,207,971	8	607,227	377	28,815,198
10	340	25,784,270	12	874,914	352	26,659,184
11	353	28,373,087	11	909,059	364	29,282,146
12	259	20,314,370	10	676,906	269	20,991,275
13	282	22,877,864	9	683,848	291	23,561,712
14	416	32,820,095	8	617,854	424	33,437,948
15	344	28,077,617	16	1,268,129	360	29,345,746
16	431	35,876,630	16	1,253,731	447	37,130,362
17	479	39,407,999	18	1,498,513	497	40,906,513
18	488	41,195,254	17	1,505,097	505	42,700,351
19	483	41,270,558	21	1,721,214	504	42,991,772
20	481	41,155,285	4	313,977	485	41,469,262
21	468	40,564,517	14	1,154,601	482	41,719,118
22	414	35,969,970	2	152,623	416	36,122,592
23	372	32,783,646	3	362,349	375	33,145,996
24	354	31,212,295	5	458,055	359	31,670,350
25	347	30,850,783	4	365,130	351	31,215,914
26	287	25,391,010	4	369,009	291	25,760,020
27	248	21,883,595	4	352,816	252	22,236,412
28	396	35,031,666	5	333,601	401	35,365,267
29	262	23,604,722	5	401,624	267	24,006,346
30	216	19,983,526	2	159,419	218	20,142,945
31	169	15,691,693	5	437,451	174	16,129,144
32	202	18,534,868	6	626,500	208	19,161,368
33	61	5,554,875	1	86,289	62	5,641,164
34	33	3,007,423			33	3,007,423
35	21	2,119,718			21	2,119,718
36	24	2,167,361			24	2,167,361
37	8	838,202			8	838,202
38	7	660,498			7	660,498
39	4	397,888			4	397,888

Exhibit VI-4 Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Years of Service

Firefighters (continued)

Years of Service	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
40	9	782,625			9	782,625
41						
42	1	92,101			1	92,101
43	1	64,773			1	64,773
44						
45						
46						
47						
48	1	72,930			1	72,930
49						
50						
51						
52	1	107,563			1	107,563
Total	12,788	\$ 997,474,088	352	\$ 25,743,513	13,140	\$1,023,217,601

Exhibit VI-5

Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Age

Total

Age	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
17	1	\$ 60,000			1	\$ 60,000
18	1	26,560			1	26,560
19	2	86,809	1	\$ 60,000	3	146,809
20	19	847,993	1	49,601	20	897,594
21	63	2,869,266	4	200,412	67	3,069,678
22	104	5,042,598	13	667,664	117	5,710,263
23	240	11,878,507	24	1,226,967	264	13,105,474
24	341	18,004,125	39	1,908,740	380	19,912,864
25	413	23,215,652	52	2,734,762	465	25,950,414
26	502	28,914,376	47	2,892,970	549	31,807,346
27	588	35,274,160	49	2,851,460	637	38,125,620
28	627	39,347,614	55	3,185,510	682	42,533,124
29	659	42,108,752	39	2,399,799	698	44,508,551
30	733	48,332,697	41	2,500,283	774	50,832,980
31	705	46,990,678	52	3,225,820	757	50,216,497
32	769	52,908,511	41	2,852,957	810	55,761,468
33	755	53,031,013	56	3,759,140	811	56,790,154
34	734	53,538,643	53	3,659,488	787	57,198,131
35	752	54,176,828	48	3,496,293	800	57,673,121
36	724	53,693,465	51	3,639,915	775	57,333,379
37	747	56,545,445	58	4,369,594	805	60,915,039
38	735	56,656,594	51	3,680,598	786	60,337,192
39	733	57,507,549	46	3,606,741	779	61,114,290
40	734	58,339,240	33	2,448,042	767	60,787,282
41	730	58,084,772	51	3,742,529	781	61,827,301
42	782	63,432,099	51	4,204,212	833	67,636,310
43	803	65,854,225	51	3,918,204	854	69,772,429
44	830	67,831,819	64	5,195,640	894	73,027,458
45	971	80,491,631	65	5,218,368	1,036	85,709,999
46	1,071	88,985,076	70	5,589,194	1,141	94,574,270
47	1,134	95,416,823	87	7,126,791	1,221	102,543,615
48	1,051	90,014,042	75	6,247,618	1,126	96,261,661
49	936	80,016,968	57	4,826,830	993	84,843,798
50	818	70,623,358	59	4,890,592	877	75,513,950
51	811	69,910,941	60	4,916,649	871	74,827,590
52	803	70,116,506	46	3,503,886	849	73,620,392
53	808	70,327,352	52	4,327,612	860	74,654,964
54	628	54,194,194	43	3,500,412	671	57,694,606

Exhibit VI-5

Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Age

Total (continued)

Age	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
55	578	50,966,267	27	2,162,213	605	53,128,479
56	460	39,863,626	26	2,177,109	486	42,040,735
57	371	31,564,428	20	1,710,306	391	33,274,733
58	280	23,719,182	14	1,147,761	294	24,866,943
59	232	19,394,377	17	1,373,451	249	20,767,828
60	172	14,788,427	14	1,205,784	186	15,994,211
61	135	10,779,566	7	522,870	142	11,302,436
62	97	7,917,738	9	888,596	106	8,806,334
63	64	5,358,665	3	190,452	67	5,549,117
64	49	3,985,675	2	140,683	51	4,126,359
65	35	2,874,484			35	2,874,484
66	17	1,436,797	1	70,750	18	1,507,547
67	10	669,046			10	669,046
68	9	763,367			9	763,367
69	9	752,715			9	752,715
70	6	492,808			6	492,808
71	2	127,422			2	127,422
72	1	101,189			1	101,189
73	1	66,038			1	66,038
74	1	41,332			1	41,332
75	1	91,734			1	91,734
Total	26,387	\$2,040,451,763	1,825	\$ 134,215,267	28,212	\$2,174,667,031

Exhibit VI-6

Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Years of Service

Total

Years of Service	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
0	1,586	\$ 74,645,253	159	\$ 7,106,842	1,745	\$ 81,752,096
1	1,303	71,738,683	132	7,300,173	1,435	79,038,856
2	1,163	71,084,014	100	6,047,534	1,263	77,131,548
3	1,065	68,862,764	75	4,584,649	1,140	73,447,414
4	1,018	69,708,868	62	4,126,748	1,080	73,835,616
5	852	60,759,689	44	3,058,200	896	63,817,889
6	764	56,751,011	39	2,938,451	803	59,689,462
7	605	46,773,208	26	1,872,932	631	48,646,140
8	451	33,120,172	23	1,740,823	474	34,860,996
9	741	56,585,789	47	3,518,126	788	60,103,915
10	829	63,425,124	71	5,454,958	900	68,880,082
11	739	59,041,029	58	4,566,488	797	63,607,517
12	538	42,457,936	51	3,885,054	589	46,342,990
13	594	48,123,673	47	3,634,671	641	51,758,344
14	720	57,029,016	41	3,142,482	761	60,171,498
15	724	58,635,180	63	5,102,393	787	63,737,572
16	843	68,908,839	69	5,652,123	912	74,560,962
17	880	71,897,480	50	4,076,581	930	75,974,061
18	916	76,238,589	67	5,685,397	983	81,923,985
19	981	82,390,557	74	5,779,293	1,055	88,169,851
20	968	82,201,147	53	4,505,077	1,021	86,706,224
21	957	82,142,069	69	5,809,145	1,026	87,951,215
22	923	80,414,916	57	4,497,997	980	84,912,913
23	849	74,627,439	53	4,548,846	902	79,176,284
24	784	69,150,484	59	4,935,043	843	74,085,527
25	709	62,317,473	48	4,228,771	757	66,546,243
26	594	52,425,554	28	2,443,323	622	54,868,878
27	591	52,227,866	36	3,079,679	627	55,307,545
28	684	61,196,155	32	2,639,781	716	63,835,936
29	536	48,765,485	27	2,292,985	563	51,058,470
30	466	42,989,084	22	1,946,954	488	44,936,039
31	340	31,240,809	10	857,872	350	32,098,681
32	338	31,055,351	21	1,991,170	359	33,046,521
33	130	12,089,662	5	467,598	135	12,557,260
34	61	5,628,495	2	145,035	63	5,773,530
35	37	3,718,857	2	172,601	39	3,891,458
36	41	3,765,026			41	3,765,026
37	17	1,684,096	1	87,785	18	1,771,881
38	14	1,240,779	2	291,686	16	1,532,466
39	8	763,814			8	763,814

Exhibit VI-6

Active Membership Data as of January 1, 2018

Number and Annual Salaries Distributed by Years of Service

Total (continued)

Years of Service	Male		Female		Totals	
	Number	Compensation	Number	Compensation	Number	Compensation
40	18	1,636,964			18	1,636,964
41	2	148,402			2	148,402
42	1	92,101			1	92,101
43	1	64,773			1	64,773
44	1	175,875			1	175,875
45	1	79,584			1	79,584
46	1	108,341			1	108,341
47	1	143,794			1	143,794
48	1	72,930			1	72,930
49						
50						
51						
52	1	107,563			1	107,563
Total	26,387	\$2,040,451,763	1,825	\$ 134,215,267	28,212	\$2,174,667,031

Exhibit VI-7

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Police Service Retirees

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
48	31	\$ 1,354,056	1	\$ 21,060	32	\$ 1,375,115
49	39	1,731,784	6	305,005	45	2,036,789
50	57	2,605,128	4	179,133	61	2,784,261
51	79	3,363,481	8	372,643	87	3,736,124
52	92	4,300,929	10	434,310	102	4,735,239
53	100	4,338,821	8	358,489	108	4,697,310
54	110	4,684,637	15	591,728	125	5,276,365
55	133	6,202,349	15	690,837	148	6,893,186
56	172	8,325,909	27	1,326,151	199	9,652,061
57	162	8,334,980	17	857,722	179	9,192,702
58	212	11,054,251	17	889,254	229	11,943,506
59	234	12,449,779	31	1,600,128	265	14,049,908
60	275	14,405,127	29	1,324,751	304	15,729,878
61	319	16,938,652	36	1,789,844	355	18,728,496
62	335	17,571,185	26	1,338,887	361	18,910,073
63	359	19,091,303	36	1,853,932	395	20,945,235
64	314	16,465,682	26	1,316,269	340	17,781,951
65	330	17,132,911	25	1,293,285	355	18,426,196
66	339	17,716,633	21	1,100,803	360	18,817,436
67	340	17,208,252	18	900,940	358	18,109,192
68	342	17,540,022	18	866,227	360	18,406,249
69	367	19,409,805	12	620,965	379	20,030,770
70	418	21,818,468	16	861,976	434	22,680,444
71	345	17,049,882	6	296,228	351	17,346,110
72	248	12,158,446	10	478,296	258	12,636,742
73	241	11,887,819	8	422,028	249	12,309,848
74	257	12,155,446	2	67,684	259	12,223,131
75	262	11,963,039	5	217,064	267	12,180,103
76	242	10,680,693	3	150,209	245	10,830,902
77	180	7,576,569	3	108,648	183	7,685,216
78	159	6,546,731			159	6,546,731
79	145	5,756,557			145	5,756,557
80	131	5,240,869			131	5,240,869
81	91	3,624,487	2	63,445	93	3,687,932
82	103	3,677,349	1	40,376	104	3,717,724
83	75	2,705,894			75	2,705,894
84	80	2,908,131	2	38,463	82	2,946,593
85	59	1,865,909	4	105,589	63	1,971,498

Exhibit VI-7

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Police Service Retirees (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
86	47	1,360,433	1	21,310	48	1,381,743
87	49	1,526,503			49	1,526,503
88	37	1,109,794			37	1,109,794
89	46	1,312,545			46	1,312,545
90	31	946,744			31	946,744
91	34	934,472			34	934,472
92	21	585,948			21	585,948
93	20	504,827			20	504,827
94	11	273,597			11	273,597
95	3	65,080			3	65,080
96	6	157,098			6	157,098
97	5	107,447	1	26,619	6	134,065
98	1	18,770			1	18,770
Total	8,088	\$ 388,745,226	470	\$ 22,930,298	8,558	\$ 411,675,524

Exhibit VI-8

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Police Disability Retirees

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
33	1	\$ 26,680			1	\$ 26,680
34	1	17,778			1	17,778
35	3	94,000	2	\$ 57,642	5	151,642
36	4	124,933	1	35,029	5	159,962
37	5	158,933	1	27,156	6	186,089
38	7	198,306	2	30,371	9	228,677
39	10	303,795	1	26,847	11	330,643
40	10	377,104	4	158,468	14	535,572
41	9	316,216	2	43,217	11	359,433
42	19	672,156	9	319,460	28	991,616
43	30	1,015,861	5	177,376	35	1,193,236
44	18	609,651	13	452,234	31	1,061,886
45	42	1,532,439	8	222,363	50	1,754,802
46	52	2,095,593	11	436,914	63	2,532,507
47	62	2,476,267	18	700,793	80	3,177,060
48	50	1,808,924	14	546,166	64	2,355,090
49	68	2,741,109	20	735,683	88	3,476,791
50	87	3,494,515	11	340,631	98	3,835,145
51	72	2,894,652	16	583,096	88	3,477,748
52	81	3,461,901	19	732,441	100	4,194,342
53	80	3,090,324	24	845,830	104	3,936,154
54	66	2,690,587	18	747,169	84	3,437,756
55	58	2,492,441	18	728,589	76	3,221,029
56	78	3,267,298	15	557,853	93	3,825,150
57	69	3,083,355	10	445,778	79	3,529,133
58	67	2,983,722	12	509,166	79	3,492,888
59	79	3,438,153	19	833,532	98	4,271,685
60	109	4,987,556	29	1,222,387	138	6,209,943
61	71	3,060,633	28	1,058,934	99	4,119,567
62	82	3,434,898	22	908,307	104	4,343,205
63	115	5,136,720	17	590,835	132	5,727,555
64	97	4,378,017	24	1,001,847	121	5,379,864
65	106	4,534,906	18	785,512	124	5,320,418

Exhibit VI-8 Retiree and Beneficiary Membership Data as of January 1, 2018 (continued)

Number and Annual Retirement Allowances Distributed by Age

Police Disability Retirees (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
66	120	4,838,651	11	473,228	131	5,311,878
67	103	4,181,945	15	613,906	118	4,795,850
68	103	4,151,644	17	676,532	120	4,828,177
69	111	4,594,344	12	517,788	123	5,112,131
70	153	6,338,031	11	350,997	164	6,689,028
71	121	4,721,111	10	368,889	131	5,090,000
72	92	3,810,396	3	92,202	95	3,902,598
73	81	3,140,472	4	155,385	85	3,295,857
74	94	3,498,128	1	35,143	95	3,533,271
75	72	2,466,717	3	85,883	75	2,552,600
76	64	2,383,362	1	40,167	65	2,423,529
77	46	1,695,165			46	1,695,165
78	62	2,117,767			62	2,117,767
79	48	1,527,122	3	136,713	51	1,663,835
80	38	1,313,943			38	1,313,943
81	31	1,087,158			31	1,087,158
82	35	1,004,874			35	1,004,874
83	18	550,952			18	550,952
84	14	403,097			14	403,097
85	11	287,354			11	287,354
86	11	274,259			11	274,259
87	19	531,335			19	531,335
88	11	283,165			11	283,165
89	7	175,342			7	175,342
90	10	277,498			10	277,498
91	8	208,707			8	208,707
92	6	126,299			6	126,299
93	6	146,635			6	146,635
94	3	59,488			3	59,488
95	1	17,400	1	22,738	2	40,138
Total	3,207	\$ 127,211,778	503	\$ 19,431,198	3,710	\$ 146,642,975

Exhibit VI-9

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Police Survivors and Beneficiaries

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
2	1	\$ 2,758			1	\$ 2,758
3						
4			2	\$ 5,515	2	5,515
5	4	11,030			4	11,030
6	1	2,758			1	2,758
7	1	2,758	2	5,515	3	8,273
8	1	2,758	1	2,758	2	5,515
9	5	13,788	5	13,788	10	27,576
10	5	13,788	1	2,758	6	16,546
11	9	24,818	5	13,788	14	38,606
12	5	13,788	5	13,788	10	27,576
13	7	19,303	5	13,788	12	33,091
14	4	11,030	5	13,788	9	24,818
15	7	35,974	9	24,818	16	60,792
16	11	30,334	6	16,546	17	46,879
17	8	22,061	11	30,146	19	52,207
18	11	30,334	6	16,506	17	46,840
19	16	57,178	9	24,818	25	81,996
20	8	21,953	13	35,795	21	57,748
21	8	22,061	5	30,459	13	52,519
22						
23						
24	2	5,260			2	5,260
25						
26						
27	3	7,747			3	7,747
28	1	2,758	1	2,758	2	5,515
29						
30			2	12,869	2	12,869
31	1	26,615	3	30,334	4	56,948
32			3	21,052	3	21,052
33	1	3,949			1	3,949
34						
35			2	20,222	2	20,222
36						
37	2	30,198	4	20,546	6	50,745
38	2	5,515	1	4,920	3	10,435
39						
40	1	2,758	3	30,716	4	33,473

Exhibit VI-9

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Police Survivors and Beneficiaries (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
41			6	83,163	6	83,163
42			6	58,103	6	58,103
43	1	2,758	7	60,396	8	63,154
44			14	173,116	14	173,116
45	1	15,328	8	119,507	9	134,834
46	1	29,562	13	166,818	14	196,380
47	1	2,758	16	269,304	17	272,061
48	3	37,307	12	105,761	15	143,068
49	1	8,273	15	147,519	16	155,792
50	5	49,562	26	397,849	31	447,410
51	1	10,111	23	315,791	24	325,903
52	1	2,758	28	402,378	29	405,136
53			39	552,808	39	552,808
54	4	33,091	29	399,302	33	432,393
55	1	2,758	36	446,575	37	449,333
56	3	16,888	39	508,842	42	525,730
57	6	86,536	40	507,688	46	594,224
58	3	49,877	42	554,036	45	603,913
59	2	12,869	62	908,709	64	921,578
60	4	49,057	72	1,031,691	76	1,080,748
61	3	35,899	52	640,004	55	675,903
62	1	10,111	69	761,010	70	771,121
63	1	10,111	63	790,320	64	800,431
64			107	1,378,737	107	1,378,737
65			117	1,490,785	117	1,490,785
66	1	10,111	106	1,342,429	107	1,352,540
67	4	62,789	89	1,017,539	93	1,080,328
68	2	20,222	149	1,947,017	151	1,967,239
69	2	20,222	147	1,898,543	149	1,918,766
70			151	1,737,556	151	1,737,556
71	1	10,111	114	1,326,912	115	1,337,023
72	1	30,767	70	791,949	71	822,716
73			141	1,614,625	141	1,614,625
74			144	1,681,336	144	1,681,336
75	1	10,111	155	1,678,101	156	1,688,212
76			141	1,628,068	141	1,628,068
77	1	2,758	130	1,458,141	131	1,460,899
78	3	60,601	114	1,237,590	117	1,298,191
79			134	1,420,402	134	1,420,402
80			133	1,424,487	133	1,424,487

Exhibit VI-9
Retiree and Beneficiary Membership Data as of January 1, 2018
(continued)

Number and Annual Retirement Allowances Distributed by Age

Police Survivors and Beneficiaries (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
81			135	1,406,481	135	1,406,481
82			137	1,412,785	137	1,412,785
83	2	20,222	109	1,113,721	111	1,133,943
84			111	1,151,644	111	1,151,644
85			107	1,069,347	107	1,069,347
86	1	10,111	105	1,110,057	106	1,120,168
87			121	1,233,001	121	1,233,001
88			106	1,080,473	106	1,080,473
89			107	1,057,808	107	1,057,808
90			80	805,211	80	805,211
91	1	21,159	78	765,799	79	786,959
92			44	433,369	44	433,369
93			52	518,521	52	518,521
94			28	278,579	28	278,579
95			13	117,118	13	117,118
96			16	152,068	16	152,068
97	1	10,111	14	130,919	15	141,030
98			3	30,334	3	30,334
99						
100			6	49,347	6	49,347
101			5	48,774	5	48,774
102			3	30,334	3	30,334
103			1	10,111	1	10,111
104			2	20,222	2	20,222
Total	189	\$ 1,178,178	4,351	\$ 48,908,921	4,540	\$ 50,087,099

Exhibit VI-10

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Firefighters Service Retirees

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
48	4	\$ 89,684			4	\$ 89,684
49	15	713,259	1	\$ 36,461	16	749,720
50	28	1,165,831			28	1,165,831
51	40	1,807,211	2	100,164	42	1,907,375
52	56	2,505,908	4	189,086	60	2,694,994
53	62	2,701,429	5	204,630	67	2,906,058
54	77	3,416,437	4	188,685	81	3,605,122
55	111	5,382,371	2	117,085	113	5,499,456
56	161	8,056,664	6	277,816	167	8,334,479
57	192	9,952,402	4	144,443	196	10,096,845
58	204	10,520,291	6	324,564	210	10,844,855
59	229	12,607,786	4	215,562	233	12,823,348
60	254	13,667,136	2	82,758	256	13,749,894
61	260	14,119,686	1	80,544	261	14,200,230
62	293	15,776,610	2	86,155	295	15,862,765
63	282	14,891,842	1	40,581	283	14,932,424
64	278	14,561,227	4	201,282	282	14,762,509
65	263	13,821,212	2	85,400	265	13,906,612
66	277	14,788,839	1	27,472	278	14,816,311
67	257	13,244,120	2	86,357	259	13,330,477
68	232	11,894,849	1	50,732	233	11,945,582
69	229	11,744,171	1	40,799	230	11,784,970
70	270	13,152,932			270	13,152,932
71	235	11,510,994			235	11,510,994
72	149	7,328,872	2	86,408	151	7,415,279
73	184	8,720,818	1	45,132	185	8,765,950
74	199	9,279,762			199	9,279,762
75	202	9,348,154			202	9,348,154
76	158	7,303,840			158	7,303,840
77	155	6,994,021			155	6,994,021
78	131	5,668,658			131	5,668,658
79	126	5,370,117			126	5,370,117
80	94	4,326,390			94	4,326,390
81	102	4,080,170			102	4,080,170
82	101	3,865,184			101	3,865,184
83	90	3,375,647			90	3,375,647
84	74	2,568,566			74	2,568,566
85	61	1,919,809			61	1,919,809

Exhibit VI-10

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Firefighters Service Retirees (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
86	90	2,935,832			90	2,935,832
87	72	2,231,358			72	2,231,358
88	50	1,454,081			50	1,454,081
89	50	1,397,776			50	1,397,776
90	60	1,704,774			60	1,704,774
91	33	1,021,307			33	1,021,307
92	22	576,143			22	576,143
93	16	414,256			16	414,256
94	10	242,901			10	242,901
95	5	123,019			5	123,019
96	3	77,187			3	77,187
97	5	123,115			5	123,115
98	1	28,649			1	28,649
99	1	24,363			1	24,363
100	1	23,054			1	23,054
Total	6,554	\$ 314,620,713	58	\$ 2,712,115	6,612	\$ 317,332,829

Exhibit VI-11

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Firefighters Disability Retirees

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
31	1	\$ 18,142			1	\$ 18,142
32	2	53,649			2	53,649
33						
34	1	29,886			1	29,886
35	3	85,641			3	85,641
36	3	99,117	2	\$ 28,601	5	127,718
37	2	26,491			2	26,491
38	3	109,615	1	10,353	4	119,968
39	7	211,509	1	22,766	8	234,274
40	8	259,699	1	34,640	9	294,339
41	4	137,741	2	40,703	6	178,444
42	6	190,780			6	190,780
43	15	519,992	2	75,159	17	595,151
44	16	628,721			16	628,721
45	15	499,032	2	60,313	17	559,345
46	27	1,053,133	2	33,555	29	1,086,689
47	36	1,482,385	1	45,411	37	1,527,796
48	22	995,538	5	148,631	27	1,144,169
49	30	1,150,734	2	121,733	32	1,272,468
50	38	1,336,065	4	142,636	42	1,478,701
51	37	1,668,253	3	98,856	40	1,767,108
52	48	1,866,357	4	150,819	52	2,017,176
53	56	2,344,849	8	296,124	64	2,640,973
54	49	1,989,853	3	118,237	52	2,108,089
55	51	2,177,408	7	236,702	58	2,414,110
56	59	2,412,945	4	154,268	63	2,567,213
57	57	2,655,359	5	194,009	62	2,849,368
58	56	2,554,421	2	115,217	58	2,669,639
59	68	3,116,639	7	240,039	75	3,356,678
60	71	3,198,542	10	371,556	81	3,570,098
61	84	3,773,590	4	116,420	88	3,890,010
62	74	3,513,531	3	128,142	77	3,641,673
63	76	3,461,355	5	211,334	81	3,672,689
64	90	4,329,840	3	139,421	93	4,469,261
65	97	4,248,951	4	117,020	101	4,365,971

Exhibit VI-11

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Firefighters Disability Retirees (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
66	83	3,821,479	1	55,571	84	3,877,050
67	84	3,817,228	2	59,005	86	3,876,233
68	99	4,483,198	2	88,084	101	4,571,282
69	88	3,849,091	3	103,047	91	3,952,138
70	105	4,790,036			105	4,790,036
71	87	3,636,185	1	36,693	88	3,672,878
72	60	2,440,505			60	2,440,505
73	62	2,495,052			62	2,495,052
74	73	2,884,682			73	2,884,682
75	65	2,655,986			65	2,655,986
76	64	2,506,888			64	2,506,888
77	53	2,113,463			53	2,113,463
78	47	2,011,350			47	2,011,350
79	42	1,472,282			42	1,472,282
80	34	1,136,890			34	1,136,890
81	29	1,016,279			29	1,016,279
82	22	725,217			22	725,217
83	20	637,762			20	637,762
84	13	380,760			13	380,760
85	14	444,285			14	444,285
86	10	283,674			10	283,674
87	10	278,017			10	278,017
88	5	142,067			5	142,067
89	14	395,123			14	395,123
90	11	246,734			11	246,734
91	6	169,303			6	169,303
92	7	172,723			7	172,723
93						
94	1	29,886			1	29,886
95						
96	1	17,400			1	17,400
Total	2,421	\$ 101,253,307	106	\$ 3,795,064	2,527	\$ 105,048,371

Exhibit VI-12

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Firefighters Survivors and Beneficiaries

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
0			1	\$ 2,758	1	\$ 2,758
1						
2	1	\$ 2,758			1	2,758
3						
4	2	5,515	1	2,758	3	8,273
5	3	8,273	2	5,515	5	13,788
6	1	2,758	1	2,758	2	5,515
7	2	5,515	3	8,273	5	13,788
8			2	5,515	2	5,515
9	4	11,030			4	11,030
10	1	2,758	3	8,273	4	11,030
11	1	2,758	3	8,273	4	11,030
12	4	11,030	4	11,030	8	22,061
13	2	5,515	3	8,273	5	13,788
14	4	11,030	6	16,546	10	27,576
15	12	37,005	9	24,818	21	61,823
16	4	10,937	5	13,788	9	24,725
17	8	22,061	10	27,482	18	49,543
18	9	24,818	10	27,576	19	52,394
19	12	41,015	5	13,788	17	54,803
20	9	24,656	11	34,247	20	58,903
21	9	24,818	8	22,061	17	46,879
22	1	2,758			1	2,758
23						
24						
25			2	29,214	2	29,214
26						
27			2	21,135	2	21,135
28			1	2,758	1	2,758
29						
30	1	2,758			1	2,758
31			2	21,588	2	21,588
32			1	10,111	1	10,111
33			3	26,508	3	26,508
34			3	10,435	3	10,435
35	1	2,758	3	30,334	4	33,091
36			1	10,111	1	10,111
37			2	20,222	2	20,222
38			1	10,111	1	10,111
39			2	48,341	2	48,341
40			2	20,222	2	20,222

Exhibit VI-12

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Firefighters Survivors and Beneficiaries (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
41			1	10,111	1	10,111
42			4	35,254	4	35,254
43						
44			7	148,681	7	148,681
45			10	138,428	10	138,428
46	1	2,758	11	178,634	12	181,392
47	1	2,758	10	167,235	11	169,992
48	1	2,758	10	151,647	11	154,404
49	2	12,869	7	79,928	9	92,796
50	2	5,515	13	289,649	15	295,164
51	1	2,758	14	183,464	15	186,222
52			18	224,322	18	224,322
53	1	2,758	22	363,673	23	366,430
54	2	5,515	21	366,410	23	371,925
55	1	2,758	26	413,663	27	416,421
56	1	2,758	16	223,755	17	226,512
57	1	2,758	24	312,651	25	315,408
58	4	51,424	30	406,930	34	458,354
59			28	350,122	28	350,122
60			46	665,587	46	665,587
61	1	2,758	33	454,610	34	457,368
62	1	2,758	39	582,008	40	584,765
63			46	572,883	46	572,883
64			34	404,518	34	404,518
65			60	827,463	60	827,463
66			58	895,569	58	895,569
67			54	642,996	54	642,996
68	1	2,758	61	742,288	62	745,045
69			84	1,005,369	84	1,005,369
70	1	2,758	80	973,674	81	976,432
71			86	1,074,887	86	1,074,887
72			70	793,568	70	793,568
73	1	2,758	84	954,582	85	957,340
74			86	951,485	86	951,485
75	1	10,111	100	1,108,871	101	1,118,982
76			102	1,121,841	102	1,121,841
77			118	1,279,208	118	1,279,208
78			115	1,223,429	115	1,223,429
79			87	925,517	87	925,517
80			111	1,158,720	111	1,158,720

Exhibit VI-12

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Firefighters Survivors and Beneficiaries (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
81			79	814,606	79	814,606
82			109	1,098,741	109	1,098,741
83			118	1,194,467	118	1,194,467
84			134	1,387,382	134	1,387,382
85			114	1,160,718	114	1,160,718
86			78	754,057	78	754,057
87			140	1,403,277	140	1,403,277
88			94	982,594	94	982,594
89	1	2,758	99	996,591	100	999,349
90			94	951,636	94	951,636
91			77	734,660	77	734,660
92			76	732,671	76	732,671
93			48	497,221	48	497,221
94			39	388,595	39	388,595
95			17	157,364	17	157,364
96			16	146,761	16	146,761
97			12	124,148	12	124,148
98			7	70,778	7	70,778
99			2	20,222	2	20,222
100			4	40,445	4	40,445
101			2	20,222	2	20,222
102						
103						
104			1	10,111	1	10,111
Total	116	\$ 386,564	3,298	\$ 36,595,721	3,414	\$ 36,982,285

Exhibit VI-13

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Total Service Retirees

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
48	35	\$ 1,443,739	1	\$ 21,060	36	\$ 1,464,799
49	54	2,445,043	7	341,466	61	2,786,509
50	85	3,770,959	4	179,133	89	3,950,092
51	119	5,170,691	10	472,807	129	5,643,498
52	148	6,806,838	14	623,396	162	7,430,233
53	162	7,040,250	13	563,119	175	7,603,369
54	187	8,101,075	19	780,413	206	8,881,487
55	244	11,584,721	17	807,922	261	12,392,643
56	333	16,382,573	33	1,603,967	366	17,986,540
57	354	18,287,382	21	1,002,165	375	19,289,547
58	416	21,574,542	23	1,213,818	439	22,788,360
59	463	25,057,565	35	1,815,691	498	26,873,256
60	529	28,072,263	31	1,407,509	560	29,479,772
61	579	31,058,338	37	1,870,388	616	32,928,726
62	628	33,347,795	28	1,425,043	656	34,772,838
63	641	33,983,146	37	1,894,513	678	35,877,659
64	592	31,026,909	30	1,517,551	622	32,544,460
65	593	30,954,123	27	1,378,686	620	32,332,809
66	616	32,505,472	22	1,128,274	638	33,633,747
67	597	30,452,371	20	987,297	617	31,439,669
68	574	29,434,872	19	916,959	593	30,351,831
69	596	31,153,977	13	661,764	609	31,815,741
70	688	34,971,400	16	861,976	704	35,833,376
71	580	28,560,876	6	296,228	586	28,857,105
72	397	19,487,317	12	564,703	409	20,052,021
73	425	20,608,637	9	467,160	434	21,075,798
74	456	21,435,208	2	67,684	458	21,502,893
75	464	21,311,193	5	217,064	469	21,528,257
76	400	17,984,533	3	150,209	403	18,134,742
77	335	14,570,589	3	108,648	338	14,679,237
78	290	12,215,389			290	12,215,389
79	271	11,126,674			271	11,126,674
80	225	9,567,259			225	9,567,259
81	193	7,704,657	2	63,445	195	7,768,102
82	204	7,542,533	1	40,376	205	7,582,909
83	165	6,081,541			165	6,081,541
84	154	5,476,697	2	38,463	156	5,515,159
85	120	3,785,718	4	105,589	124	3,891,306

Exhibit VI-13

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Total Service Retirees (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
86	137	4,296,265	1	21,310	138	4,317,574
87	121	3,757,861			121	3,757,861
88	87	2,563,875			87	2,563,875
89	96	2,710,320			96	2,710,320
90	91	2,651,518			91	2,651,518
91	67	1,955,779			67	1,955,779
92	43	1,162,091			43	1,162,091
93	36	919,083			36	919,083
94	21	516,498			21	516,498
95	8	188,100			8	188,100
96	9	234,285			9	234,285
97	10	230,562	1	26,619	11	257,181
98	2	47,419			2	47,419
99	1	24,363			1	24,363
100	1	23,054			1	23,054
Total	14,642	\$ 703,365,939	528	\$ 25,642,414	15,170	\$ 729,008,353

Exhibit VI-14

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Total Disability Retirees

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
31	1	\$ 18,142			1	\$ 18,142
32	2	53,649			2	53,649
33	1	26,680			1	26,680
34	2	47,664			2	47,664
35	6	179,641	2	\$ 57,642	8	237,283
36	7	224,049	3	63,631	10	287,680
37	7	185,424	1	27,156	8	212,580
38	10	307,921	3	40,724	13	348,644
39	17	515,304	2	49,613	19	564,917
40	18	636,803	5	193,108	23	829,911
41	13	453,957	4	83,919	17	537,877
42	25	862,936	9	319,460	34	1,182,396
43	45	1,535,852	7	252,535	52	1,788,387
44	34	1,238,372	13	452,234	47	1,690,606
45	57	2,031,471	10	282,675	67	2,314,147
46	79	3,148,726	13	470,470	92	3,619,195
47	98	3,958,652	19	746,204	117	4,704,856
48	72	2,804,462	19	694,797	91	3,499,259
49	98	3,891,843	22	857,416	120	4,749,259
50	125	4,830,579	15	483,267	140	5,313,846
51	109	4,562,905	19	681,952	128	5,244,857
52	129	5,328,258	23	883,260	152	6,211,518
53	136	5,435,173	32	1,141,954	168	6,577,127
54	115	4,680,440	21	865,405	136	5,545,845
55	109	4,669,848	25	965,291	134	5,635,139
56	137	5,680,242	19	712,121	156	6,392,363
57	126	5,738,714	15	639,787	141	6,378,501
58	123	5,538,144	14	624,383	137	6,162,527
59	147	6,554,791	26	1,073,571	173	7,628,362
60	180	8,186,097	39	1,593,944	219	9,780,041
61	155	6,834,223	32	1,175,354	187	8,009,577
62	156	6,948,429	25	1,036,449	181	7,984,878
63	191	8,598,075	22	802,169	213	9,400,244
64	187	8,707,857	27	1,141,268	214	9,849,125
65	203	8,783,857	22	902,531	225	9,686,388

Exhibit VI-14

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Total Disability Retirees (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
66	203	8,660,129	12	528,799	215	9,188,928
67	187	7,999,173	17	672,911	204	8,672,084
68	202	8,634,842	19	764,616	221	9,399,458
69	199	8,443,435	15	620,834	214	9,064,269
70	258	11,128,067	11	350,997	269	11,479,064
71	208	8,357,296	11	405,582	219	8,762,878
72	152	6,250,900	3	92,202	155	6,343,103
73	143	5,635,523	4	155,385	147	5,790,909
74	167	6,382,810	1	35,143	168	6,417,953
75	137	5,122,703	3	85,883	140	5,208,585
76	128	4,890,250	1	40,167	129	4,930,417
77	99	3,808,628			99	3,808,628
78	109	4,129,116			109	4,129,116
79	90	2,999,403	3	136,713	93	3,136,117
80	72	2,450,833			72	2,450,833
81	60	2,103,437			60	2,103,437
82	57	1,730,091			57	1,730,091
83	38	1,188,714			38	1,188,714
84	27	783,857			27	783,857
85	25	731,639			25	731,639
86	21	557,932			21	557,932
87	29	809,353			29	809,353
88	16	425,232			16	425,232
89	21	570,466			21	570,466
90	21	524,232			21	524,232
91	14	378,010			14	378,010
92	13	299,022			13	299,022
93	6	146,635			6	146,635
94	4	89,374			4	89,374
95	1	17,400	1	22,738	2	40,138
96	1	17,400			1	17,400
Total	5,628	\$ 228,465,085	609	\$ 23,226,261	6,237	\$ 251,691,346

Exhibit VI-15

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Total Survivors and Beneficiaries

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
0			1	\$ 2,758	1	\$ 2,758
1						
2	2	\$ 5,515			2	5,515
3						
4	2	5,515	3	8,273	5	13,788
5	7	19,303	2	5,515	9	24,818
6	2	5,515	1	2,758	3	8,273
7	3	8,273	5	13,788	8	22,061
8	1	2,758	3	8,273	4	11,030
9	9	24,818	5	13,788	14	38,606
10	6	16,546	4	11,030	10	27,576
11	10	27,576	8	22,061	18	49,637
12	9	24,818	9	24,818	18	49,637
13	9	24,818	8	22,061	17	46,879
14	8	22,061	11	30,334	19	52,394
15	19	72,978	18	49,637	37	122,615
16	15	41,270	11	30,334	26	71,604
17	16	44,122	21	57,629	37	101,750
18	20	55,152	16	44,082	36	99,234
19	28	98,193	14	38,606	42	136,799
20	17	46,609	24	70,042	41	116,651
21	17	46,879	13	52,519	30	99,399
22	1	2,758			1	2,758
23						
24	2	5,260			2	5,260
25			2	29,214	2	29,214
26						
27	3	7,747	2	21,135	5	28,882
28	1	2,758	2	5,515	3	8,273
29						
30	1	2,758	2	12,869	3	15,626
31	1	26,615	5	51,922	6	78,536
32			4	31,163	4	31,163
33	1	3,949	3	26,508	4	30,457
34			3	10,435	3	10,435
35	1	2,758	5	50,556	6	53,314
36			1	10,111	1	10,111
37	2	30,198	6	40,769	8	70,967
38	2	5,515	2	15,031	4	20,546
39			2	48,341	2	48,341
40	1	2,758	5	50,938	6	53,696

Exhibit VI-15

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Total Survivors and Beneficiaries (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
41			7	93,275	7	93,275
42			10	93,357	10	93,357
43	1	2,758	7	60,396	8	63,154
44			21	321,798	21	321,798
45	1	15,328	18	257,934	19	273,262
46	2	32,320	24	345,452	26	377,772
47	2	5,515	26	436,538	28	442,054
48	4	40,065	22	257,407	26	297,472
49	3	21,142	22	227,447	25	248,589
50	7	55,077	39	687,498	46	742,574
51	2	12,869	37	499,256	39	512,124
52	1	2,758	46	626,701	47	629,458
53	1	2,758	61	916,481	62	919,238
54	6	38,606	50	765,712	56	804,318
55	2	5,515	62	860,238	64	865,754
56	4	19,645	55	732,597	59	752,243
57	7	89,293	64	820,339	71	909,632
58	7	101,301	72	960,966	79	1,062,267
59	2	12,869	90	1,258,831	92	1,271,700
60	4	49,057	118	1,697,278	122	1,746,335
61	4	38,656	85	1,094,614	89	1,133,270
62	2	12,869	108	1,343,018	110	1,355,887
63	1	10,111	109	1,363,202	110	1,373,313
64			141	1,783,256	141	1,783,256
65			177	2,318,248	177	2,318,248
66	1	10,111	164	2,237,997	165	2,248,108
67	4	62,789	143	1,660,536	147	1,723,324
68	3	22,980	210	2,689,304	213	2,712,284
69	2	20,222	231	2,903,912	233	2,924,135
70	1	2,758	231	2,711,230	232	2,713,988
71	1	10,111	200	2,401,799	201	2,411,911
72	1	30,767	140	1,585,517	141	1,616,284
73	1	2,758	225	2,569,207	226	2,571,965
74			230	2,632,821	230	2,632,821
75	2	20,222	255	2,786,972	257	2,807,194
76			243	2,749,909	243	2,749,909
77	1	2,758	248	2,737,350	249	2,740,107
78	3	60,601	229	2,461,019	232	2,521,620
79			221	2,345,919	221	2,345,919
80			244	2,583,208	244	2,583,208

Exhibit VI-15

Retiree and Beneficiary Membership Data as of January 1, 2018

Number and Annual Retirement Allowances Distributed by Age

Total Survivors and Beneficiaries (continued)

Age	Male		Female		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
81			214	2,221,087	214	2,221,087
82			246	2,511,526	246	2,511,526
83	2	20,222	227	2,308,188	229	2,328,410
84			245	2,539,026	245	2,539,026
85			221	2,230,065	221	2,230,065
86	1	10,111	183	1,864,113	184	1,874,225
87			261	2,636,278	261	2,636,278
88			200	2,063,067	200	2,063,067
89	1	2,758	206	2,054,399	207	2,057,157
90			174	1,756,847	174	1,756,847
91	1	21,159	155	1,500,459	156	1,521,619
92			120	1,166,040	120	1,166,040
93			100	1,015,742	100	1,015,742
94			67	667,174	67	667,174
95			30	274,482	30	274,482
96			32	298,830	32	298,830
97	1	10,111	26	255,067	27	265,178
98			10	101,112	10	101,112
99			2	20,222	2	20,222
100			10	89,792	10	89,792
101			7	68,996	7	68,996
102			3	30,334	3	30,334
103			1	10,111	1	10,111
104			3	30,334	3	30,334
Total	305	\$ 1,564,742	7,649	\$ 85,504,642	7,954	\$ 87,069,384

Glossary of Terms

Note that the first definitions given are the “official” definitions of the term. For some terms there is a second definition, in dark gray.

Actuarial Accrued Liability (AAL)

The portion of the Present Value of Projected Benefits (PVFB) allocated to past service. Also difference between (i) the actuarial present value of future benefits, and (ii) the present value of future normal cost. Sometimes referred to as “accrued liability” or “past service liability.”

The amount of money that should be in the Fund. The funding target.

Actuarial Assumptions

Estimates of future plan experience with respect to rates of mortality, disability, retirement, investment income and salary increases. Demographic (“people”) assumptions (rates of mortality, separation, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic (“money”) assumptions (salary increases and investment income) consist of an underlying rate appropriate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Estimates of future events used to project what we know now- current member data, assets, and benefit provisions – into an estimate of future benefits.

Actuarial Cost Method

A mathematical budgeting procedure for allocating the dollar amount of the Present Value of Projected Benefits (PVFB) between the normal costs to be paid in the future and the actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

Actuarial Methods

The collective term for the Actuarial Cost Method, the Amortization Payment for UAAL Method, and the Asset Valuation Method used to develop the contribution requirements for the Retirement System.

The Funding Policy.

Actuarial Equivalent

Benefits whose actuarial present values are equal.

Actuarial Present Value

The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial Value of Assets (AVA)

The value of assets used to determine the contribution requirement and funded ratio. The AVA can be thought of as the average value of assets over a period of years. This smoothed value of assets is used to limit contribution volatility. Also known as the funding value of assets.

Smoothed value of assets.

Glossary of Terms (continued)

Amortization Payment for UAAL

Payment of the unfunded actuarial accrued liability by means of periodic contributions of interest and principal, as opposed to a lump sum payment. The components of the amortization payment for UAAL includes:

- **Amortization Period Length**
Generally amortization periods up to 30 years are allowed, although more recent white papers regarding public sector actuarial practice favor reducing the period to 15 to 20 years. Similar to a mortgage, the shorter the amortization period, the higher the payment and the faster the UAAL is paid off.
- **Amortization payment increases**
Future payments can be level dollar, like a mortgage, or as a level percent of pay. Most PERS amortize UAAL as a level percent of pay which when combined with the employer normal cost that is developed as a level percent of pay can result in contributions that are easier to budget.
- **Amortization schedule can be closed or open.** A closed amortization schedule is similar to a mortgage. At the end of the amortization period the UAAL is designed to be paid off. An open amortization period is similar to refinancing the UAAL year after year.
- **Amortization schedule UAAL can be amortized over a single amortization period, or it can be amortized over a schedule, also known as layered amortization.**

The amortization payment for UAAL can be thought of as the UAAL mortgage payment.

Asset Valuation Method

The components of how the actuarial value of assets is to be developed. Typical components are the averaging period and the corridor. The averaging period tends to be 3 to 5 years but can be longer. The corridor limits the actuarial value of assets to within a percent, say 20%, of the actual market value. Corridors are more common with longer averaging periods; white papers on the subject suggest that no corridor is needed for averaging periods of five years or less because the period is short enough to recognize asset gains and losses over a sufficiently small period and because corridors provide for excessive contribution volatility.

Experience Gain Loss

A measure of the difference between actual experience and experience anticipated by a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

The experience Gain (Loss) represents how much the actuary missed the mark in a given year.

Fiduciary Net Position (FNP)

Used for GASB 67, it represents the assets, measured at fair value, held in trust to provide benefits.

Funded Ratio

The percent of the actuarial accrued liabilities covered by the actuarial value of assets. Also known as the funded status.

The ratio of how much money you actually have in the fund to the amount you should have in the fund.

Glossary of Terms (continued)

Net Pension Liability (NPL)

Used for GASB 67, it is the difference between the total pension liability (TPL) and fiduciary net position (FNP). It is similar to the UAAL. It represents the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.

Normal Cost

The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." An amortization payment toward the unfunded actuarial accrued liability is paid in addition to the normal cost to arrive at the total contribution in a given year.

The cost of benefits accruing during the year.

PERS

A generic term given to a Public Employees Retirement System

Present Value of Future Normal Cost (PVFNC)

The portion of the Present Value of Future Benefits (PVFB) allocated to future service.

The value in today's dollars of the amount of contribution to be made in the future for benefits accruing for members in the Retirement System as of the valuation date. Note that in practice, this number is rarely discussed.

Present Value of Future Benefits (PVFB)

The projected future benefit payments of the plan are discounted into today's dollars using an assumed rate of investment return assumption to determine the Present Value of Future Benefits (PVFB) of the Retirement System. The PVFB is the discounted value of the projected benefits promised to all members as of a valuation date, including future pay and service for members which has not yet been earned.

If the Retirement System held assets equal to the PVFB and all the assumptions were realized, there would be sufficient funds to pay off all the benefits to be paid in the future for members in the Retirement System as of the valuation date.

Reserve Account

An account used to indicate that funds have been set aside for a specific purpose and is not generally available for other uses.

Service Cost

Used for GASB 67, it is the annual cost assigned, using the cost method (entry age normal) and assumptions under GASB 67, to current and subsequent plan years. It is similar to normal cost.

Total Pension Liability (TPL)

Used for GASB 67, it is the portion of the Present Value of Future Benefits (PVFB) allocated to past service using the cost method (entry age normal) and assumptions under GASB 67. It is similar to the actuarial accrued liability.

Glossary of Terms (continued)

Unfunded Actuarial Accrued Liability (UAAL)

The difference between the actuarial accrued liability (AAL) and actuarial value of assets (AVA). The UAAL is sometimes referred to as “unfunded accrued liability.”

Funding shortfall, pension debt or prefunded amount if negative.

Valuation Date

The date that the actuarial valuation calculations are performed as of.

Also known as the “snapshot date”.