



Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

Pension Funding Report
Ohio Police & Fire Pension Fund
Actuarial Valuation as of
January 1, 2020





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

October 2020

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

Members of the Board:

Cavanaugh Macdonald (CMC) 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, 2020, 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. CMC will not accept any liability for any statement made about the report without prior review by CMC.

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. CMC will provide disclosure information under Statement Nos. 67 and 68 in a separate report after OP&F's 2020 year-end. CMC also 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 CMC to account for salary adjustments reported by employers assumed to occur after the census information has been provided to CMC 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 from 47 years as of January 1, 2013 to 29 years as of January 1, 2019. As of January 1, 2020, the funding period decreased to 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, 2019 actuarial valuation, and 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, 2022 actuarial valuation.

The funded ratio (i.e., the ratio of actuarial assets to the AAL) determined as of January 1, 2020 is 69.7 percent, compared to 69.4 percent determined as of January 1, 2019. If measured using the market value of assets, the funded ratio would be higher at 70.9 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 68.9 percent using the actuarial assets and 70.1 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, 2020 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, CMC performed no analysis of the potential range of such future differences.

During 2018 OP&F retained Cavanaugh Macdonald as their actuary. The January 1, 2019 valuation was the first valuation completed by Cavanaugh Macdonald. All results presented in this report for years prior to the December 31, 2018 were performed by the prior actuary(s).



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The consultants who worked on this assignment are pension actuaries. CMC's advice is not intended to be a substitute for qualified legal or accounting counsel.

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries, have experience in performing valuations for public retirement plans, and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board and the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement plan and on actuarial assumptions that are internally consistent and reasonable based on the actual experience of the Fund and future expectations. However, the Board of Trustees has the final decision regarding the selection of the assumptions and adopted them as indicated in Appendix C.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'LL'.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in black ink, appearing to read 'Wendy Ludbrook'.

Wendy T. Ludbrook, FSA, EA, FCA, MAAA
Senior Actuary

A handwritten signature in black ink, appearing to read 'Ryan Gunderson'.

Ryan Gunderson
Senior Consultant



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EXECUTIVE SUMMARY

Introduction

This report presents the results of the actuarial valuation as of January 1, 2020 of pension benefits for the Ohio Police and Fire Pension Fund (OP&F).

The primary purposes of performing an actuarial valuation are to:

- Disclose certain liability and asset measures as of the valuation date,
- Determine the funding period for the unfunded actuarial accrued liability (UAAL), given the current statutory contribution rates,
- Compare the actual experience since the last valuation date to that expected, and
- Analyze and report on any trends in contributions, assets, and liabilities over the past several years.

The principal valuation results include:

- The funding period for the unfunded actuarial accrued liability as of January 1, 2020 is 28 years, given the current statutory contribution rates.
- The funded status of the Plan, determined as of January 1, 2020, based on the actuarial accrued liability and the actuarial value of assets as of that date, is 69.7 percent.
- There was an experience loss (actual experience was less favorable than anticipated by the assumptions) of \$119.4 million for the year ending December 31, 2019.

This valuation report does not contain information under GASB Statement Nos. 67 and 68. CMC will provide disclosure information under Statement Nos. 67 and 68 in a separate report after OP&F's 2020 year-end.

The valuation was completed based upon membership and financial data submitted by OP&F. Note that an assumption is made in the valuation for the impact of late reported salary adjustments from employers. Thus, any salary amounts shown in this report are the amounts reported to Cavanaugh Macdonald Consulting (CMC) by OP&F, increased by an assumed percentage (1.170 percent on the reported salaries for 2019).

A separate valuation, and report, is performed for all health care benefits provided by OP&F. However, at the request of the ORSC, this report includes a supplemental table, Table 1A, that discloses the combined valuation results if the normal cost and AAL for Medicare Part B premium reimbursements were included with the pension benefits.

Changes since Last Year

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



EXECUTIVE SUMMARY

Summarized below are the principal financial results for the OP&F Pension Fund based upon the actuarial valuation as of January 1, 2020. Comparable results from the January 1, 2019 valuation are also shown.

	January 1, 2020	January 1, 2019
Membership Data		
Active Members		
Number	29,340	28,904
Annualized Salaries	\$ 2,365,611,876	\$ 2,268,610,714
Average Pay	80,628	78,488
Membership Payroll	2,313,631,090	2,218,017,387
Retirees and Beneficiaries		
Number	29,780	29,566
Annual Allowances	\$ 1,150,725,264	\$ 1,105,861,770
Average Benefit Payment	38,641	37,403
Vested Former Members		
Number	234	226
Contribution Rates (as a Percentage of Payroll)		
Statutory Contribution Rates:		
Employer Average	21.63%	21.62%
Member	<u>12.25%</u>	<u>12.25%</u>
Total	33.88%	33.87%
Allocation of Employer Contribution Rate:		
Pension Contribution Rate:		
- Employer Normal Cost	3.96%	3.78%
- Accrued Liability Rate	<u>17.17%</u>	<u>17.34%</u>
- Total Employer Pension Rate	21.13%	21.12%
Health Care Contribution Rate	<u>0.50%</u>	<u>0.50%</u>
Total Employer Contribution Rate	21.63%	21.62%
Actuarial Funded Status		
Actuarial Accrued Liability (AAL)	\$ 22,044,283,396	\$ 21,264,708,173
Actuarial Assets	<u>15,360,122,693</u>	<u>14,753,160,407</u>
Unfunded Accrued Liability (UAAL)	6,684,160,703	6,511,547,766
Funded Ratio	69.7%	69.4%
Funding Period	28 Years	29 Years



EXECUTIVE SUMMARY

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 assumed pay increases for active members. The actuarial value of assets is a market-related value of assets that defers recognition of any market returns that are greater than or less than the assumed investment return over four years. The use of this asset valuation method mitigates, or smooths, the impact of market fluctuations from year to year in the valuation assets. The asset 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 of assets.

As of January 1, 2020, the AAL exceeds the actuarial value of assets, resulting in an unfunded actuarial accrued liability of \$6.7 billion. The funded ratio, which is the ratio of the actuarial assets to the AAL, is 69.7 percent. These figures are based on an actuarial value of assets of \$15.4 billion and an AAL of \$22.0 billion.

Reasons for Change in the Funded Ratio

The funded ratio increased from 69.4 percent as of January 1, 2019 to 69.7 percent as of January 1, 2020, an increase of 0.3 percentage points. The primary reasons for the increase are as follows:

	Increase or (Decrease)
Investment gain based on actuarial value of assets	0.3%
Net liability loss due to plan experience	-0.6%
Net liability gain due to contribution level	<u>0.6%</u>
Net increase (decrease)	0.3%

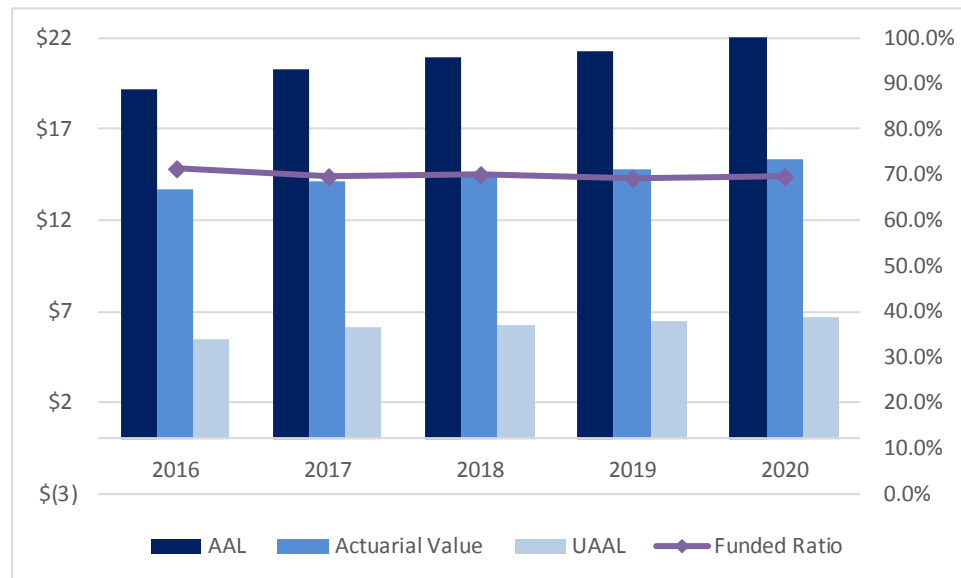
Five-Year History of Actuarial Funded Status

Valuation as of Jan. 1	Actuarial Accrued Liability (AAL)	Actuarial Assets	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio
2020	\$22,044,283,396	\$15,360,122,693	\$6,684,160,703	69.7%
2019	21,264,708,173	14,753,160,407	6,511,547,766	69.4%
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%



EXECUTIVE SUMMARY

**Five-Year History of Liabilities, Assets and Funded Ratio
(in Billions)**



Net Actuarial Gain (Loss)

The valuation process uses many assumptions to estimate future benefit payments and the corresponding liability. If actual experience is more favorable than expected by the assumption, an actuarial gain occurs. Likewise, if actual experience is unfavorable compared to the assumption, an actuarial loss occurs. The actual experience measured in this valuation is that which occurred during the prior plan year (calendar year 2019). There was a net actuarial loss of \$119.4 million, consisting of a gain of \$60.7 million on the actuarial value of assets and a loss of \$180.1 million on liabilities. The asset gain reflects the investment performance on a the portion of actual market experience during 2019 and the previous three years that is recognized in the January 1, 2020 actuarial value of assets. The analysis of the net experience gain/loss is shown in Table 5.

Five-Year History of Actuarial Gains or (Losses)

Fiscal Year Ended Dec. 31	Net Gain or (Loss)	As a % of AAL
2019	\$ (107,692,351)	-0.54%
2018	(83,052,873)	-0.39%
2017	(85,099,004)	-0.41%
2016	(569,516,945)	-2.81%
2015	(10,335,098)	-0.05%



EXECUTIVE SUMMARY

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, 2015 through December 31, 2019 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

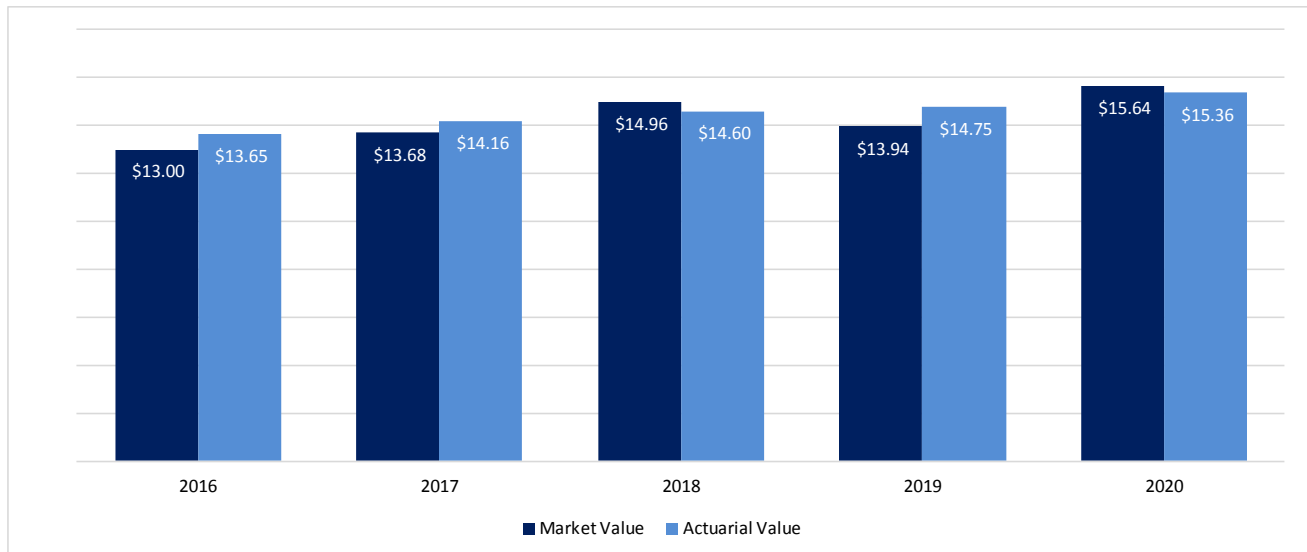
Year Ended Dec. 31	Rate of Return Based on:	
	Market Value*	Actuarial Value**
2019	16.90%	8.41%
2018	-3.14%	5.04%
2017	14.30%	6.90%
2016	11.51%	7.33%
2015	0.65%	8.94%

* 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

(in Billions)





EXECUTIVE SUMMARY

Funding Period

The actuary determines how many years are required to fully amortize the UAAL (the funding period), using the combined member and employer contribution rates reduced by the amount allocated to fund health care benefits and the normal cost rate 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 future expected 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, 2020 valuation, is 28 years. This is the number of years it will take to pay off the \$6.9 billion UAAL as of January 1, 2020. The funding period decreased in the current valuation from 29 years in the January 1, 2019 valuation.

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 experienced overall favorable investment results for 2019, which when combined with unrecognized returns from 2016 and 2017 offset unrecognized 2018 returns that were less than the 8.00 percent expected return assumption. All else being equal, if an 8.00 percent market return is met in the future, the funding period will remain below 30 years. However, if an 8.00 percent market return is met in the future, 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.

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.

Valuation as of Jan 1,	Member	Contribution Rates			Allocation		Funding Period
		Police Employer	Fire Employer	Employer Average	Health Care	Pension	
2020	12.25%	19.50%	24.00%	21.63%	0.50%	33.38%	28 Years
2019	12.25%	19.50%	24.00%	21.62%	0.50%	33.37%	29 Years
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



TABLE 1
SUMMARY OF RESULTS OF THE ACTUARIAL VALUATION
AS OF JANUARY 1, 2020

Item	Police	Fire fighters	Total
Membership Data			
1. Number of Members			
a. Active Members			
i. Vested Actives	7,162	6,677	13,839
ii. Non-Vested Actives	8,526	6,975	15,501
iii. Total Actives	15,688	13,652	29,340
b. Vested Former Members	151	83	234
c. Rehired Retirees	152	59	211
d. Retirees and Disableds	12,425	9,369	21,794
e. Beneficiaries and Survivors	4,592	3,394	7,986
f. Contributions Refund Due	2,882	756	3,638
g. Total	35,890	27,313	63,203
2. Annualized Salaries	\$ 1,248,268,832	\$ 1,117,343,044	\$ 2,365,611,876
3. Membership Payroll	1,219,893,633	1,093,737,457	2,313,631,090
4. Annual Allowances	651,787,965	498,937,299	1,150,725,264
Valuation Results			
5. Present Value of Future benefits (PVFB)			
a. Active Members	\$ 6,396,267,274	\$ 6,021,816,209	\$ 12,418,083,483
b. Vested Former Members	24,488,781	13,189,813	37,678,594
c. Rehired Retirees	10,047,259	4,603,507	14,650,766
d. Retirees and Disableds	6,898,466,709	5,276,182,751	12,174,649,460
e. Beneficiaries and Survivors	463,151,716	313,359,499	776,511,215
f. Contributions Refund Due	39,297,708	13,454,718	52,752,426
g. Total PVFB	\$ 13,831,719,447	\$ 11,642,606,497	\$ 25,474,325,944
6. Normal Cost			
a. Normal Cost	\$ 180,583,065	\$ 167,224,044	\$ 347,807,109
b. Administrative Expenses	15,646,050	11,803,161	27,449,211
c. State Subsidy	148,478	112,010	260,488
d. Total: (a) + (b) - (c)	\$ 196,080,637	\$ 178,915,195	\$ 374,995,832
e. Normal Cost Rate: (d) / (3)	16.07%	16.36%	16.21%
7. Present Value of Future Normal Cost	\$ 1,733,783,268	\$ 1,681,107,672	\$ 3,414,890,940



TABLE 1
SUMMARY OF RESULTS OF THE ACTUARIAL VALUATION
AS OF JANUARY 1, 2020 (continued)

Item	Police	Fire fighters	Total
8. Actuarial Accrued Liability (AAL)			
a. Active Members	\$ 4,662,484,006	\$ 4,340,708,537	\$ 9,003,192,543
b. Vested Former Members	24,488,781	13,189,813	37,678,594
c. Rehired Retirees	10,047,259	4,603,507	14,650,766
d. Retirees and Disableds	6,898,466,709	5,276,182,751	12,174,649,460
e. Beneficiaries and Survivors	463,151,716	313,359,499	776,511,215
f. Contributions Refund Due	39,297,708	13,454,718	52,752,426
g. Total	\$ 12,097,936,179	\$ 9,961,498,825	\$ 22,059,435,004
h. Employer Accrued Liability	(8,577,223)	(6,574,385)	(15,151,608)
i. Adjusted AAL	\$ 12,089,358,956	\$ 9,954,924,440	\$ 22,044,283,396
9. Actuarial Value of Assets*	\$ 8,423,682,163	\$ 6,936,440,530	\$ 15,360,122,693
10. Unfunded Accrued Liability (8) - (9)	3,665,676,793	3,018,483,910	6,684,160,703
11. Funding Period			28
12. Funded Ratio	69.7%	69.7%	69.7%
Allocation of Employer Contribution Rate			
13. Employer Contribution Rate			
a. Total Employer Rate (by law)	19.50%	24.00%	21.63%
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%	21.13%
d. Total Normal Cost Rate	16.07%	16.36%	16.21%
e. Member Rate (by law)	<u>12.25%</u>	<u>12.25%</u>	<u>12.25%</u>
f. Employer Normal Cost Rate: (d) - (e)	3.82%	4.11%	3.96%
g. Unfunded Accrued Liability			
Amortization Rate: (c) - (f)	15.18%	19.39%	17.17%

* The

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



SECTION I – VALUATION RESULTS

TABLE 1A

VALUATION RESULTS AS OF JANUARY 1, 2020 ADJUSTED FOR MEDICARE PART B REIMBURSEMENT LIABILITIES*

Item	Police	Fire fighters	Total
Valuation Results			
1. Present Value of Future benefits (PVFB)			
a. Pension Benefits	\$ 13,831,719,447	\$ 11,642,606,497	\$ 25,474,325,944
b. Medicare Part B Benefits	<u>153,325,749</u>	<u>127,197,668</u>	<u>280,523,417</u>
c. Total	\$ 13,985,045,196	\$ 11,769,804,165	\$ 25,754,849,361
2. Normal Cost			
a. Pension Benefits	16.07%	16.36%	16.21%
b. Medicare Part B Benefits	<u>0.08%</u>	<u>0.09%</u>	<u>0.08%</u>
c. Total	16.15%	16.45%	16.29%
3. Actuarial Accrued Liability (AAL)			
a. Pension Benefits	\$ 12,089,358,956	\$ 9,954,924,440	\$ 22,044,283,396
b. Medicare Part B Benefits	<u>144,840,194</u>	<u>118,617,885</u>	<u>263,458,079</u>
c. Total	\$ 12,234,199,150	\$ 10,073,542,325	\$ 22,307,741,475
4. Actuarial Value of Assets*	<u>\$ 8,423,682,163</u>	<u>\$ 6,936,440,530</u>	<u>\$ 15,360,122,693</u>
5. Unfunded Accrued Liability	3,810,516,987	3,137,101,795	6,947,618,782
6. Funded Ratio	68.9%	68.9%	68.9%
Allocation of Employer Contribution Rate			
7. Employer Contribution Rate			
a. Total Employer Rate (by law)	19.50%	24.00%	21.63%
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%	21.13%
d. Pension Normal Cost Rate	16.07%	16.36%	16.21%
e. Medicare Part B Normal Cost Rate	<u>0.08%</u>	<u>0.09%</u>	<u>0.08%</u>
f. Employer Normal Cost Rate: (d) + (e)	16.15%	16.45%	16.29%
g. Member Rate (by law)	<u>12.25%</u>	<u>12.25%</u>	<u>12.25%</u>
h. Employer Normal Cost Rate: (f) - (g)	3.90%	4.20%	4.04%
i. Unfunded Accrued Liability Amortization Rate: (c) - (h)	15.10%	19.30%	17.09%

* 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



SECTION I – VALUATION RESULTS

TABLE 2

SUMMARY OF MARKET VALUE OF PLAN ASSETS AS OF DECEMBER 31, 2019

Summary of Assets for Years Ending December 31,	2019	2018
1. Market Value of Assets as of January 1*	\$ 13,941,056,807	\$ 14,963,614,004
2. Contributions During Calendar Year		
a. Member	\$ 303,413,682	\$ 295,472,374
b. Employer	502,043,282	478,294,974
c. State Subsidy	260,488	300,811
d. Total	805,717,452	774,068,159
3. Benefit Payments During Calendar Year	\$ 1,394,027,927	\$ 1,314,608,496
4. Administrative Expenses During Calendar Year	\$ 21,249,464	\$ 16,234,396
5. Income During Calendar Year		
a. Interest, Dividends and Other Income	\$ 440,997,843	\$ 475,420,006
b. Appreciation/(Depreciation)	1,915,798,237	(887,055,542)
c. Investment Expenses	52,439,162	48,580,550
d. Investment Return After Expenses (a) + (b) - (c)	2,304,356,918	(460,216,086)
e. Other Income/Changes	737,021	(5,566,378)
f. Total Income (d) + (e)	2,305,093,939	(465,782,464)
6. Market Value of Assets as of December 31, 2019* (1) + (2d.) - (3) - (4) + (5f.)	\$ 15,636,590,807	\$ 13,941,056,807
7. Rate of Return (5d.) / [(1) + 0.5 * ((2d.) - (3) - (4) + (5e.))]	16.90%	-3.14%
*The Market Value of Assets includes the DROP accrual balances of \$1,718,205,220, \$1,656,454,880 and \$1,559,194,292 as of December 31, 2019, 2018 and 2017 respectively.		



SECTION I – VALUATION RESULTS

TABLE 3

DERIVATION OF ACTUARIAL VALUE OF ASSETS AS OF JANUARY 1, 2020

						January 1, 2020
1.	Market Value of Assets as of December 31, 2019					\$ 15,636,590,807
2.	Determination of Deferred Gain (Loss)					
Return on Market Value of Assets						
	Year	Actual	Expected	Gain/(Loss)	% Deferred	Deferred Amount
	2019	\$2,304,356,918	\$1,090,925,194	\$1,213,431,724	75%	\$910,073,793
	2018	(460,216,086)	1,174,313,569	(1,634,529,655)	50%	(817,264,828)
	2017	1,808,150,698	1,073,514,102	734,636,596	25%	183,659,149
	2016	1,232,569,108	1,046,667,736	185,901,372	0%	-
						276,468,114
3.	Adjustment for 20% corridor					-
4.	Actuarial Value of Assets as of January 1, 2020: (1) - (2) + (3)					\$ 15,360,122,693
5.	Actuarial Rate of Return *					
a.	Actuarial Value of Assets as of January 1, 2019					\$ 14,753,160,407
b.	Contributions During 2019					805,717,452
c.	Benefits Paid During 2019					1,394,027,927
d.	Expenses During 2019					21,249,464
e.	Other Income					737,021
f.	Return on an Actuarial Basis					1,215,785,204
g.	Actuarial Rate of Return: (f) / [(a) + 0.5 * ((b) - (c) - (d) + (e))]					8.41%

* 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.



SECTION I – VALUATION RESULTS

TABLE 4

ANALYSIS OF CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY
AS OF JANUARY 1, 2020

	January 1, 2020
1. Unfunded Accrued Liability at January 1, 2019	\$ 6,511,547,766
2. Contributions Toward Unfunded Accrued Liability	450,091,429
3. Interest Credit at 8.00% to December 31, 2019	503,266,516
4. Expected Unfunded Accrued Liability at December 31, 2019 (1)-(2)+(3)	6,564,722,853
5. Actual Unfunded Accrued Liability at January 1, 2020	\$ 6,684,160,703
6. Net Gain (Loss) (4) - (5)	\$ (119,437,850)
7. Reasons for Net Gain (Loss)	
a. Experience Gains (Losses)	
i. Gain (Loss) from Investment Return on Actuarial Value of Assets	\$ 60,651,790
ii. Gain (Loss) from Demographic Experience and Other	(168,344,141)
iii. Subtotal	(107,692,351)
(b) Gain (Loss) from Pay Load Adjustment for Late Reported Pays	(11,745,499)
(c) Total	\$ (119,437,850)



SECTION I – VALUATION RESULTS

TABLE 5

DETAILED ANALYSIS OF GAINS AND LOSSES DUE TO PLAN EXPERIENCE RESULTING IN DIFFERENCES BETWEEN ASSUMED AND ACTUAL EXPERIENCE

Plan Experience	Gain / (Loss) for Year Ended January 1,					Total
	2020	2019	2018	2017		
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.	\$ (10,222,710)	\$ (3,121,347)	\$ (27,220,946)	\$ (15,352,380)	\$ (55,917,383)	
Retirement If members retire at older ages than assumed, there is a gain. If younger, there is a loss.	(61,852,611)	32,335,086	(6,766,327)	(2,247,634)	(38,531,486)	
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.	(32,634,935)	8,808,719	(19,519,180)	(66,348,845)	(109,694,241)	
Disability retirements If disability claims are less than assumed, there is a gain. If more claims, a loss.	3,232,986	12,441,861	3,477,918	27,852,993	47,005,758	
Salary increase/decrease If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	11,532,085	149,203,045	107,318,122	(78,167,764)	189,885,488	
Return to work If participants return to work with previous service restored, there is a loss.	(1,089,645)	(11,066,219)	(1,185,692)	(2,786,430)	(16,127,986)	
New Entrants If new entrants join OP&F, there is a loss.	(8,132,872)	(7,984,831)	(6,304,990)	(6,622,672)	(29,045,365)	
Deaths among actives If claims costs are less than assumed, there is a gain. If more claims, a loss.	(539,065)	(1,393,575)	(1,236,303)	1,591,296	(1,577,647)	
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.	(68,637,374)	237,392,859	5,633,515	11,616,684	186,005,684	
Adjustment for Late Reported Pays Change in liability due to the pay being loaded to reflect late reported pay	(11,745,499)	(190,537)	9,035,217	(9,769,347)	(12,670,166)	
Special Events Changes due to special events (2019 - Change in Actuary; 2017 - Experience Study)	-	(69,747,583)	-	(314,415,713)	(384,163,296)	
Net gain (or loss) during the year due to plan experience	\$ (168,344,141)	\$ 416,615,598	\$ 54,196,117	\$ (130,464,752)	\$ 172,002,822	
Investment If there is greater investment return than assumed, there is a gain. If less return, a loss.	60,651,790	(429,920,888)	(148,330,338)	(114,867,133)	(632,466,569)	
Net gain (or loss) during the year due to plan experience	\$ (107,692,351)	\$ (13,305,290)	\$ (94,134,221)	\$ (245,331,885)	\$ (460,463,747)	



SECTION I – VALUATION RESULTS

TABLE 6

SCHEDULE OF FUNDING PROGRESS

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 a Percentage of Active Member Payroll
2020	\$ 15,360.1	\$ 22,044.3	\$ 6,684.2	69.7%	\$ 2,313.6	288.9%
2019	14,753.2	21,264.7	6,511.5	69.4%	2,218.0	293.6%
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%

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.



SECTION I – VALUATION RESULTS

TABLE 7

UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
FUNDING PERIOD AS OF JANUARY 1, 2020

Plan Year	UAAL as of January 1, Plan Year (a)	Assumed Amortization Contribution Rate ¹ (b)	Projected Payroll ² (c)	Mid-Year Amortization Contribution Amount ³ (d)	UAAL as of December 31, UAAL ⁴ (e)	Year
2020	\$6,684,160,703	17.17%	\$2,442,494,262	\$419,376,265	\$6,783,064,960	1
2021	6,783,064,960	17.25%	2,521,875,326	435,111,990	6,873,528,512	2
2022	6,873,528,512	17.33%	2,603,836,274	451,122,974	6,954,590,047	3
2023	6,954,590,047	17.39%	2,688,460,952	467,431,839	7,025,187,834	4
2024	7,025,187,834	17.44%	2,775,835,933	484,002,690	7,084,212,511	5
2025	7,084,212,511	17.48%	2,866,050,601	500,913,299	7,130,385,142	6
2026	7,130,385,142	17.51%	2,959,197,246	518,143,406	7,162,345,531	7
2027	7,162,345,531	17.53%	3,055,371,156	535,755,083	7,178,560,159	8
2028	7,178,560,159	17.55%	3,154,670,719	553,782,880	7,177,336,921	9
2029	7,177,336,921	17.57%	3,257,197,517	572,339,873	7,156,730,831	10
2030	7,156,730,831	17.59%	3,363,056,437	591,433,469	7,114,633,606	11
2031	7,114,633,606	17.60%	3,472,355,771	611,097,000	7,048,733,663	12
2032	7,048,733,663	17.61%	3,585,207,333	631,295,761	6,956,570,556	13
2033	6,956,570,556	17.61%	3,701,726,572	651,989,876	6,835,528,446	14
2034	6,835,528,446	17.62%	3,822,032,685	673,297,863	6,682,659,057	15
2035	6,682,659,057	17.62%	3,946,248,747	695,327,964	6,494,665,765	16
2036	6,494,665,765	17.62%	4,074,501,832	718,069,648	6,267,999,158	17
2037	6,267,999,158	17.63%	4,206,923,141	741,597,859	5,998,747,988	18
2038	5,998,747,988	17.63%	4,343,648,143	765,960,484	5,682,638,342	19
2039	5,682,638,342	17.64%	4,484,816,708	791,187,601	5,315,023,135	20
2040	5,315,023,135	17.65%	4,630,573,251	817,281,564	4,890,881,070	21
2041	4,890,881,070	17.66%	4,781,066,882	844,231,600	4,404,800,341	22
2042	4,404,800,341	17.67%	4,936,451,555	872,059,902	3,850,913,134	23
2043	3,850,913,134	17.67%	5,096,886,231	900,838,842	3,222,806,998	24
2044	3,222,806,998	17.68%	5,262,535,033	930,573,541	2,513,551,166	25
2045	2,513,551,166	17.69%	5,433,567,422	961,220,723	1,715,705,382	26
2046	1,715,705,382	17.70%	5,610,158,363	992,855,207	821,156,415	27
2047	821,156,415	17.70%	5,792,488,510	1,025,415,332	-	28
2048	-	17.71%	5,980,744,387	1,058,904,357	-	29
2049	-	17.71%	6,175,118,579	1,093,348,381	-	30

Funding Period is 28 years because the UAAL is first projected to be zero as of December 31 of year 28.

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 Based on 3.25% payroll growth assumption

³ The contribution amount is the product of (b) the amortization contribution rate and (c) the assumed payroll amount.

⁴ 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) x 1.08] - [(d) x 1.08^{0.5}]



SECTION I – VALUATION RESULTS

TABLE 8

SOLVENCY TEST – COMPARATIVE SUMMARY OF ACTUARIAL ACCRUED LIABILITY AND ACTUARIAL VALUE OF ASSETS

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)
2020	1,650,362	\$7,361,618	\$3,077,379	\$8,423,682	100%	92%	0%
2019	1,584,057	7,107,922	2,987,107	8,102,788	100%	92%	0%
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%

FIREFIIGHTERS

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)
2020	1,489,023	\$5,589,542	\$2,876,359	\$6,936,441	100%	97%	0%
2019	1,423,619	5,373,749	2,788,255	6,650,372	100%	97%	0%
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%

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)
2020	3,139,385	\$12,951,161	\$5,953,738	\$15,360,123	100%	94%	0%
2019	3,007,676	12,481,671	5,775,362	14,753,160	100%	94%	0%
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	2,272,497	10,194,965	5,928,131	13,029,291	100%	100%	9%
2014	2,199,961	9,293,025	5,084,769	11,063,199	100%	95%	0%
2013	2,106,026	8,918,087	4,983,775	10,278,031	100%	92%	0%

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



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 9

SUMMARY OF MEMBERSHIP DATA AS OF JANUARY 1, 2020

POLICE

Item	Male	Female	Total
Number of Members	14,041	1,647	15,688
Annual Salaries	\$ 1,124,573,778	\$ 123,695,054	\$ 1,248,268,832
Average Annual Salary	\$ 80,092	\$ 75,103	\$ 79,568
Average Age	41.5	39.9	41.3
Average Service	14.0	12.1	13.8

FIREFIGHTERS

Item	Male	Female	Total
Number of Members	13,248	404	13,652
Annual Salaries	\$ 1,086,795,697	\$ 30,547,347	\$ 1,117,343,044
Average Annual Salary	\$ 82,035	\$ 75,612	\$ 81,845
Average Age	42.3	39.3	42.2
Average Service	14.6	10.7	14.5

TOTAL

Item	Male	Female	Total
Number of Members	27,289	2,051	29,340
Annual Salaries	\$ 2,211,369,475	\$ 154,242,401	\$ 2,365,611,876
Average Annual Salary	\$ 81,035	\$ 75,204	\$ 80,628
Average Age	41.9	39.8	41.8
Average Service	14.2	11.8	14.1



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 9

SUMMARY OF MEMBERSHIP DATA AS OF JANUARY 1, 2020
(continued)

POLICE

Item	Male	Female	Total
Eligible for Allowances	137	14	151
Eligible for Refunds Only	<u>2,464</u>	<u>418</u>	<u>2,882</u>
Total	2,601	432	3,033

FIREFIIGHTERS

Item	Male	Female	Total
Eligible for Allowances	77	6	83
Eligible for Refunds Only	<u>688</u>	<u>68</u>	<u>756</u>
Total	765	74	839

TOTAL

Item	Male	Female	Total
Eligible for Allowances	214	20	234
Eligible for Refunds Only	<u>3,152</u>	<u>486</u>	<u>3,638</u>
Total	3,366	506	3,872



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 9

SUMMARY OF MEMBERSHIP DATA AS OF JANUARY 1, 2020
(continued)

POLICE

Item	Number	Annual Allowance	Average Allowance	Average Age
Service Retirees	8,995	\$ 451,337,014	\$ 50,176	68.4
Survivors and Beneficiaries	4,592	53,111,405	11,566	71.9
Disability Retirees	<u>3,582</u>	<u>147,339,545</u>	<u>41,133</u>	<u>64.4</u>
Total	17,169	\$ 651,787,965	\$ 37,963	68.5

FIREFIIGHTERS

Item	Number	Annual Allowance	Average Allowance	Average Age
Service Retirees	6,948	\$ 351,728,624	\$ 50,623	69.0
Survivors and Beneficiaries	3,394	38,992,400	11,489	74.2
Disability Retirees	<u>2,480</u>	<u>108,216,275</u>	<u>43,636</u>	<u>66.0</u>
Total	12,822	\$ 498,937,299	\$ 38,913	69.8

TOTAL

Item	Number	Annual Allowance	Average Allowance	Average Age
Service Retirees	15,943	\$ 803,065,638	\$ 50,371	68.6
Survivors and Beneficiaries	7,986	92,103,805	11,533	72.9
Disability Retirees	<u>6,062</u>	<u>255,555,820</u>	<u>42,157</u>	<u>65.0</u>
Total	29,991	\$ 1,150,725,264	\$ 38,369	69.0



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 10
ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
POLICE

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	
Under 25	695	-	-	-	-	-	-	-	-	695
	\$52,805	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$52,805
25-29	1,835	256	-	-	-	-	-	-	-	2,091
	\$60,370	\$76,435	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$62,337
30-34	1,096	1,037	165	-	-	-	-	-	-	2,298
	\$62,951	\$79,059	\$86,511	\$0	\$0	\$0	\$0	\$0	\$0	\$71,911
35-39	419	636	847	201	1	-	-	-	-	2,104
	\$62,824	\$77,898	\$85,731	\$88,674	\$98,749	\$0	\$0	\$0	\$0	\$79,089
40-44	137	249	457	802	296	5	-	-	-	1,946
	\$56,406	\$75,216	\$81,560	\$89,495	\$93,035	\$94,004	\$0	\$0	\$0	\$84,025
45-49	83	110	263	566	1,430	315	-	-	-	2,767
	\$57,390	\$71,983	\$80,284	\$84,523	\$92,542	\$97,544	\$0	\$0	\$0	\$88,434
50-54	31	37	97	249	831	983	204	-	-	2,432
	\$54,436	\$74,349	\$77,501	\$81,747	\$89,475	\$95,134	\$103,474	\$0	\$0	\$90,991
55-59	13	9	32	75	232	390	298	8	-	1,057
	\$54,519	\$59,619	\$74,920	\$81,296	\$83,993	\$91,718	\$97,067	\$121,984	\$0	\$89,781
60-64	2	7	7	24	46	89	61	10	2	248
	\$50,044	\$68,503	\$71,911	\$73,052	\$81,868	\$84,788	\$91,865	\$103,953	\$92,683	\$84,584
Over 64	-	2	4	4	11	17	6	1	5	50
	\$0	\$75,246	\$59,023	\$95,271	\$83,563	\$82,505	\$84,606	\$46,446	\$109,499	\$83,820
TOTAL	4,311	2,343	1,872	1,921	2,847	1,799	569	19	7	15,688
	\$59,797	\$77,533	\$83,296	\$86,427	\$90,796	\$94,181	\$98,675	\$108,518	\$104,694	\$79,568

Note: Excludes rehired retirees.



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 10

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
FIREFIGHTERS'

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	
Under 25	470	2	-	-	-	-	-	-	-	472
	\$56,043	\$77,127	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$56,132
25-29	1,212	225	-	-	-	-	-	-	-	1,437
	\$62,017	\$76,550	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$64,293
30-34	945	828	193	2	-	-	-	-	-	1,968
	\$64,799	\$78,057	\$83,425	\$90,542	\$0	\$0	\$0	\$0	\$0	\$72,230
35-39	438	663	673	234	1	-	-	-	-	2,009
	\$64,066	\$79,532	\$84,834	\$90,664	\$77,491	\$0	\$0	\$0	\$0	\$79,232
40-44	168	254	452	760	341	-	-	-	-	1,975
	\$62,375	\$80,207	\$84,169	\$89,525	\$94,427	\$0	\$0	\$0	\$0	\$85,638
45-49	43	75	165	620	999	262	6	-	-	2,170
	\$59,827	\$82,412	\$82,060	\$86,458	\$92,828	\$99,653	\$132,985	\$0	\$0	\$90,110
50-54	16	28	55	249	780	649	233	1	-	2,011
	\$67,825	\$82,195	\$80,510	\$85,294	\$91,805	\$94,855	\$101,392	\$91,375	\$0	\$92,460
55-59	11	16	26	67	321	438	340	15	1	1,235
	\$67,614	\$80,330	\$72,453	\$82,183	\$90,510	\$91,350	\$97,073	\$103,598	\$175,581	\$91,675
60-64	-	3	10	23	75	97	106	7	2	323
	\$0	\$73,725	\$75,611	\$81,475	\$88,000	\$87,642	\$93,566	\$79,906	\$130,196	\$88,824
Over 64	-	1	3	4	8	20	10	2	4	52
	\$0	\$35,329	\$69,683	\$76,429	\$87,649	\$88,694	\$91,962	\$105,517	\$114,810	\$88,751
TOTAL	3,303	2,095	1,577	1,959	2,525	1,466	695	25	7	13,652
	\$62,271	\$78,823	\$83,739	\$87,781	\$92,267	\$94,104	\$98,222	\$96,629	\$127,888	\$81,845

Note: Excludes rehired retirees.



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 10
ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
TOTAL

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	
Under 25	1,165	2	-	-	-	-	-	-	-	1,167
	\$54,111	\$77,127	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$54,151
25-29	3,047	481	-	-	-	-	-	-	-	3,528
	\$61,025	\$76,489	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$63,134
30-34	2,041	1,865	358	2	-	-	-	-	-	4,266
	\$63,806	\$78,614	\$84,847	\$90,542	\$0	\$0	\$0	\$0	\$0	\$72,058
35-39	857	1,299	1,520	435	2	-	-	-	-	4,113
	\$63,459	\$78,732	\$85,334	\$89,745	\$88,120	\$0	\$0	\$0	\$0	\$79,159
40-44	305	503	909	1,562	637	5	-	-	-	3,921
	\$59,694	\$77,736	\$82,858	\$89,510	\$93,780	\$94,004	\$0	\$0	\$0	\$84,837
45-49	126	185	428	1,186	2,429	577	6	-	-	4,937
	\$58,222	\$76,211	\$80,969	\$85,535	\$92,660	\$98,502	\$132,985	\$0	\$0	\$89,171
50-54	47	65	152	498	1,611	1,632	437	1	-	4,443
	\$58,994	\$77,729	\$78,590	\$83,521	\$90,603	\$95,023	\$102,364	\$91,375	\$0	\$91,656
55-59	24	25	58	142	553	828	638	23	1	2,292
	\$60,521	\$72,874	\$73,814	\$81,714	\$87,776	\$91,523	\$97,070	\$109,993	\$175,581	\$90,801
60-64	2	10	17	47	121	186	167	17	4	571
	\$50,044	\$70,070	\$74,088	\$77,174	\$85,668	\$86,277	\$92,945	\$94,052	\$111,439	\$86,983
Over 64	-	3	7	8	19	37	16	3	9	102
	\$0	\$61,940	\$63,592	\$85,850	\$85,283	\$85,850	\$89,203	\$85,827	\$111,860	\$86,334
TOTAL	7,614	4,438	3,449	3,880	5,372	3,265	1,264	44	14	29,340
	\$60,870	\$78,142	\$83,499	\$87,111	\$91,488	\$94,146	\$98,426	\$101,763	\$116,291	\$80,628

Note: Excludes rehired retirees.



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 11

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
POLICE

Group	Number	Annual Allowances as of January 1, 2020		
		Basic	Cost-of-Living Increases	Total
Service Retirees				
Males	8,450	\$ 310,630,032	\$ 112,917,728	\$ 423,547,760
Females	545	21,931,137	5,858,117	27,789,254
Subtotal	8,995	\$ 332,561,169	\$ 118,775,845	\$ 451,337,014
Survivors and Beneficiaries				
Males	203	\$ 926,060	\$ 422,372	\$ 1,348,432
Females	4,389	33,830,485	17,932,488	51,762,973
Subtotal	4,592	\$ 34,756,545	\$ 18,354,860	\$ 53,111,405
Disability Retirees				
Males	3,071	\$ 90,446,119	\$ 36,455,863	\$ 126,901,982
Females	511	15,138,525	5,299,038	20,437,563
Subtotal	3,582	\$ 105,584,644	\$ 41,754,901	\$ 147,339,545
Grand Total	17,169	472,902,358	178,885,607	651,787,965



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 11

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
FIREFIGHTERS'

Group	Number	Annual Allowances as of January 1, 2020		
		Basic	Cost-of-Living Increases	Total
Service Retirees				
Males	6,875	\$ 256,446,313	\$ 91,714,905	\$ 348,161,218
Females	73	3,062,463	504,943	3,567,406
Subtotal	6,948	\$ 259,508,776	\$ 92,219,848	\$ 351,728,624
Survivors and Beneficiaries				
Males	119	\$ 308,329	\$ 151,411	\$ 459,741
Females	3,275	25,386,260	13,146,399	38,532,660
Subtotal	3,394	\$ 25,694,590	\$ 13,297,810	\$ 38,992,400
Disability Retirees				
Males	2,368	\$ 75,631,867	\$ 28,383,592	\$ 104,015,459
Females	112	3,359,953	840,863	4,200,816
Subtotal	2,480	\$ 78,991,820	\$ 29,224,455	\$ 108,216,275
Grand Total	12,822	364,195,186	134,742,113	498,937,299



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 11

**RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
TOTAL**

Group	Number	Annual Allowances as of January 1, 2020		
		Basic	Cost-of-Living Increases	Total
Service Retirees				
Males	15,325	\$ 567,076,345	\$ 204,632,633	\$ 771,708,978
Females	<u>618</u>	<u>24,993,600</u>	<u>6,363,060</u>	<u>31,356,660</u>
Subtotal	15,943	\$ 592,069,946	\$ 210,995,693	\$ 803,065,638
Survivors and Beneficiaries				
Males	322	\$ 1,234,390	\$ 573,783	\$ 1,808,173
Females	<u>7,664</u>	<u>59,216,745</u>	<u>31,078,888</u>	<u>90,295,633</u>
Subtotal	7,986	\$ 60,451,135	\$ 31,652,671	\$ 92,103,805
Disability Retirees				
Males	5,439	\$ 166,077,987	\$ 64,839,455	\$ 230,917,441
Females	<u>623</u>	<u>18,498,477</u>	<u>6,139,902</u>	<u>24,638,379</u>
Subtotal	6,062	\$ 184,576,464	\$ 70,979,356	\$ 255,555,820
Grand Total	29,991	837,097,544	313,627,720	1,150,725,264



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 12
RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
POLICE

Age Last Birthday	Number	Annual Allowance	Average Annual Allowance
Service Retirees			
Under 60	1,723	\$ 82,976,941	\$ 48,158
60-64	1,673	90,911,941	54,341
65-69	1,815	98,020,955	54,006
70-74	1,719	91,316,239	53,122
75-79	1,121	52,961,130	47,245
Over 79	<u>944</u>	<u>35,149,808</u>	<u>37,235</u>
Total	8,995	\$ 451,337,014	\$ 50,176
Survivors and Beneficiaries			
Under 60	709	\$ 7,467,266	\$ 10,532
60-64	363	4,946,430	13,627
65-69	548	7,088,512	12,935
70-74	706	8,760,396	12,408
75-79	754	8,708,368	11,550
Over 79	<u>1,512</u>	<u>16,140,434</u>	<u>10,675</u>
Total	4,592	\$ 53,111,405	\$ 11,566
Disability Retirees			
Under 60	1,282	\$ 51,771,938	\$ 40,384
60-64	505	22,951,963	45,449
65-69	606	26,754,860	44,150
70-74	589	24,672,762	41,889
75-79	334	12,652,028	37,880
Over 79	<u>266</u>	<u>8,535,995</u>	<u>32,090</u>
Total	3,582	\$ 147,339,545	\$ 41,133



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 12
RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
FIREFIGHTERS'

Age Last Birthday	Number	Annual Allowance	Average Annual Allowance
Service Retirees			
Under 60	1,209	\$ 60,838,233	\$ 50,321
60-64	1,462	81,268,488	55,587
65-69	1,400	76,626,946	54,734
70-74	1,093	56,782,388	51,951
75-79	842	40,384,107	47,962
Over 79	942	35,828,462	38,034
Total	6,948	\$ 351,728,624	\$ 50,623
Survivors and Beneficiaries			
Under 60	471	\$ 5,069,809	\$ 10,764
60-64	208	3,069,912	14,759
65-69	275	3,658,000	13,302
70-74	425	5,258,196	12,372
75-79	522	5,967,368	11,432
Over 79	1,493	15,969,115	10,696
Total	3,394	\$ 38,992,400	\$ 11,489
Disability Retirees			
Under 60	730	\$ 30,455,831	\$ 41,720
60-64	386	18,273,070	47,340
65-69	430	20,348,846	47,323
70-74	421	19,259,313	45,747
75-79	288	11,925,943	41,410
Over 79	225	7,953,272	35,348
Total	2,480	\$ 108,216,275	\$ 43,636



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 12
RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
TOTAL

Age Last Birthday	Number	Annual Allowance	Average Annual Allowance
Service Retirees			
Under 60	2,932	\$ 143,815,174	\$ 49,050
60-64	3,135	172,180,429	54,922
65-69	3,215	174,647,900	54,323
70-74	2,812	148,098,627	52,667
75-79	1,963	93,345,237	47,552
Over 79	<u>1,886</u>	<u>70,978,270</u>	<u>37,634</u>
Total	15,943	\$ 803,065,638	\$ 50,371
Survivors and Beneficiaries			
Under 60	1,180	\$ 12,537,075	\$ 10,625
60-64	571	8,016,341	14,039
65-69	823	10,746,512	13,058
70-74	1,131	14,018,592	12,395
75-79	1,276	14,675,736	11,501
Over 79	<u>3,005</u>	<u>32,109,549</u>	<u>10,685</u>
Total	7,986	\$ 92,103,805	\$ 11,533
Disability Retirees			
Under 60	2,012	\$ 82,227,768	\$ 40,869
60-64	891	41,225,033	46,268
65-69	1,036	47,103,706	45,467
70-74	1,010	43,932,075	43,497
75-79	622	24,577,971	39,514
Over 79	<u>491</u>	<u>16,489,267</u>	<u>33,583</u>
Total	6,062	\$ 255,555,820	\$ 42,157



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 13

10 YEAR HISTORY OF MEMBERSHIP DATA
ACTIVE MEMBERS

Valuation as of Jan. 1,	Number of Members *	Percentage Change in Membership	Valuation Membership Payroll	Percentage Change in Payroll**
2020	29,340	3.28%	\$ 2,365,612	4.28%
2019	28,904	1.75%	2,268,611	3.82%
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		1,868,502	

* Includes rehired retirees

** Increase for 2018 and 2019 includes assumed increases for late reported salaries of 1.261% and 1.170% respectively



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 13

**10 YEAR HISTORY OF MEMBERSHIP DATA
RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM THE ROLLS**

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					
2019	1,552	\$ 73,909	1,127	\$ 29,045	29,991	\$ 1,150,725	4.06%	\$ 38.37	1.44%
2018	1,292	66,129	1,087	28,036	29,566	1,105,862	3.57%	37.40	0.70%
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%



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 14

RECONCILIATION OF MEMBERSHIP DATA FROM
JANUARY 1, 2019 TO JANUARY 1, 2020
POLICE

	Active Members	Former Members	Rehired Retirees	Disableds	Service Retirees	Beneficiaries	Total
As of January 1, 2019	15,496	148	134	3,634	8,595	4,560	32,567
Changes in Status							
a) Retirements	(431)	(11)	(12)	-	454	-	-
b) Disabilities	(42)	(3)	-	45	-	-	-
c) Death With Beneficiary	(11)	(1)	-	(64)	(141)	317	100
d) Death Without Beneficiary	(1)	-	(2)	(34)	(91)	(262)	(390)
e) Non-Vested Termination	(215)	-	-	-	-	-	(215)
f) Vested Termination	(24)	24	-	-	-	-	-
g) Rehired Retirees	(21)	-	27	-	(6)	-	-
h) Return to Work	30	(1)	-	-	-	-	29
i) Cessation of Benefits/Cash-out	(175)	(7)	(3)	-	-	(23)	(208)
j) Data Corrections	38	2	8	1	32	-	81
Total Changes in Status	(852)	3	18	(52)	248	32	(603)
New Entrants During the Year	1,044	-	-	-	-	-	1,044
Net Change	192	3	18	(52)	248	32	441
As of January 1, 2020	15,688	151	152	3,582	8,843	4,592	33,008



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABLE 14

RECONCILIATION OF MEMBERSHIP DATA FROM
JANUARY 1, 2019 TO JANUARY 1, 2020
FIREFIGHTERS'

	Active Members	Former Members	Rehired Retirees	Disables	Service Retirees	Beneficiaries	Total
As of January 1, 2019	13,408	78	49	2,486	6,710	3,398	26,129
Changes in Status							
a) Retirements	(363)	(8)	-	-	371	-	-
b) Disabilities	(56)	-	-	56	-	-	-
c) Death With Beneficiary	(10)	-	-	(35)	(114)	229	70
d) Death Without Beneficiary	-	-	-	(29)	(92)	(212)	(333)
e) Non-Vested Termination	(59)	-	-	-	-	-	(59)
f) Vested Termination	(15)	15	-	-	-	-	-
g) Rehired Retirees	(12)	-	12	-	-	-	-
h) Return to Work	11	(1)	-	-	-	-	10
i) Cessation of Benefits/Cash-out	(57)	(1)	(2)	-	-	(23)	(83)
j) Data Corrections	10	-	-	2	14	2	28
Total Changes in Status	(551)	5	10	(6)	179	(4)	(367)
New Entrants During the Year	795	-	-	-	-	-	795
Net Change	244	5	10	(6)	179	(4)	428
As of January 1, 2020	13,652	83	59	2,480	6,889	3,394	26,557



SECTION II – SUMMARY OF MEMBERSHIP DATA

TABEL 14

RECONCILIATION OF MEMBERSHIP DATA FROM
JANUARY 1, 2019 TO JANUARY 1, 2020
TOTAL

	Active Members	Former Members	Rehired Retirees	Disables	Service Retirees	Beneficiaries	Total
As of January 1, 2019	28,904	226	183	6,120	15,305	7,958	58,696
Changes in Status							
a) Retirements	(794)	(19)	(12)	-	825	-	-
b) Disabilities	(98)	(3)	-	101	-	-	-
c) Death With Beneficiary	(20)	(1)	-	(99)	(255)	546	171
d) Death Without Beneficiary	(2)	-	(2)	(63)	(183)	(474)	(724)
e) Non-Vested Termination	(274)	-	-	-	-	-	(274)
f) Vested Termination	(39)	39	-	-	-	-	-
g) Rehired Retirees	(33)	-	39	-	(6)	-	-
h) Return to Work	41	(2)	-	-	-	-	39
i) Cessation of Benefits/Cash-out	(232)	(8)	(5)	-	-	(46)	(291)
j) Data Corrections	48	2	8	3	46	2	109
Total Changes in Status	(1,403)	8	28	(58)	427	28	(970)
New Entrants During the Year	1,839	-	-	-	-	-	1,839
Net Change	436	8	28	(58)	427	28	869
As of January 1, 2020	29,340	234	211	6,062	15,732	7,986	59,565



RISK CONSIDERATIONS

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In November, 2018, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, is first applicable for the January 1, 2019 actuarial valuation for OP&F.

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become “pay as you go”. The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk is translated into uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given plan can have a significant impact – good or bad – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor/employer to pay and
- external risks such as the regulatory and political environment.

There is a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution rate each year.



SECTION III – RISK CONSIDERATIONS

RISK CONSIDERATIONS

In an actuarially funded plan, the most significant risk factor is investment return because of the volatility of returns and the size of plan assets compared to payroll (see Exhibit I). A perusal of historical returns over 10-20 years reveals that the actual return each year is rarely close to the average return for the same period. This is an expected result given the underlying capital market assumptions and the plan's asset allocation.

The following exhibits summarize some historical information that helps indicate how certain key risk metrics have changed over time.



TABLE 15

HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the Fund is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the Fund. The higher this ratio, the more sensitive a plan’s contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions.

Valuation Date	Market Value of Assets	Covered Payroll	Asset Volatility Ratio
January 1, 2011	\$ 11,262,586,733	\$ 1,868,502,282	6.03
January 1, 2012	10,976,214,161	1,897,413,344	5.78
January 1, 2013	11,840,698,340	1,913,382,667	6.19
January 1, 2014	13,166,077,870	1,942,269,436	6.78
January 1, 2015	13,453,447,836	1,986,568,535	6.77
January 1, 2016	12,923,943,156	2,060,850,584	6.27
January 1, 2017	13,682,389,240	2,144,265,467	6.38
January 1, 2018	14,963,614,004	2,174,667,031	6.88
January 1, 2019	13,941,056,807	2,268,610,714	6.15
January 1, 2020	15,636,590,807	2,365,611,876	6.61

The assets at January 1, 2020 are 661% of payroll so underperforming the investment return assumption by 1% (i.e., earn 7.00% for one year) is equivalent to 6.61% of payroll. While the actual impact in the first year is mitigated by the asset smoothing method and amortization of the UAL, this illustrates the risk associated with volatile investment returns.



TABLE 16

HISTORICAL CASH FLOWS

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the Fund has negative cash flows and then experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, it is typically a negative cash flow of more than 5% of MVA that causes significant concerns.

Year Ended	Market Value of Assets	Contributions	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
December 31, 2010	\$ 11,262,586,733	\$ 461,421,921	\$ (988,026,266)	\$ (526,604,345)	-4.68%
December 31, 2011	10,976,214,161	455,627,168	(1,049,873,474)	(594,246,306)	-5.41%
December 31, 2012	11,840,698,340	464,867,162	(1,075,411,270)	(610,544,108)	-5.16%
December 31, 2013	13,166,077,870	537,635,922	(1,110,987,128)	(573,351,206)	-4.35%
December 31, 2014	14,757,658,620	642,482,523	(1,126,154,321)	(483,671,798)	-3.28%
December 31, 2015	12,923,943,156	674,807,572	(1,170,476,866)	(495,669,294)	-3.84%
December 31, 2016	13,682,389,240	723,737,827	(1,187,020,466)	(463,282,639)	-3.39%
December 31, 2017	14,963,614,004	744,400,996	(1,256,254,446)	(511,853,450)	-3.42%
December 31, 2018	13,941,056,807	774,068,159	(1,314,608,496)	(540,540,337)	-3.88%
December 31, 2019	15,636,590,807	805,717,452	(1,394,027,927)	(588,310,475)	-3.76%



TABLE 17

LIABILITY MATURITY MEASUREMENTS

Most public sector retirement systems have been in operation for many years. As a result, they have aging plan populations indicated by an increasing ratio of retirees to active members and a growing percentage of retiree liability. The retirement of the remaining baby boomers over the next decade is expected to further exacerbate the aging of the retirement system population. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the Fund since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs.

Projections provide the most effective way of analyzing the impact of these changes on future funding measures, but studying several key metrics from the valuation can also provide some valuable insight.

Valuation Date	Retiree Liability	Total Actuarial Liability	Retiree Percentage	Covered Payroll	Ratio
January 1, 2011	\$ 7,371,203,908	\$15,817,068,386	46.60%	\$ 1,868,502,282	8.47
January 1, 2012	7,747,402,126	16,571,524,158	46.75%	1,897,413,344	8.73
January 1, 2013	9,091,917,466	17,634,554,969	51.56%	1,913,382,667	9.22
January 1, 2014	9,435,779,283	17,245,751,991	54.71%	1,942,269,436	8.88
January 1, 2015	9,799,718,068	17,823,319,753	54.98%	1,986,568,535	8.97
January 1, 2016	10,194,964,890	18,395,592,476	55.42%	2,060,850,584	8.93
January 1, 2017	10,700,145,394	19,135,875,916	55.92%	2,144,265,467	8.92
January 1, 2018	11,499,181,496	20,290,393,633	56.67%	2,174,667,031	9.33
January 1, 2019	12,020,502,851	20,887,227,279	57.55%	2,268,610,714	9.21
January 1, 2020	12,951,160,675	22,044,283,396	58.75%	2,365,611,876	9.32



APPENDIX A

SUMMARY OF MAIN BENEFIT 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%

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.



APPENDIX A – SUMMARY OF MAIN BENEFIT PROVISIONS

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.

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.

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.



APPENDIX A – SUMMARY OF MAIN BENEFIT PROVISIONS

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.

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% of member's contributions
Years 4-5	75% of member's contributions
Years 6-8	100% 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.



APPENDIX A – SUMMARY OF MAIN BENEFIT PROVISIONS

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% of member's contributions
Year 3	75% of member's contributions
Years 4-8	100% 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.

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.

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.

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 received by the public safety officer prior to his or her death in the line of duty, plus any increases in salary that would have been granted to the deceased public safety officer. The benefit is paid to the



APPENDIX A – SUMMARY OF MAIN BENEFIT PROVISIONS

public safety officer’s eligible survivors as a group until the public safety officer’s maximum pension eligibility date. This is the date on which the deceased public safety officer would have become eligible for the maximum annual retirement allowance or pension that may be paid to a member from the member’s retirement system (OP&F, OPERS, SHPRS or the Cincinnati Retirement System) had the member continued to accrue service credit from that system, which will be reduced at the member’s maximum pension eligibility date. These death benefit payments are in addition to the statutory survivor benefit and 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 22 or marries, whichever occurs first. 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.

Survivor	Monthly Benefit	Causes of Termination
Widow/Widower	current amount + future COLA	*Death
Child	current amount + future COLA	*Death *Marriage *Attainment of age 22
Dependent disabled child	current amount + future COLA	*Death *Recovery from disability
One dependent parent	current amount + future COLA	*Death *Re-marriage
Two dependent parents	1/2 current amount (each) + future COLA	*Termination of dependency



APPENDIX A – SUMMARY OF MAIN BENEFIT PROVISIONS

Benefit Type	Base Monthly Benefit		
	Base Monthly Benefit Amount	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

- * 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.

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.

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.



APPENDIX A – SUMMARY OF MAIN BENEFIT PROVISIONS

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 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



APPENDIX A – SUMMARY OF MAIN BENEFIT PROVISIONS

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.



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

APPENDIX B

STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

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

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.



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

Withdrawal Rates

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

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%



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

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%	1.71%	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%



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

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%	0.002%	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%



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

Retirement Rates

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

Age	Police	Firefighter
48	0%	0%
48-50	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%

Deferred Retirement Option Plan Elections

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



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

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%	5%	0%	0%	0%	0%	0%	0%	0%
49	4%	5%	0%	0%	0%	0%	0%	0%	0%
50	4%	5%	4%	0%	0%	0%	0%	0%	0%
51	4%	5%	4%	10%	0%	0%	0%	0%	0%
52	3%	5%	4%	9%	9%	0%	0%	0%	0%
53	3%	5%	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%	6%	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%



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

Firefighter

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%	17%	46%	100%
59	6%	3%	4%	17%	15%	16%	18%	46%	100%
60	6%	3%	4%	18%	16%	16%	19%	48%	100%
61	6%	3%	4%	17%	15%	15%	19%	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.



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

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%



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

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.



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

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.



APPENDIX B – STATEMENT OF ACTUARIAL ASSUMPTIONS AND OTHER INPUTS

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.

Late Reported Salaries

A 1.170 percent load is added to the 2019 reported salaries to account for salaries accrued but not reported for the valuation. This adjustment is based on an average of plan experience from the prior three years. The raw adjustment rates for each year are as follows:

Pay for Calendar Year	Raw Adjustment
2019	1.335%
2018	1.256%
2017	0.919%

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 2019) provided the retiree is not eligible for reimbursement from any other sources.

88 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.



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.



EXHIBIT I – 1a

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Salaries Distributed by Age
POLICE

Age	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
19	2	\$ 59,374	-	\$ -	2	\$ 59,374
20	3	101,441	2	67,592	5	169,033
21	30	1,384,721	3	147,435	33	1,532,156
22	108	5,394,416	33	1,688,732	141	7,083,147
23	210	11,358,901	35	1,780,359	245	13,139,260
24	230	12,417,196	39	2,299,072	269	14,716,267
25	327	18,407,154	48	2,751,893	375	21,159,047
26	341	20,357,102	56	3,274,620	397	23,631,722
27	345	21,717,910	74	4,323,964	419	26,041,874
28	376	24,604,880	65	4,131,680	441	28,736,560
29	394	26,596,896	65	4,180,811	459	30,777,707
30	397	28,178,165	62	3,835,525	459	32,013,690
31	425	30,231,349	39	2,342,759	464	32,574,109
32	431	31,295,358	42	2,646,722	473	33,942,080
33	400	29,362,706	48	3,254,869	448	32,617,575
34	417	31,498,804	37	2,606,320	454	34,105,124
35	411	31,713,627	38	2,809,404	449	34,523,031
36	382	30,507,356	40	2,992,387	422	33,499,743
37	387	29,886,699	36	2,837,876	423	32,724,575
38	348	28,482,725	40	3,127,973	388	31,610,698
39	376	30,446,370	46	3,598,497	422	34,044,866
40	335	27,815,393	41	3,210,755	376	31,026,148
41	318	26,551,343	34	2,865,703	352	29,417,046
42	377	32,074,379	22	1,724,099	399	33,798,478
43	348	29,311,169	38	3,086,406	386	32,397,575
44	397	33,740,337	36	3,133,323	433	36,873,660
45	399	34,827,779	40	3,361,772	439	38,189,551
46	438	38,312,010	52	4,536,011	490	42,848,021
47	503	44,940,344	49	4,218,422	552	49,158,767



EXHIBIT I – 1a

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Age
 POLICE (continued)

Age	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
48	568	\$ 50,090,829	51	\$ 4,576,313	619	\$ 54,667,142
49	598	53,652,022	69	6,182,637	667	59,834,659
50	514	46,762,091	58	4,917,132	572	51,679,223
51	494	44,861,216	44	3,908,782	538	48,769,998
52	430	38,899,420	47	4,201,696	477	43,101,115
53	395	36,179,347	50	4,549,880	445	40,729,226
54	367	34,298,516	33	2,711,698	400	37,010,214
55	326	29,779,844	37	3,379,245	363	33,159,089
56	213	19,488,941	28	2,430,699	241	21,919,640
57	167	15,189,268	15	1,276,757	182	16,466,025
58	140	11,972,697	17	1,567,781	157	13,540,477
59	102	8,824,957	12	988,230	114	9,813,188
60	81	6,985,848	7	624,370	88	7,610,218
61	47	3,930,351	9	716,120	56	4,646,471
62	39	3,340,902	7	592,283	46	3,933,185
63	34	2,713,417	2	143,610	36	2,857,026
64	21	1,837,194	1	92,844	22	1,930,037
65	17	1,448,131	-	-	17	1,448,131
66	14	1,172,761	-	-	14	1,172,761
67	6	510,246	-	-	6	510,246
68	3	275,684	-	-	3	275,684
69	1	46,446	-	-	1	46,446
70	3	259,717	-	-	3	259,717
71	3	274,586	-	-	3	274,586
72	1	93,583	-	-	1	93,583
73	1	67,738	-	-	1	67,738
74	-	-	-	-	-	-
75	-	-	-	-	-	-
76	1	42,122	-	-	1	42,122
Total	14,041	\$ 1,124,573,778	1,647	\$ 123,695,054	15,688	\$ 1,248,268,832



EXHIBIT I – 1b

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Years of Service
 POLICE

Service	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
0	951	\$ 47,809,841	188	\$ 9,119,309	1,139	\$ 56,929,150
1	890	49,500,881	173	9,553,183	1,063	59,054,064
2	669	41,167,023	85	5,085,398	754	46,252,420
3	588	40,094,636	95	6,568,761	683	46,663,397
4	594	43,356,749	78	5,527,666	672	48,884,415
5	550	41,703,444	52	3,652,111	602	45,355,555
6	525	38,968,663	43	3,168,778	568	42,137,440
7	456	35,489,929	38	2,822,928	494	38,312,857
8	362	29,421,953	23	1,845,579	385	31,267,532
9	276	23,271,603	18	1,314,024	294	24,585,627
10	197	15,763,424	17	1,445,187	214	17,208,611
11	346	27,814,415	37	2,993,958	383	30,808,373
12	495	40,927,032	58	4,915,762	553	45,842,794
13	364	31,622,665	55	4,659,160	419	36,281,826
14	274	23,378,504	29	2,410,750	303	25,789,254
15	317	26,648,310	39	3,317,546	356	29,965,856
16	277	24,626,613	29	2,372,638	306	26,999,250
17	354	30,595,670	41	3,516,230	395	34,111,900
18	399	34,036,116	52	4,662,548	451	38,698,664
19	383	33,560,654	30	2,689,270	413	36,249,924
20	428	38,125,622	51	4,525,257	479	42,650,879
21	503	44,367,209	48	4,004,772	551	48,371,981
22	533	48,601,772	47	4,357,710	580	52,959,482
23	550	50,714,501	54	5,040,085	604	55,754,586
24	570	53,443,731	63	5,316,584	633	58,760,315
25	425	40,157,427	36	3,265,293	461	43,422,719



EXHIBIT I – 1b

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Years of Service
 POLICE (continued)

Service	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
26	361	\$ 34,530,358	47	\$ 4,290,998	408	\$ 38,821,355
27	314	29,193,624	40	3,564,016	354	32,757,640
28	249	23,299,385	18	1,668,797	267	24,968,182
29	287	27,413,911	22	2,047,960	309	29,461,871
30	206	20,305,991	14	1,279,355	220	21,585,346
31	154	15,360,941	13	1,329,120	167	16,690,061
32	123	12,155,565	13	1,265,062	136	13,420,626
33	25	2,436,388	-	-	25	2,436,388
34	21	2,013,781	-	-	21	2,013,781
35	8	841,205	-	-	8	841,205
36	2	239,919	-	-	2	239,919
37	5	665,772	-	-	5	665,772
38	2	121,948	-	-	2	121,948
39	1	93,745	1	99,260	2	193,005
40	1	69,943	-	-	1	69,943
41	1	115,422	-	-	1	115,422
42	3	290,956	-	-	3	290,956
43	-	-	-	-	-	-
44	-	-	-	-	-	-
45	-	-	-	-	-	-
46	-	-	-	-	-	-
47	-	-	-	-	-	-
48	1	106,588	-	-	1	106,588
49	1	149,951	-	-	1	149,951
50	-	-	-	-	-	-
Total	14,041	\$ 1,124,573,778	1,647	\$ 123,695,054	15,688	\$ 1,248,268,832



EXHIBIT I – 2a

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Age
 FIREFIGHTERS'

Age	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
19 & Under	10	\$ 408,491	1	\$ 57,755	11	\$ 466,246
20	27	1,391,728	1	45,447	28	1,437,175
21	54	2,822,110	1	51,659	55	2,873,768
22	81	4,500,221	6	299,291	87	4,799,512
23	127	7,155,029	8	431,779	135	7,586,809
24	150	8,987,150	6	343,815	156	9,330,965
25	203	12,091,326	14	833,377	217	12,924,703
26	233	14,807,762	13	778,016	246	15,585,778
27	282	18,142,618	10	532,832	292	18,675,450
28	301	19,897,183	17	1,041,041	318	20,938,224
29	348	23,273,959	16	990,723	364	24,264,682
30	344	23,824,668	12	719,457	356	24,544,125
31	350	24,431,444	17	1,253,666	367	25,685,110
32	406	29,195,398	16	1,097,828	422	30,293,226
33	388	28,906,378	11	780,570	399	29,686,948
34	414	31,180,508	10	757,817	424	31,938,325
35	389	30,124,541	17	1,186,114	406	31,310,655
36	379	29,952,651	14	1,058,097	393	31,010,748
37	397	31,375,427	12	949,237	409	32,324,664
38	391	31,178,761	10	754,832	401	31,933,593
39	387	31,497,439	13	1,099,443	400	32,596,882
40	410	33,857,779	10	898,258	420	34,756,037
41	395	33,849,322	13	1,015,942	408	34,865,265
42	351	29,821,322	11	853,689	362	30,675,012
43	376	32,686,693	11	854,092	387	33,540,785
44	385	34,178,217	13	1,119,273	398	35,297,490
45	388	34,777,285	6	539,731	394	35,317,017
46	379	33,600,905	11	964,685	390	34,565,589
47	435	39,439,839	11	933,284	446	40,373,123



EXHIBIT I – 2a

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Age
 FIREFIGHTERS' (continued)

Age	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
48	454	\$ 40,722,959	10	\$ 859,739	464	\$ 41,582,698
49	469	43,101,826	7	599,442	476	43,701,268
50	464	42,970,138	11	1,062,282	475	44,032,419
51	406	37,412,380	12	1,099,507	418	38,511,887
52	365	33,645,741	6	577,951	371	34,223,692
53	365	33,776,557	7	667,456	372	34,444,014
54	370	34,293,615	5	432,113	375	34,725,727
55	379	35,050,932	6	520,469	385	35,571,401
56	268	24,291,672	5	403,278	273	24,694,950
57	234	21,415,828	6	473,363	240	21,889,191
58	185	17,068,944	3	229,847	188	17,298,791
59	146	13,490,908	3	272,911	149	13,763,818
60	104	9,264,350	2	153,275	106	9,417,624
61	97	8,728,085	3	218,241	100	8,946,326
62	56	5,043,727	3	293,925	59	5,337,651
63	31	2,604,639	1	116,489	32	2,721,128
64	24	2,039,611	2	227,875	26	2,267,486
65	18	1,683,079	1	97,437	19	1,780,516
66	6	607,896	-	-	6	607,896
67	9	756,047	-	-	9	756,047
68	4	298,871	-	-	4	298,871
69	4	329,347	-	-	4	329,347
70	1	98,962	-	-	1	98,962
71	3	286,260	-	-	3	286,260
72	4	325,584	-	-	4	325,584
73	1	62,692	-	-	1	62,692
74	-	-	-	-	-	-
75	1	68,892	-	-	1	68,892
76	-	-	-	-	-	-
Total	13,248	\$ 1,086,795,697	404	\$ 30,547,347	13,652	\$ 1,117,343,044



EXHIBIT I – 2b

**ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Salaries Distributed by Years of Service
FIREFIGHTERS'**

Service	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
0	731	\$ 38,548,375	67	\$ 3,543,787	798	\$ 42,092,162
1	683	40,469,878	29	1,743,134	712	42,213,013
2	680	43,306,508	26	1,560,927	706	44,867,436
3	570	39,558,027	15	1,030,194	585	40,588,221
4	490	35,078,913	12	841,699	502	35,920,611
5	494	37,184,040	21	1,613,577	515	38,797,617
6	470	36,273,906	18	1,337,217	488	37,611,124
7	371	29,749,623	10	764,326	381	30,513,949
8	362	29,098,063	11	905,860	373	30,003,924
9	329	27,445,888	9	762,648	338	28,208,535
10	258	20,865,898	6	492,727	264	21,358,624
11	368	30,397,353	7	617,341	375	31,014,695
12	329	26,997,058	9	740,467	338	27,737,524
13	326	28,660,117	14	1,204,975	340	29,865,092
14	252	21,432,493	8	647,336	260	22,079,829
15	269	23,733,011	9	717,955	278	24,450,966
16	413	34,913,221	7	545,070	420	35,458,291
17	336	29,575,323	12	1,129,029	348	30,704,352
18	413	36,825,354	15	1,235,296	428	38,060,650
19	468	41,761,403	17	1,527,672	485	43,289,075
20	497	44,852,028	16	1,528,742	513	46,380,770
21	510	46,904,849	20	1,728,553	530	48,633,402
22	497	46,105,730	6	525,586	503	46,631,316
23	501	46,648,081	13	1,201,600	514	47,849,681
24	463	43,278,495	2	201,754	465	43,480,249
25	354	33,600,768	4	472,591	358	34,073,359



EXHIBIT I – 2b

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Years of Service
 FIREFIGHTERS' (continued)

Service	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
26	310	\$ 28,973,517	2	\$ 149,175	312	\$ 29,122,693
27	303	28,482,427	4	371,782	307	28,854,209
28	254	24,477,926	3	321,053	257	24,798,979
29	229	20,833,606	3	273,551	232	21,107,157
30	303	28,923,714	5	423,150	308	29,346,864
31	169	16,486,239	2	196,390	171	16,682,629
32	124	12,600,558	1	79,842	125	12,680,400
33	55	5,776,589	-	-	55	5,776,589
34	35	3,665,784	1	112,341	36	3,778,125
35	8	780,298	-	-	8	780,298
36	2	264,774	-	-	2	264,774
37	7	696,300	-	-	7	696,300
38	7	598,069	-	-	7	598,069
39	1	76,280	-	-	1	76,280
40	4	470,021	-	-	4	470,021
41	-	-	-	-	-	-
42	2	224,754	-	-	2	224,754
43	-	-	-	-	-	-
44	-	-	-	-	-	-
45	-	-	-	-	-	-
46	-	-	-	-	-	-
47	-	-	-	-	-	-
48	-	-	-	-	-	-
49	-	-	-	-	-	-
50	1	200,439	-	-	1	200,439
Total	13,248	\$ 1,086,795,697	404	\$ 30,547,347	13,652	\$ 1,117,343,044



EXHIBIT I – 3a

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Age
 TOTAL

Age	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
19 & Under	12	\$ 467,865	1	\$ 57,755	13	\$ 525,620
20	30	1,493,169	3	113,039	33	1,606,208
21	84	4,206,831	4	199,093	88	4,405,924
22	189	9,894,636	39	1,988,023	228	11,882,659
23	337	18,513,931	43	2,212,138	380	20,726,069
24	380	21,404,346	45	2,642,886	425	24,047,232
25	530	30,498,480	62	3,585,270	592	34,083,750
26	574	35,164,864	69	4,052,636	643	39,217,500
27	627	39,860,528	84	4,856,796	711	44,717,324
28	677	44,502,063	82	5,172,722	759	49,674,784
29	742	49,870,856	81	5,171,533	823	55,042,389
30	741	52,002,833	74	4,554,982	815	56,557,815
31	775	54,662,793	56	3,596,426	831	58,259,219
32	837	60,490,756	58	3,744,551	895	64,235,306
33	788	58,269,084	59	4,035,440	847	62,304,523
34	831	62,679,312	47	3,364,136	878	66,043,448
35	800	61,838,168	55	3,995,518	855	65,833,686
36	761	60,460,007	54	4,050,484	815	64,510,491
37	784	61,262,126	48	3,787,113	832	65,049,239
38	739	59,661,486	50	3,882,804	789	63,544,290
39	763	61,943,809	59	4,697,940	822	66,641,748
40	745	61,673,171	51	4,109,014	796	65,782,185
41	713	60,400,665	47	3,881,646	760	64,282,311
42	728	61,895,701	33	2,577,788	761	64,473,490
43	724	61,997,862	49	3,940,498	773	65,938,360
44	782	67,918,555	49	4,252,596	831	72,171,150
45	787	69,605,064	46	3,901,504	833	73,506,568
46	817	71,912,915	63	5,500,695	880	77,413,610
47	938	84,380,184	60	5,151,706	998	89,531,890



EXHIBIT I – 3a

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Age
 TOTAL (continued)

Age	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
48	1,022	\$ 90,813,788	61	\$ 5,436,052	1,083	\$ 96,249,840
49	1,067	96,753,848	76	6,782,078	1,143	103,535,926
50	978	89,732,229	69	5,979,414	1,047	95,711,643
51	900	82,273,596	56	5,008,289	956	87,281,885
52	795	72,545,161	53	4,779,646	848	77,324,807
53	760	69,955,904	57	5,217,336	817	75,173,240
54	737	68,592,131	38	3,143,811	775	71,735,941
55	705	64,830,776	43	3,899,714	748	68,730,490
56	481	43,780,613	33	2,833,977	514	46,614,589
57	401	36,605,096	21	1,750,120	422	38,355,215
58	325	29,041,641	20	1,797,627	345	30,839,268
59	248	22,315,865	15	1,261,141	263	23,577,006
60	185	16,250,198	9	777,644	194	17,027,842
61	144	12,658,437	12	934,360	156	13,592,797
62	95	8,384,629	10	886,208	105	9,270,836
63	65	5,318,056	3	260,099	68	5,578,154
64	45	3,876,805	3	320,719	48	4,197,524
65	35	3,131,211	1	97,437	36	3,228,648
66	20	1,780,658	-	-	20	1,780,658
67	15	1,266,292	-	-	15	1,266,292
68	7	574,556	-	-	7	574,556
69	5	375,793	-	-	5	375,793
70	4	358,679	-	-	4	358,679
71	6	560,846	-	-	6	560,846
72	5	419,167	-	-	5	419,167
73	2	130,430	-	-	2	130,430
74	-	-	-	-	-	-
75	1	68,892	-	-	1	68,892
76	1	42,122	-	-	1	42,122
Total	27,289	\$ 2,211,369,475	2,051	\$ 154,242,401	29,340	\$ 2,365,611,876



EXHIBIT I – 3b

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Salaries Distributed by Years of Service
TOTAL

Service	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
0	1,682	\$ 86,358,216	255	\$ 12,663,096	1,937	\$ 99,021,312
1	1,573	89,970,759	202	11,296,317	1,775	101,267,077
2	1,349	84,473,531	111	6,646,325	1,460	91,119,856
3	1,158	79,652,663	110	7,598,955	1,268	87,251,618
4	1,084	78,435,662	90	6,369,365	1,174	84,805,027
5	1,044	78,887,484	73	5,265,688	1,117	84,153,171
6	995	75,242,569	61	4,505,995	1,056	79,748,564
7	827	65,239,551	48	3,587,254	875	68,826,806
8	724	58,520,017	34	2,751,439	758	61,271,456
9	605	50,717,491	27	2,076,671	632	52,794,162
10	455	36,629,322	23	1,937,913	478	38,567,235
11	714	58,211,769	44	3,611,299	758	61,823,068
12	824	67,924,089	67	5,656,229	891	73,580,319
13	690	60,282,782	69	5,864,136	759	66,146,918
14	526	44,810,997	37	3,058,085	563	47,869,083
15	586	50,381,320	48	4,035,502	634	54,416,822
16	690	59,539,833	36	2,917,708	726	62,457,541
17	690	60,170,993	53	4,645,260	743	64,816,252
18	812	70,861,470	67	5,897,844	879	76,759,314
19	851	75,322,057	47	4,216,943	898	79,539,000
20	925	82,977,650	67	6,053,999	992	89,031,648
21	1,013	91,272,058	68	5,733,326	1,081	97,005,383
22	1,030	94,707,503	53	4,883,296	1,083	99,590,798
23	1,051	97,362,581	67	6,241,685	1,118	103,604,266
24	1,033	96,722,226	65	5,518,338	1,098	102,240,564
25	779	73,758,195	40	3,737,883	819	77,496,078



EXHIBIT I – 3b

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Salaries Distributed by Years of Service
 TOTAL (continued)

Service	Male		Female		Total	
	Number	Compensation	Number	Compensation	Number	Compensation
26	671	\$ 63,503,875	49	\$ 4,440,173	720	\$ 67,944,048
27	617	57,676,051	44	3,935,798	661	61,611,849
28	503	47,777,311	21	1,989,850	524	49,767,161
29	516	48,247,517	25	2,321,511	541	50,569,028
30	509	49,229,705	19	1,702,505	528	50,932,210
31	323	31,847,180	15	1,525,510	338	33,372,690
32	247	24,756,123	14	1,344,904	261	26,101,026
33	80	8,212,978	-	-	80	8,212,978
34	56	5,679,565	1	112,341	57	5,791,907
35	16	1,621,502	-	-	16	1,621,502
36	4	504,693	-	-	4	504,693
37	12	1,362,072	-	-	12	1,362,072
38	9	720,017	-	-	9	720,017
39	2	170,025	1	99,260	3	269,284
40	5	539,964	-	-	5	539,964
41	1	115,422	-	-	1	115,422
42	5	515,711	-	-	5	515,711
43	-	-	-	-	-	-
44	-	-	-	-	-	-
45	-	-	-	-	-	-
46	-	-	-	-	-	-
47	-	-	-	-	-	-
48	1	106,588	-	-	1	106,588
49	1	149,951	-	-	1	149,951
50	1	200,439	-	-	1	200,439
Total	27,289	\$ 2,211,369,475	2,051	\$ 154,242,401	29,340	\$ 2,365,611,876



EXHIBIT II - 1a

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
POLICE SERVICE RETIREES

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
48	13	\$ 557,183	5	\$ 226,350	18	\$ 783,533
49	42	1,978,854	8	410,796	50	2,389,650
50	62	2,835,570	4	188,172	66	3,023,742
51	73	2,938,999	10	479,458	83	3,418,457
52	82	3,754,611	10	467,488	92	4,222,099
53	122	5,382,136	10	452,635	132	5,834,772
54	141	6,426,937	17	781,891	158	7,208,828
55	154	6,884,446	17	789,119	171	7,673,565
56	194	9,249,919	20	849,288	214	10,099,207
57	227	11,476,869	21	1,013,518	248	12,490,387
58	230	11,784,112	32	1,621,403	262	13,405,515
59	209	11,349,108	20	1,078,079	229	12,427,187
60	248	13,503,578	21	1,151,132	269	14,654,710
61	271	14,828,470	35	1,889,717	306	16,718,186
62	298	16,183,725	32	1,587,678	330	17,771,404
63	343	18,691,232	38	1,972,121	381	20,663,353
64	357	19,421,888	30	1,682,400	387	21,104,288
65	361	19,879,037	37	1,969,369	398	21,848,406
66	319	17,359,243	26	1,375,538	345	18,734,781
67	334	17,954,964	26	1,415,819	360	19,370,784
68	337	18,232,763	21	1,151,292	358	19,384,055
69	336	17,742,621	18	940,309	354	18,682,930
70	330	17,649,975	17	856,389	347	18,506,363
71	358	19,723,975	12	646,929	370	20,370,904
72	402	21,826,946	16	898,602	418	22,725,548
73	330	16,780,507	4	214,452	334	16,994,959
74	240	12,219,621	10	498,844	250	12,718,465



EXHIBIT II - 1a

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
POLICE SERVICE RETIREES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
75	232	\$ 11,729,769	8	\$ 437,339	240	\$ 12,167,108
76	241	11,732,093	2	70,219	243	11,802,312
77	246	11,641,009	4	178,188	250	11,819,196
78	221	10,038,307	3	154,572	224	10,192,879
79	161	6,867,287	3	112,347	164	6,979,635
80	140	5,897,435	-	-	140	5,897,435
81	128	5,157,780	-	-	128	5,157,780
82	115	4,698,282	-	-	115	4,698,282
83	82	3,367,639	2	65,524	84	3,433,163
84	83	3,073,604	1	41,671	84	3,115,275
85	63	2,370,451	-	-	63	2,370,451
86	68	2,516,640	2	39,903	70	2,556,542
87	50	1,612,066	3	80,704	53	1,692,770
88	34	1,038,607	-	-	34	1,038,607
89	32	1,098,055	-	-	32	1,098,055
90	29	878,145	-	-	29	878,145
91	34	998,681	-	-	34	998,681
92	19	607,406	-	-	19	607,406
93	20	563,817	-	-	20	563,817
94	12	355,379	-	-	12	355,379
95	14	371,665	-	-	14	371,665
96	4	100,524	-	-	4	100,524
97	2	46,590	-	-	2	46,590
98	5	130,719	-	-	5	130,719
99	2	38,523	-	-	2	38,523
Total	8,450	\$ 423,547,760	545	\$ 27,789,254	8,995	\$ 451,337,014



EXHIBIT II – 1b

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 POLICE DISABILITY RETIREES

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
33	-	\$ -	-	\$ -	-	\$ -
34	2	59,644	-	-	2	59,644
35	1	36,400	-	-	1	36,400
36	1	17,778	-	-	1	17,778
37	4	130,833	3	101,134	7	231,966
38	4	126,231	1	35,029	5	161,260
39	6	215,080	2	38,272	8	253,352
40	11	279,496	3	60,554	14	340,049
41	10	307,561	1	26,822	11	334,384
42	13	514,121	4	160,516	17	674,637
43	10	327,258	2	44,535	12	371,794
44	21	772,947	10	336,481	31	1,109,428
45	31	1,069,668	5	179,215	36	1,248,883
46	23	846,866	13	463,891	36	1,310,757
47	44	1,708,354	11	306,059	55	2,014,413
48	53	2,204,125	11	441,225	64	2,645,350
49	64	2,587,098	19	761,509	83	3,348,608
50	54	1,998,072	14	553,878	68	2,551,950
51	74	3,125,060	20	762,050	94	3,887,109
52	90	3,718,512	11	345,751	101	4,064,262
53	73	3,018,581	16	593,028	89	3,611,609
54	80	3,478,461	21	810,155	101	4,288,616
55	85	3,484,267	25	923,203	110	4,407,471
56	65	2,769,971	19	835,668	84	3,605,639
57	59	2,679,827	19	769,871	78	3,449,699
58	77	3,374,771	15	583,900	92	3,958,672
59	72	3,322,729	10	465,480	82	3,788,209
60	64	2,979,946	12	531,380	76	3,511,326
61	78	3,564,975	19	886,854	97	4,451,829
62	108	5,144,651	27	1,219,386	135	6,364,037
63	71	3,191,800	27	1,080,757	98	4,272,557
64	76	3,358,638	23	993,575	99	4,352,213
65	110	5,136,001	17	615,723	127	5,751,724



EXHIBIT II – 1b

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
POLICE DISABILITY RETIREES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
66	95	\$ 4,435,317	25	\$ 1,105,670	120	\$ 5,540,986
67	102	4,563,807	18	817,107	120	5,380,914
68	116	4,859,386	10	464,898	126	5,324,283
69	98	4,118,515	15	638,437	113	4,756,952
70	98	4,102,593	17	704,218	115	4,806,811
71	103	4,450,129	11	496,677	114	4,946,806
72	143	6,131,864	11	364,066	154	6,495,930
73	112	4,524,446	10	382,700	122	4,907,146
74	82	3,446,057	2	70,013	84	3,516,070
75	72	2,861,119	4	161,173	76	3,022,292
76	90	3,457,691	1	36,373	91	3,494,064
77	67	2,324,934	3	88,873	70	2,413,808
78	54	2,055,163	1	41,939	55	2,097,102
79	42	1,624,763	-	-	42	1,624,763
80	50	1,795,399	-	-	50	1,795,399
81	42	1,338,166	3	139,518	45	1,477,684
82	33	1,188,878	-	-	33	1,188,878
83	26	924,079	-	-	26	924,079
84	28	856,373	-	-	28	856,373
85	15	479,351	-	-	15	479,351
86	9	238,347	-	-	9	238,347
87	6	144,726	-	-	6	144,726
88	10	249,947	-	-	10	249,947
89	15	451,556	-	-	15	451,556
90	5	126,746	-	-	5	126,746
91	5	132,551	-	-	5	132,551
92	3	79,459	-	-	3	79,459
93	7	196,874	-	-	7	196,874
94	3	53,896	-	-	3	53,896
95	4	102,007	-	-	4	102,007
96	1	20,002	-	-	1	20,002
97	1	18,120	-	-	1	18,120
Total	3,071	\$ 126,901,982	511	\$ 20,437,563	3,582	\$ 147,339,545



EXHIBIT II – 1c

**RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
POLICE SURVIVORS AND BENEFICIARIES**



APPENDIX C – DETAILED TABULATION OF DATA

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
1	-	\$ -	1	\$ 2,866	1	\$ 2,866
2	1	2,866	-	-	1	2,866
3	1	2,866	-	-	1	2,866
4	1	2,866	-	-	1	2,866
5	-	-	1	2,866	1	2,866
6	-	-	2	5,731	2	5,731
7	4	11,462	-	-	4	11,462
8	2	5,731	1	2,866	3	8,597
9	1	2,866	4	15,467	5	18,332
10	1	2,866	1	2,866	2	5,731
11	5	14,328	6	21,198	11	35,526
12	9	25,790	2	5,731	11	31,522
13	10	28,656	6	17,194	16	45,850
14	7	20,059	7	20,059	14	40,118
15	8	22,925	6	17,194	14	40,118
16	9	25,790	7	20,059	16	45,850
17	8	40,587	11	31,522	19	72,109
18	14	84,329	7	20,059	21	104,388
19	9	25,790	17	48,528	26	74,318
20	14	40,118	9	25,697	23	65,815
21	13	50,736	10	28,656	23	79,392
22	-	-	-	-	-	-
23	2	5,569	-	-	2	5,569
24	-	-	-	-	-	-
25	-	-	-	-	-	-
26	2	5,368	-	-	2	5,368
27	1	2,866	-	-	1	2,866
28	-	-	-	-	-	-
29	3	7,963	-	-	3	7,963
30	1	2,866	1	2,866	2	5,731
31	-	-	-	-	-	-
32	-	-	2	13,373	2	13,373
33	2	68,559	3	31,522	5	100,081
34	-	-	3	21,567	3	21,567
35	1	3,949	4	67,020	5	70,969
36	-	-	-	-	-	-
37	1	2,866	2	21,014	3	23,880

EXHIBIT II – 1c

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 POLICE SURVIVORS AND BENEFICIARIES (continued)



APPENDIX C – DETAILED TABULATION OF DATA

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
38	1	\$ 13,740	2	\$ 21,014	3	\$ 34,754
39	2	31,700	4	26,746	6	58,446
40	2	5,731	1	10,507	3	16,238
41	-	-	-	-	-	-
42	1	2,866	4	42,478	5	45,343
43	-	-	9	159,778	9	159,778
44	-	-	8	93,497	8	93,497
45	1	2,866	8	84,058	9	86,923
46	1	1,416	14	185,433	15	186,849
47	1	16,107	8	125,133	9	141,240
48	1	30,838	16	218,082	17	248,920
49	1	2,866	18	350,003	19	352,869
50	3	38,739	21	313,493	24	352,231
51	1	2,866	20	259,556	21	262,422
52	5	56,937	34	553,632	39	610,569
53	3	22,130	22	330,199	25	352,329
54	1	2,866	32	503,454	33	506,320
55	-	-	46	625,166	46	625,166
56	4	34,387	31	441,951	35	476,338
57	1	2,866	46	628,192	47	631,057
58	3	22,957	41	582,880	44	605,837
59	6	96,381	43	567,201	49	663,582
60	3	52,129	51	681,471	54	733,600
61	2	13,373	74	1,123,986	76	1,137,359
62	4	51,287	82	1,188,588	86	1,239,874
63	4	47,890	60	786,434	64	834,323
64	1	10,507	82	990,765	83	1,001,273
65	-	-	75	999,215	75	999,215
66	1	10,507	120	1,590,278	121	1,600,785
67	-	-	116	1,528,085	116	1,528,085
68	1	10,507	122	1,602,006	123	1,612,513
69	4	65,248	109	1,282,666	113	1,347,913
70	2	21,014	161	2,155,438	163	2,176,453
71	1	10,507	158	2,067,544	159	2,078,052
72	-	-	174	2,051,865	174	2,051,865



EXHIBIT II – 1c

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
POLICE SURVIVORS AND BENEFICIARIES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
73	1	\$ 10,507	125	\$ 1,449,405	126	\$ 1,459,912
74	1	31,866	83	962,248	84	994,114
75	-	-	143	1,696,455	143	1,696,455
76	-	-	159	1,904,748	159	1,904,748
77	1	10,507	164	1,821,349	165	1,831,856
78	-	-	152	1,793,817	152	1,793,817
79	1	2,866	134	1,478,625	135	1,481,491
80	1	26,744	123	1,403,945	124	1,430,689
81	2	21,542	133	1,439,244	135	1,460,785
82	1	10,507	136	1,495,746	137	1,506,253
83	-	-	129	1,379,099	129	1,379,099
84	-	-	140	1,503,146	140	1,503,146
85	2	21,014	93	968,298	95	989,312
86	-	-	90	948,025	90	948,025
87	-	-	87	949,476	87	949,476
88	1	10,507	89	969,528	90	980,036
89	-	-	99	1,043,064	99	1,043,064
90	1	10,507	82	862,736	83	873,243
91	-	-	79	803,484	79	803,484
92	-	-	69	709,042	69	709,042
93	-	-	52	528,988	52	528,988
94	-	-	25	244,810	25	244,810
95	-	-	35	368,053	35	368,053
96	-	-	18	178,545	18	178,545
97	-	-	5	45,938	5	45,938
98	-	-	5	52,536	5	52,536
99	-	-	7	66,641	7	66,641
100	-	-	-	-	-	-
101	-	-	-	-	-	-
102	-	-	4	37,241	4	37,241
103	-	-	1	10,507	1	10,507
104	-	-	2	21,014	2	21,014
105	-	-	-	-	-	-
106	-	-	1	10,507	1	10,507
Total	203	\$ 1,348,432	4,389	\$ 51,762,973	4,592	\$ 53,111,405



EXHIBIT II – 2a

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 FIREFIGHTERS' SERVICE RETIREES

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
46	-	\$ -	-	\$ -	-	\$ -
47	1	17,171	-	-	1	17,171
48	15	726,452	-	-	15	726,452
49	14	630,542	-	-	14	630,542
50	14	647,471	-	-	14	647,471
51	21	977,429	1	36,461	22	1,013,890
52	40	1,783,161	-	-	40	1,783,161
53	58	2,675,944	2	100,164	60	2,776,108
54	88	3,944,954	2	84,113	90	4,029,067
55	104	4,890,095	7	313,583	111	5,203,678
56	149	7,310,947	8	404,903	157	7,715,850
57	189	9,856,170	2	123,603	191	9,979,773
58	231	12,205,280	9	425,024	240	12,630,304
59	247	13,352,419	7	332,346	254	13,684,765
60	259	13,997,353	7	393,039	266	14,390,392
61	276	15,629,774	5	270,992	281	15,900,766
62	297	16,579,205	2	87,021	299	16,666,226
63	295	16,521,060	2	114,843	297	16,635,902
64	315	17,489,333	4	185,869	319	17,675,202
65	302	16,654,275	1	42,545	303	16,696,820
66	292	15,920,632	5	256,935	297	16,177,566
67	263	14,423,764	2	89,919	265	14,513,683
68	277	15,378,337	1	28,943	278	15,407,280
69	255	13,740,830	2	90,765	257	13,831,596
70	227	12,107,945	1	53,248	228	12,161,193
71	220	11,847,321	1	42,599	221	11,889,920
72	267	13,513,140	-	-	267	13,513,140
73	233	11,862,224	-	-	233	11,862,224



EXHIBIT II – 2a

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 FIREFIGHTERS’ SERVICE RETIREES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
74	142	\$ 7,265,420	2	\$ 90,490	144	\$ 7,355,911
75	176	8,641,675	-	-	176	8,641,675
76	184	8,882,716	-	-	184	8,882,716
77	190	9,095,711	-	-	190	9,095,711
78	146	7,005,447	-	-	146	7,005,447
79	146	6,758,557	-	-	146	6,758,557
80	117	5,198,040	-	-	117	5,198,040
81	111	4,850,647	-	-	111	4,850,647
82	83	3,979,423	-	-	83	3,979,423
83	89	3,576,579	-	-	89	3,576,579
84	85	3,389,122	-	-	85	3,389,122
85	74	2,788,517	-	-	74	2,788,517
86	58	2,113,438	-	-	58	2,113,438
87	49	1,584,212	-	-	49	1,584,212
88	60	1,983,061	-	-	60	1,983,061
89	58	1,856,001	-	-	58	1,856,001
90	39	1,181,509	-	-	39	1,181,509
91	37	1,059,538	-	-	37	1,059,538
92	32	899,895	-	-	32	899,895
93	21	599,346	-	-	21	599,346
94	12	333,912	-	-	12	333,912
95	8	205,288	-	-	8	205,288
96	5	125,165	-	-	5	125,165
97	2	53,901	-	-	2	53,901
98	2	50,867	-	-	2	50,867
99	-	-	-	-	-	-
Total	6,875	\$ 348,161,218	73	\$ 3,567,406	6,948	\$ 351,728,624



EXHIBIT II – 2b

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 FIREFIGHTERS' DISABILITY RETIREES

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
32 & Under	1	\$ 36,705	-	\$ -	1	\$ 36,705
33	1	37,025	-	-	1	37,025
34	2	53,649	-	-	2	53,649
35	2	82,757	-	-	2	82,757
36	1	29,886	-	-	1	29,886
37	2	58,589	-	-	2	58,589
38	5	173,636	2	28,601	7	202,237
39	2	50,441	1	39,432	3	89,873
40	3	111,698	1	10,353	4	122,050
41	8	221,993	-	-	8	221,993
42	10	363,632	1	34,640	11	398,272
43	4	140,075	2	40,703	6	180,777
44	9	320,182	-	-	9	320,182
45	18	695,508	2	88,637	20	784,145
46	17	662,238	-	-	17	662,238
47	20	745,164	2	60,313	22	805,477
48	32	1,295,211	3	68,053	35	1,363,264
49	42	1,775,462	1	45,411	43	1,820,873
50	30	1,390,234	7	247,084	37	1,637,319
51	31	1,189,631	3	164,476	34	1,354,107
52	45	1,752,442	4	145,557	49	1,898,000
53	39	1,841,549	4	122,882	43	1,964,431
54	49	1,932,836	6	258,023	55	2,190,859
55	63	2,844,571	8	304,591	71	3,149,163
56	50	2,137,973	3	126,487	53	2,264,460
57	54	2,455,323	7	249,911	61	2,705,234
58	65	2,771,985	4	162,175	69	2,934,159
59	59	2,884,839	5	203,269	64	3,088,108
60	58	2,784,597	2	120,359	60	2,904,956
61	68	3,279,662	7	251,282	75	3,530,943
62	72	3,410,570	11	402,963	83	3,813,533
63	86	4,055,229	4	121,581	90	4,176,810
64	75	3,712,912	3	133,915	78	3,846,827





EXHIBIT II – 2b

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 FIREFIGHTERS' DISABILITY RETIREES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
65	75	\$ 3,559,070	5	\$ 220,105	80	\$ 3,779,175
66	88	4,408,216	3	145,688	91	4,553,903
67	93	4,238,961	4	122,279	97	4,361,240
68	78	3,721,604	1	57,970	79	3,779,574
69	81	3,813,765	2	61,190	83	3,874,954
70	97	4,569,080	2	91,685	99	4,660,764
71	85	3,886,664	2	71,203	87	3,957,866
72	99	4,735,668	-	-	99	4,735,668
73	79	3,475,705	-	-	79	3,475,705
74	57	2,429,310	-	-	57	2,429,310
75	55	2,314,792	-	-	55	2,314,792
76	66	2,685,158	-	-	66	2,685,158
77	60	2,502,552	-	-	60	2,502,552
78	59	2,392,926	-	-	59	2,392,926
79	48	2,030,515	-	-	48	2,030,515
80	41	1,817,708	-	-	41	1,817,708
81	36	1,334,099	-	-	36	1,334,099
82	27	906,168	-	-	27	906,168
83	22	798,223	-	-	22	798,223
84	20	668,518	-	-	20	668,518
85	16	537,516	-	-	16	537,516
86	12	359,932	-	-	12	359,932
87	10	352,716	-	-	10	352,716
88	10	287,937	-	-	10	287,937
89	9	257,777	-	-	9	257,777
90	4	119,078	-	-	4	119,078
91	9	263,308	-	-	9	263,308
92	4	109,793	-	-	4	109,793
93	3	84,680	-	-	3	84,680
94	2	55,822	-	-	2	55,822
95	-	-	-	-	-	-
96	-	-	-	-	-	-
Total	2,368	\$ 104,015,459	112	\$ 4,200,816	2,480	\$ 108,216,275



EXHIBIT II – 2c

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
FIREFIGHTERS’ SURVIVORS AND BENEFICIARIES

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
1	-	\$ -	-	\$ -	-	\$ -
2	1	2,866	1	2,866	2	5,731
3	-	-	-	-	-	-
4	1	2,866	-	-	1	2,866
5	1	2,866	-	-	1	2,866
6	3	8,597	1	2,866	4	11,462
7	4	11,462	2	5,731	6	17,194
8	2	5,731	1	2,866	3	8,597
9	3	8,597	3	8,597	6	17,194
10	-	-	3	8,597	3	8,597
11	5	14,328	1	2,866	6	17,194
12	2	5,731	6	17,194	8	22,925
13	1	2,866	4	11,462	5	14,328
14	5	14,328	4	11,462	9	25,790
15	7	54,038	3	8,597	10	62,634
16	7	20,059	8	56,795	15	76,854
17	14	52,369	10	28,656	24	81,025
18	5	14,234	6	17,086	11	31,320
19	9	25,790	10	28,562	19	54,353
20	13	45,375	10	28,656	23	74,031
21	7	19,966	6	17,194	13	37,159
22	-	-	-	-	-	-
23	1	2,812	-	-	1	2,812
24	1	2,866	-	-	1	2,866
25	-	-	-	-	-	-
26	-	-	-	-	-	-
27	-	-	2	29,732	2	29,732
28	-	-	1	10,507	1	10,507
29	-	-	2	21,953	2	21,953
30	-	-	2	13,373	2	13,373
31	-	-	1	10,507	1	10,507
32	1	2,866	-	-	1	2,866
33	-	-	2	21,014	2	21,014
34	-	-	1	10,507	1	10,507
35	-	-	3	33,009	3	33,009
36	-	-	3	16,238	3	16,238





EXHIBIT II – 2c

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
FIREFIGHTERS’ SURVIVORS AND BENEFICIARIES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
37	1	\$ 2,866	4	\$ 46,819	5	\$ 49,684
38	-	-	1	10,507	1	10,507
39	-	-	2	21,014	2	21,014
40	-	-	1	10,507	1	10,507
41	-	-	2	50,587	2	50,587
42	-	-	3	31,522	3	31,522
43	1	2,866	2	21,014	3	23,880
44	-	-	6	83,205	6	83,205
45	-	-	1	10,507	1	10,507
46	-	-	9	229,063	9	229,063
47	-	-	16	262,412	16	262,412
48	1	2,866	11	192,603	12	195,469
49	1	2,866	11	215,651	12	218,516
50	1	2,866	12	184,786	13	187,651
51	2	13,373	10	134,163	12	147,536
52	2	5,731	16	372,187	18	377,918
53	1	2,866	16	205,480	17	208,345
54	-	-	23	306,455	23	306,455
55	1	2,866	26	430,584	27	433,450
56	1	2,866	24	419,498	25	422,364
57	1	2,866	29	453,420	30	456,286
58	1	2,866	17	243,824	18	246,690
59	1	2,866	25	335,872	26	338,737
60	4	53,162	32	473,755	36	526,917
61	-	-	37	575,929	37	575,929
62	-	-	48	714,006	48	714,006
63	1	2,866	37	522,047	38	524,913
64	1	2,866	48	725,281	49	728,146
65	-	-	48	584,463	48	584,463
66	-	-	40	479,028	40	479,028
67	-	-	64	901,174	64	901,174
68	-	-	62	949,033	62	949,033
69	-	-	61	744,303	61	744,303
70	1	2,866	73	935,069	74	937,934
71	-	-	83	1,033,155	83	1,033,155





EXHIBIT II – 2c

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
FIREFIGHTERS’ SURVIVORS AND BENEFICIARIES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
72	1	\$ 2,866	93	\$ 1,147,181	94	\$ 1,150,047
73	-	-	97	1,230,053	97	1,230,053
74	2	21,014	75	885,992	77	907,006
75	1	2,866	94	1,121,961	95	1,124,826
76	-	-	91	1,057,060	91	1,057,060
77	-	-	101	1,151,856	101	1,151,856
78	-	-	110	1,234,571	110	1,234,571
79	-	-	125	1,399,055	125	1,399,055
80	-	-	124	1,355,570	124	1,355,570
81	-	-	91	969,778	91	969,778
82	-	-	119	1,300,307	119	1,300,307
83	-	-	87	937,447	87	937,447
84	-	-	107	1,114,248	107	1,114,248
85	-	-	110	1,182,055	110	1,182,055
86	-	-	121	1,300,895	121	1,300,895
87	-	-	93	972,516	93	972,516
88	-	-	76	769,353	76	769,353
89	-	-	133	1,395,230	133	1,395,230
90	-	-	79	849,065	79	849,065
91	-	-	82	1,051,828	82	1,051,828
92	-	-	78	823,009	78	823,009
93	-	-	59	576,412	59	576,412
94	-	-	50	494,073	50	494,073
95	-	-	28	296,824	28	296,824
96	-	-	22	245,523	22	245,523
97	-	-	10	98,605	10	98,605
98	-	-	11	99,784	11	99,784
99	-	-	4	42,029	4	42,029
100	-	-	5	52,536	5	52,536
101	-	-	1	10,507	1	10,507
102	-	-	2	21,014	2	21,014
103	-	-	-	-	-	-
104	-	-	-	-	-	-
105	-	-	-	-	-	-
106	-	-	1	10,507	1	10,507
Total	119	\$ 459,741	3,275	\$ 38,532,660	3,394	\$ 38,992,400



EXHIBIT III – 1a

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
TOTAL SERVICE RETIREES

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
46	-	\$ -	-	\$ -	-	\$ -
47	1	17,171	-	-	1	17,171
48	28	1,283,635	5	226,350	33	1,509,985
49	56	2,609,395	8	410,796	64	3,020,192
50	76	3,483,042	4	188,172	80	3,671,213
51	94	3,916,428	11	515,919	105	4,432,348
52	122	5,537,772	10	467,488	132	6,005,260
53	180	8,058,080	12	552,799	192	8,610,879
54	229	10,371,891	19	866,004	248	11,237,895
55	258	11,774,541	24	1,102,702	282	12,877,243
56	343	16,560,865	28	1,254,191	371	17,815,057
57	416	21,333,039	23	1,137,120	439	22,470,160
58	461	23,989,392	41	2,046,427	502	26,035,819
59	456	24,701,527	27	1,410,426	483	26,111,953
60	507	27,500,931	28	1,544,171	535	29,045,102
61	547	30,458,244	40	2,160,708	587	32,618,952
62	595	32,762,931	34	1,674,699	629	34,437,630
63	638	35,212,292	40	2,086,963	678	37,299,255
64	672	36,911,221	34	1,868,269	706	38,779,490
65	663	36,533,313	38	2,011,913	701	38,545,226
66	611	33,279,874	31	1,632,473	642	34,912,347
67	597	32,378,729	28	1,505,738	625	33,884,467
68	614	33,611,100	22	1,180,235	636	34,791,335
69	591	31,483,451	20	1,031,074	611	32,514,525
70	557	29,757,920	18	909,636	575	30,667,556
71	578	31,571,296	13	689,528	591	32,260,825
72	669	35,340,086	16	898,602	685	36,238,688
73	563	28,642,731	4	214,452	567	28,857,183



EXHIBIT III – 1a

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 TOTAL SERVICE RETIREES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
74	382	\$ 19,485,041	12	\$ 589,334	394	\$ 20,074,376
75	408	20,371,443	8	437,339	416	20,808,783
76	425	20,614,810	2	70,219	427	20,685,028
77	436	20,736,720	4	178,188	440	20,914,907
78	367	17,043,755	3	154,572	370	17,198,327
79	307	13,625,844	3	112,347	310	13,738,192
80	257	11,095,475	-	-	257	11,095,475
81	239	10,008,427	-	-	239	10,008,427
82	198	8,677,705	-	-	198	8,677,705
83	171	6,944,219	2	65,524	173	7,009,743
84	168	6,462,726	1	41,671	169	6,504,397
85	137	5,158,968	-	-	137	5,158,968
86	126	4,630,077	2	39,903	128	4,669,980
87	99	3,196,279	3	80,704	102	3,276,982
88	94	3,021,668	-	-	94	3,021,668
89	90	2,954,056	-	-	90	2,954,056
90	68	2,059,653	-	-	68	2,059,653
91	71	2,058,219	-	-	71	2,058,219
92	51	1,507,301	-	-	51	1,507,301
93	41	1,163,163	-	-	41	1,163,163
94	24	689,291	-	-	24	689,291
95	22	576,953	-	-	22	576,953
96	9	225,689	-	-	9	225,689
97	4	100,491	-	-	4	100,491
98	7	181,586	-	-	7	181,586
99	2	38,523	-	-	2	38,523
Total	15,325	\$ 771,708,978	618	\$ 31,356,660	15,943	\$ 803,065,638



EXHIBIT III – 1b

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 TOTAL DISABILITY RETIREES

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
32 & Under	1	\$ 36,705	-	\$ -	1	\$ 36,705
33	1	37,025	-	-	1	37,025
34	4	113,293	-	-	4	113,293
35	3	119,157	-	-	3	119,157
36	2	47,664	-	-	2	47,664
37	6	189,422	3	101,134	9	290,556
38	9	299,867	3	63,631	12	363,498
39	8	265,521	3	77,704	11	343,225
40	14	391,193	4	70,906	18	462,100
41	18	529,554	1	26,822	19	556,376
42	23	877,753	5	195,156	28	1,072,909
43	14	467,333	4	85,238	18	552,571
44	30	1,093,129	10	336,481	40	1,429,610
45	49	1,765,176	7	267,852	56	2,033,028
46	40	1,509,105	13	463,891	53	1,972,996
47	64	2,453,518	13	366,371	77	2,819,889
48	85	3,499,336	14	509,278	99	4,008,614
49	106	4,362,561	20	806,920	126	5,169,480
50	84	3,388,307	21	800,962	105	4,189,269
51	105	4,314,690	23	926,526	128	5,241,216
52	135	5,470,954	15	491,308	150	5,962,262
53	112	4,860,130	20	715,910	132	5,576,040
54	129	5,411,297	27	1,068,178	156	6,479,474
55	148	6,328,838	33	1,227,795	181	7,556,633
56	115	4,907,945	22	962,154	137	5,870,099
57	113	5,135,151	26	1,019,782	139	6,154,933
58	142	6,146,756	19	746,075	161	6,892,831
59	131	6,207,568	15	668,749	146	6,876,317
60	122	5,764,543	14	651,739	136	6,416,282
61	146	6,844,637	26	1,138,136	172	7,982,773
62	180	8,555,221	38	1,622,350	218	10,177,570
63	157	7,247,029	31	1,202,338	188	8,449,368
64	151	7,071,550	26	1,127,490	177	8,199,040



EXHIBIT III – 1b

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
 Number and Annual Retirement Allowances Distributed by Age
 TOTAL DISABILITY RETIREES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
65	185	\$ 8,695,071	22	\$ 835,828	207	\$ 9,530,899
66	183	8,843,532	28	1,251,357	211	10,094,890
67	195	8,802,768	22	939,386	217	9,742,154
68	194	8,580,989	11	522,868	205	9,103,857
69	179	7,932,280	17	699,627	196	8,631,907
70	195	8,671,673	19	795,902	214	9,467,575
71	188	8,336,793	13	567,879	201	8,904,672
72	242	10,867,531	11	364,066	253	11,231,597
73	191	8,000,151	10	382,700	201	8,382,851
74	139	5,875,367	2	70,013	141	5,945,380
75	127	5,175,910	4	161,173	131	5,337,084
76	156	6,142,849	1	36,373	157	6,179,222
77	127	4,827,486	3	88,873	130	4,916,359
78	113	4,448,089	1	41,939	114	4,490,029
79	90	3,655,278	-	-	90	3,655,278
80	91	3,613,107	-	-	91	3,613,107
81	78	2,672,265	3	139,518	81	2,811,783
82	60	2,095,045	-	-	60	2,095,045
83	48	1,722,302	-	-	48	1,722,302
84	48	1,524,891	-	-	48	1,524,891
85	31	1,016,866	-	-	31	1,016,866
86	21	598,278	-	-	21	598,278
87	16	497,441	-	-	16	497,441
88	20	537,884	-	-	20	537,884
89	24	709,333	-	-	24	709,333
90	9	245,824	-	-	9	245,824
91	14	395,859	-	-	14	395,859
92	7	189,252	-	-	7	189,252
93	10	281,553	-	-	10	281,553
94	5	109,718	-	-	5	109,718
95	4	102,007	-	-	4	102,007
96	1	20,002	-	-	1	20,002
97	1	18,120	-	-	1	18,120
Total	5,439	\$ 230,917,441	623	\$ 24,638,379	6,062	\$ 255,555,820



EXHIBIT III – 1c

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
TOTAL SURVIVORS AND BENEFICIARIES



APPENDIX C – DETAILED TABULATION OF DATA

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
1	-	\$ -	1	\$ 2,866	1	\$ 2,866
2	2	5,731	1	2,866	3	8,597
3	1	2,866	-	-	1	2,866
4	2	5,731	-	-	2	5,731
5	1	2,866	1	2,866	2	5,731
6	3	8,597	3	8,597	6	17,194
7	8	22,925	2	5,731	10	28,656
8	4	11,462	2	5,731	6	17,194
9	4	11,462	7	24,064	11	35,526
10	1	2,866	4	11,462	5	14,328
11	10	28,656	7	24,064	17	52,720
12	11	31,522	8	22,925	19	54,446
13	11	31,522	10	28,656	21	60,178
14	12	34,387	11	31,522	23	65,909
15	15	76,962	9	25,790	24	102,753
16	16	45,850	15	76,854	31	122,704
17	22	92,956	21	60,178	43	153,133
18	19	98,564	13	37,145	32	135,708
19	18	51,581	27	77,090	45	128,671
20	27	85,493	19	54,353	46	139,846
21	20	70,701	16	45,850	36	116,551
22	-	-	-	-	-	-
23	3	8,381	-	-	3	8,381
24	1	2,866	-	-	1	2,866
25	-	-	-	-	-	-
26	2	5,368	-	-	2	5,368
27	1	2,866	2	29,732	3	32,597
28	-	-	1	10,507	1	10,507
29	3	7,963	2	21,953	5	29,916
30	1	2,866	3	16,238	4	19,104
31	-	-	1	10,507	1	10,507
32	1	2,866	2	13,373	3	16,238
33	2	68,559	5	52,536	7	121,095
34	-	-	4	32,074	4	32,074
35	1	3,949	7	100,028	8	103,978
36	-	-	3	16,238	3	16,238



EXHIBIT III – 1c

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
TOTAL SURVIVORS AND BENEFICIARIES (continued)



APPENDIX C – DETAILED TABULATION OF DATA

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
37	2	\$ 5,731	6	\$ 67,833	8	\$ 73,564
38	1	13,740	3	31,522	4	45,262
39	2	31,700	6	47,760	8	79,460
40	2	5,731	2	21,014	4	26,746
41	-	-	2	50,587	2	50,587
42	1	2,866	7	73,999	8	76,865
43	1	2,866	11	180,792	12	183,658
44	-	-	14	176,702	14	176,702
45	1	2,866	9	94,565	10	97,430
46	1	1,416	23	414,496	24	415,912
47	1	16,107	24	387,546	25	403,653
48	2	33,704	27	410,685	29	444,389
49	2	5,731	29	565,654	31	571,385
50	4	41,604	33	498,278	37	539,883
51	3	16,238	30	393,720	33	409,958
52	7	62,668	50	925,819	57	988,487
53	4	24,996	38	535,679	42	560,675
54	1	2,866	55	809,909	56	812,775
55	1	2,866	72	1,055,750	73	1,058,616
56	5	37,253	55	861,449	60	898,702
57	2	5,731	75	1,081,612	77	1,087,343
58	4	25,822	58	826,705	62	852,527
59	7	99,247	68	903,072	75	1,002,319
60	7	105,292	83	1,155,225	90	1,260,517
61	2	13,373	111	1,699,916	113	1,713,288
62	4	51,287	130	1,902,594	134	1,953,881
63	5	50,755	97	1,308,481	102	1,359,236
64	2	13,373	130	1,716,046	132	1,729,419
65	-	-	123	1,583,678	123	1,583,678
66	1	10,507	160	2,069,306	161	2,079,813
67	-	-	180	2,429,259	180	2,429,259
68	1	10,507	184	2,551,039	185	2,561,546
69	4	65,248	170	2,026,968	174	2,092,216
70	3	23,880	234	3,090,507	237	3,114,387
71	1	10,507	241	3,100,700	242	3,111,207
72	1	2,866	267	3,199,046	268	3,201,912



EXHIBIT III – 1c

RETIREE AND BENEFICIARY MEMBERSHIP DATA AS OF JANUARY 1, 2020
Number and Annual Retirement Allowances Distributed by Age
TOTAL SURVIVORS AND BENEFICIARIES (continued)

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
73	1	\$ 10,507	222	\$ 2,679,458	223	\$ 2,689,965
74	3	52,881	158	1,848,239	161	1,901,120
75	1	2,866	237	2,818,416	238	2,821,281
76	-	-	250	2,961,808	250	2,961,808
77	1	10,507	265	2,973,205	266	2,983,712
78	-	-	262	3,028,388	262	3,028,388
79	1	2,866	259	2,877,681	260	2,880,546
80	1	26,744	247	2,759,515	248	2,786,259
81	2	21,542	224	2,409,022	226	2,430,564
82	1	10,507	255	2,796,053	256	2,806,560
83	-	-	216	2,316,546	216	2,316,546
84	-	-	247	2,617,394	247	2,617,394
85	2	21,014	203	2,150,353	205	2,171,367
86	-	-	211	2,248,920	211	2,248,920
87	-	-	180	1,921,992	180	1,921,992
88	1	10,507	165	1,738,882	166	1,749,389
89	-	-	232	2,438,294	232	2,438,294
90	1	10,507	161	1,711,800	162	1,722,308
91	-	-	161	1,855,312	161	1,855,312
92	-	-	147	1,532,051	147	1,532,051
93	-	-	111	1,105,400	111	1,105,400
94	-	-	75	738,882	75	738,882
95	-	-	63	664,877	63	664,877
96	-	-	40	424,068	40	424,068
97	-	-	15	144,543	15	144,543
98	-	-	16	152,320	16	152,320
99	-	-	11	108,670	11	108,670
100	-	-	5	52,536	5	52,536
101	-	-	1	10,507	1	10,507
102	-	-	6	58,255	6	58,255
103	-	-	1	10,507	1	10,507
104	-	-	2	21,014	2	21,014
105	-	-	-	-	-	-
106	-	-	2	21,014	2	21,014
Total	322	\$ 1,808,173	7,664	\$ 90,295,633	7,986	\$ 92,103,805