



March 18, 2020

Mr. James F. Fisher  
Secretary to the Board of Trustees  
City Pension Fund for Firefighters and Police Officers  
in the City of Pembroke Pines, Florida  
Hampton Professional Center  
1951 NW 150th Avenue – Suite 104  
Pembroke Pines, Florida 33028

**Re: October 1, 2019 Projection Actuarial Valuation Report**

Dear Jim:

As requested, we are pleased to enclose fifteen (15) bound copies and one (1) unbound copy of the October 1, 2019 Projection Actuarial Valuation Report for the City Pension Fund for Firefighters and Police Officers in the City of Pembroke Pines, Florida.

Upon Board approval of the Actuarial Valuation Report, we will upload an electronic copy of the Actuarial Valuation Report along with the required disclosure information to the State portal as required by the State.

We appreciate the opportunity to have performed this important assignment on behalf of the Board and look forward to presenting the key results.

If you should have any questions concerning the above, please do not hesitate to contact us.

Sincerest regards,

A handwritten signature in black ink that reads 'Michelle Jones'. The signature is written in a cursive, flowing style.

Shelly L. Jones, A.S.A.  
Consultant and Actuary

Enclosures

# City Pension Fund for Firefighters and Police Officers In the City of Pembroke Pines, Florida

ACTUARIAL VALUATION AS OF OCTOBER 1, 2019

This Valuation Determines the Annual Contribution for the Fund Year October 1, 2020 through September 30, 2021 to be paid in Fiscal Year October 1, 2020 to September 30, 2021





**City Pension Fund for Firefighters and Police Officers  
in the City of Pembroke Pines, Florida**

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March 18, 2020

Board of Trustees  
c/o Mr. James F. Fisher  
Plan Administrator  
City Pension Fund for Firefighters and Police Officers  
in the City of Pembroke Pines, Florida  
Hampton Professional Center  
1951 NW 150th Avenue – Suite 104  
Pembroke Pines, Florida 33028

Dear Board Members:

### October 1, 2019 Actuarial Valuation

We are pleased to present our October 1, 2019 Projection Actuarial Valuation for the City Pension Fund for Firefighters and Police Officers in the City of Pembroke Pines, Florida (Fund). The purpose of this report is to indicate appropriate contribution levels, comment on the actuarial stability of the Fund and to satisfy State requirements. The Board of Trustees has retained Gabriel, Roeder, Smith and Company (GRS) to prepare an annual actuarial valuation under Section 34.60 of the Fund Ordinance.

This report consists of this commentary, detailed Tables I through XVII, the State Required Exhibit on Table XVIII and definitions of technical terms on Table XIX. The Tables contain basic Fund cost figures plus significant details on the benefits, liabilities and experience of the Fund. We suggest that you thoroughly review the report at your convenience and contact us with any questions that may arise.

### Retirement Fund Costs

Our Projection Actuarial Valuation develops the required minimum Retirement Fund payment under the Florida Protection of Public Employee Retirement Benefits Act and for Fire and Police Retirement Chapters 175 and 185. The minimum payment consists of payment of annual normal costs including amortization of the components of the unfunded actuarial accrued liability over various periods as prescribed by law. The **minimum payment for fiscal year ending September 30, 2021 is \$33,437,669 (88.9% / 119.6%)**. The figures in parentheses are the minimum payment expressed as a percentage of projected covered annual payroll including DROP payroll (\$37,613,807) and projected covered annual payroll excluding DROP payroll (\$27,957,917), respectively as of October 1, 2020.

This total cost is to be met by member, City and State contributions. We anticipate Member contributions will be **\$2,459,670 (6.5% / 8.8%)**, State contributions will be **\$2,978,593 (7.9% / 10.7%)** and the resulting minimum required City contribution will be **\$27,999,406 (74.4% / 100.1%)**. The City

contribution includes an interest adjustment and must be increased if State contributions are less than \$2,978,593.

### Changes in Actuarial Assumptions, Methods and Fund Benefits

Disability retirement eligibility for Firefighters was updated to reflect diagnoses of cancer or circumstances that arise out of the treatment of such cancer to be presumed to be disabled in-line of duty subject to the limitations in Chapter 112.1816, Florida Statutes. The remaining Fund provisions are unchanged from the October 1, 2018 Actuarial Valuation. Fund provisions are summarized on Table X.

Assumed investment return was updated to 7.75% from 7.80%, net of investment expense. The mortality assumption is updated to use the mortality assumption used by the Florida Retirement System (FRS) as required under F.S., Chapter 2015-157 based upon the July 1, 2019 FRS Actuarial Valuation. The percentage of disabilities assumed to be service incurred for Firefighters is updated to 90% from 80%. The marital assumption is updated to 100% from 95% based on the updated Board's administrative policy. The remaining actuarial assumptions and methods are unchanged from the October 1, 2018 Actuarial Valuation. The actuarial assumptions and methods are summarized on Table XI.

### Comparison of October 1, 2018 and October 1, 2019 Valuation Results

Table II of our report provides information of a comparative nature. The left columns of the Table indicate the costs as calculated for the October 1, 2018 Actuarial Valuation. The center columns indicate the costs as calculated for October 1, 2019 prior to the assumption / plan changes. The right columns indicate the costs as calculated for October 1, 2019 after the assumption / plan changes. Please note both the center and right columns include changes in benefits for members hired after September 30, 2018.

Comparing the left and center columns of Table II shows the effect of Fund experience during the year. The number of active participants increased by approximately 2% while covered payroll including DROP payroll increased by approximately 6%. Covered payroll net of DROP payroll increased by approximately 2%. Total Fund membership increased by approximately 4%. Total normal cost decreased both as a dollar amount and as a percentage of covered payroll including DROP payroll and as a percentage of covered payroll excluding DROP payroll. The unfunded actuarial accrued liability increased as a dollar amount but decreased as a percentage of covered payroll including DROP payroll and as a percentage of covered payroll excluding DROP payroll. The net City minimum funding requirement also increased as a dollar amount but decreased as a percentage of covered payroll including DROP payroll and as a percentage of covered payroll excluding DROP payroll.



Comparing the center and right columns of Table II shows the effect of the update of actuarial assumptions / plan change. Total normal cost increased both as a dollar amount and as a percentage of covered payrolls. The unfunded actuarial accrued liability and the net City minimum funding requirement decreased both as a dollar amount and as a percentage of covered payrolls.

The value of vested accrued benefits exceeds Fund assets, resulting in a Vested Benefit Security Ratio (VBSR) of 78.5% (77.9% prior to assumption changes) which is a decrease from 79.9% as of the October 1, 2018 Actuarial Valuation. The VBSR is measured on a market value of assets basis.

### Fund Experience

The Fund experienced an actuarial loss in the amount of \$8,199,450 this year. This indicates net Fund experience was less favorable than expected based upon the actuarial assumptions. Approximately \$3,970,000 of the actuarial loss was due to benefit adjustments for inactive members who were not married or in a domestic partnership at the time of DROP entry / retirement.

Table XVI (salary, turnover and investment yield) provides figures on recent Fund experience. Salary experience indicates actual salary increases (excluding DROP payroll) averaged approximately 6.7% for Fund Year ended September 30, 2019. The average salary increase assumption was 3.7%. Salary increase experience was a source of actuarial loss. Three, five and ten-year average annual salary increases are 6.8%, 5.4% and 4.1%, respectively.

Employee turnover this year was approximately 210% of the assumed turnover and was generally an offsetting source of actuarial gain. Three, five and ten-year average annual turnover is 260%, 220% and 110% of assumed, respectively.

This year's smoothed value investment return of 7.64% was less than the Fund's investment return assumption of 7.80% (prior assumption). Investment return was an additional source of actuarial loss during the year. Three, five and ten-year average annual investment returns are 8.14%, 7.8% and 7.0%, respectively on a smoothed actuarial value basis. Average annual market value returns for the one, three, five and ten-year periods have been 3.91%, 8.69%, 7.4% and 8.7%, respectively.

Table VIII provides figures on recent Fund payroll growth experience. Recent Fund covered payroll growth experience, excluding DROP payroll, indicates actual payroll growth averaged approximately 0.1% annually for the ten years ended September 30, 2019. The payroll growth assumption is 5.3%, not in excess of the ten (10) year average annual payroll growth assumption. The cap on payroll growth assumption is provided under Florida Statute. The payroll growth assumption last year was 0.3%.



### Member Census and Financial Data

The City submitted the Member census data as of October 1, 2019 used for this actuarial valuation to us. This information contains name, Social Security number, date of birth, date of hire, October 1, 2019 rate of pay, actual salary paid and member contributions for the previous year. Dates of termination and retirement are provided where applicable. The Board updated information on inactive participants including retirees, beneficiaries and vested terminees.

We received financial information as of September 30, 2019 concerning Fund assets from the Fund Auditors. We do not audit the Member census data and asset information that is provided to us; however, we perform certain reasonableness checks. The Fund is responsible for the accuracy of the data reported to us.

### Risks Associated with the Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: Fund experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Fund's funded status); and changes in Fund provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the fund's future financial condition include:

1. Investment risk – actual investment returns may differ from the expected returns;
2. Asset/Liability mismatch – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;



3. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the Fund’s funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and the actuarially determined contributions differing from expected;
5. Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6. Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and the actuarially determined contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, actuarially determined contribution can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in actuarially determined contribution can be anticipated.

The actuarially determined contribution rate shown on page one may be considered as a minimum contribution rate that complies with the Board’s funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the Fund. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

### Fund Maturity Measures

Risks facing a pension fund evolve over time. A young fund with virtually no investments and paying few benefits may experience little investment risk. An older fund with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted fund maturity measures include the following:

	<u>2018</u>	<u>2019</u>
Ratio of the market value of assets to total payroll *	24.24	24.58
Ratio of actuarial accrued liability to payroll *	31.46	32.29
Ratio of actives to retirees and beneficiaries	0.86	0.83
Ratio of net cash flow to market value of assets	(0.3%)	(0.3%)
Duration of the actuarial accrued liability	15.81	15.29

\* Excluding DROP payroll



### **Ratio of Market Value of Assets to Payroll**

The relationship between assets and payroll is a useful indicator of the potential volatility of the actuarially determined contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in the actuarially determined contributions as a percentage of payroll.

### **Ratio of Actuarial Accrued Liability to Payroll**

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of the actuarially determined contributions for a fully funded fund. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also the actuarially determined contributions) as a percentage of payroll.

### **Ratio to Actives to Retirees and Beneficiaries**

A young fund with many active members and few retirees will have a high ratio of active to retirees. A mature open fund may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed fund may have significantly more retirees than actives resulting in a ratio below 1.0.

### **Ratio of Net Cash Flow to Market Value of Assets**

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature fund or a need for additional contributions.



### **Duration of Actuarial Accrued Liability**

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

### **Additional Risk Assessment**

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

### **Summary**

In our opinion the benefits provided for under the current Fund will be sufficiently funded through the payment of the amount as indicated in this and future Actuarial Valuation reports. We will continue to update you on the future payment requirements for the Fund through our actuarial valuation reports. These reports will also continue to monitor emerging experience of the Fund.

The actuarial assumptions used in this Actuarial Valuation are as adopted by the Board of Trustees. The economic and demographic actuarial assumptions are based on the results of an actuarial experience study for the period October 1, 2009 – September 30, 2014. The mortality assumptions are prescribed by statute. Each assumption represents an estimate of future Fund experience.

It is highly recommended that Experience Studies be performed regularly to keep the actuarial assumptions and methods up to date with evolving Fund experience. The Government Finance Officers Association (GFOA) recommends every five years as a *best practice*. We highly recommend the Board authorize an Experience Study for the period October 1, 2014 – September 30, 2019 to assure actuarial assumptions are aligned with Fund experience and future expectations. In particular, we anticipate our analysis will require lowering the price inflation and rate of return assumptions. We also anticipate the salary scale assumption to increase as well as the termination assumption.

If all actuarial assumptions are met and if all future minimum required contributions are paid, Fund assets will be sufficient to pay all Fund benefits, future contributions are expected to remain relatively stable as a percent of payroll and the funded status is expected to improve. Fund minimum required contributions are determined in compliance with the requirements of the Florida Protection of Public Employee Retirement Benefits Act, Firefighters Retirement Chapter 175 and Police Officers Retirement Chapter 185 with normal cost determined as a level percent of covered payroll and a level percent amortization payment using an initial amortization period of 30 years.



The Unfunded Actuarial Accrued Liability (UAAL) may not be appropriate for assessing the sufficiency of Fund assets to meet the estimated cost of settling benefit obligations but may be appropriate for assessing the need for or the amount of future contributions. The UAAL would be different if it reflected the market value of assets rather than the actuarial value of assets.

The Unfunded Actuarial Present Value of Vested Accrued Benefits and the corresponding Vested Benefit Security Ratio may not be appropriate for assessing the sufficiency of Fund assets to meet the estimated cost of settling benefit obligations and also may not be appropriate for assessing the need for or the amount of future contributions.

The GASB Net Pension Liability and Fund Fiduciary Net Position as a Percentage of Total Pension Liability may not be appropriate for assessing the sufficiency of Fund assets to meet the estimated cost of settling benefit obligations but may be appropriate for assessing the need for or the amount of future contributions.

This report should not be relied upon for any purpose other than the purpose described in the primary communication. Determinations of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Fund as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes. This report may be provided to parties other than the Board only in its entirety and only with the permission of an approved representative of the Board.

The signing actuaries are independent of the Fund sponsor.

The undersigned are Members of the American Academy of Actuaries and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. We are available to respond to any questions with regards to matters covered in this report.

Very truly yours,



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Shelly L. Jones, A.S.A., E.A.  
Consultant and Actuary



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Jennifer M. Borregard, E.A.  
Consultant and Actuary



Summary of Retirement Plan Costs as of October 1, 2019

	Prior Assumptions / Plan								
	Hired after September 30, 2018			Hired before October 1, 2018			Total		
	<u>Cost Data</u>	<u>% of Base Payroll</u>	<u>% of Total Payroll</u>	<u>Cost Data</u>	<u>% of Base Payroll</u>	<u>% of Total Payroll</u>	<u>Cost Data</u>	<u>% of Base Payroll</u>	<u>% of Total Payroll</u>
A. Participant Data Summary (Table III)									
1. Active Employees	41	N/A	N/A	301	N/A	N/A	342	N/A	N/A
2. Terminated Vested	0	N/A	N/A	6	N/A	N/A	6	N/A	N/A
3. Receiving Benefits (including DROPs)	0	N/A	N/A	413	N/A	N/A	413	N/A	N/A
4. Total Annual Payroll of Active Employees Excluding DROPs	\$ 2,103,931	100.0%	N/A	\$ 25,826,056	100.0%	N/A	\$ 27,929,987	100.0%	74.3%
5. Total Annual Payroll of Active Employees Including DROPs	N/A	N/A	N/A	N/A	N/A	N/A	\$ 37,576,231	134.5%	100.0%
B. Total Normal Costs									
1. Age Retirement Benefits	\$ 360,927	N/A	N/A	\$ 7,862,647	N/A	N/A	\$ 8,223,574	29.4%	21.9%
2. Termination Benefits	7,235	N/A	N/A	95,968	N/A	N/A	103,203	0.4%	0.3%
3. Death Benefits	8,347	N/A	N/A	106,014	N/A	N/A	114,361	0.4%	0.3%
4. Disability Benefits	42,008	N/A	N/A	614,023	N/A	N/A	656,031	2.3%	1.7%
5. Subtotal	\$ 418,517	19.9%	N/A	\$ 8,678,652	33.6%	N/A	\$ 9,097,169	32.6%	24.2%
6. Estimated Expenses	N/A			N/A			705,185	2.5%	1.9%
7. Total Annual Normal Costs	N/A			N/A			\$ 9,802,354	35.1%	26.1%

Summary of Retirement Plan Costs as of October 1, 2019

	Current Assumptions / Plan								
	Hired after September 30, 2018			Hired before October 1, 2018			Total		
	<u>Cost Data</u>	<u>% of Base Payroll</u>	<u>% of Total Payroll</u>	<u>Cost Data</u>	<u>% of Base Payroll</u>	<u>% of Total Payroll</u>	<u>Cost Data</u>	<u>% of Base Payroll</u>	<u>% of Total Payroll</u>
A. Participant Data Summary (Table III)									
1. Active Employees	41	N/A	N/A	301	N/A	N/A	342	N/A	N/A
2. Terminated Vested	0	N/A	N/A	6	N/A	N/A	6	N/A	N/A
3. Receiving Benefits (including DROPs)	0	N/A	N/A	413	N/A	N/A	413	N/A	N/A
4. Total Annual Payroll of Active Employees Excluding DROPs	\$ 2,103,931	100.0%	N/A	\$ 25,826,056	100.0%	N/A	\$ 27,929,987	100.0%	74.3%
5. Total Annual Payroll of Active Employees Including DROPs	N/A	N/A	N/A	N/A	N/A	N/A	\$ 37,576,231	134.5%	100.0%
B. Total Normal Costs									
1. Age Retirement Benefits	\$ 363,085	N/A	N/A	\$ 7,907,137	N/A	N/A	\$ 8,270,222	29.6%	22.0%
2. Termination Benefits	7,257	N/A	N/A	94,023	N/A	N/A	101,280	0.4%	0.3%
3. Death Benefits	7,574	N/A	N/A	100,413	N/A	N/A	107,987	0.4%	0.3%
4. Disability Benefits	44,019	N/A	N/A	647,298	N/A	N/A	691,317	2.5%	1.8%
5. Subtotal	\$ 421,935	20.1%	N/A	\$ 8,748,871	33.9%	N/A	\$ 9,170,806	32.8%	24.4%
6. Estimated Expenses	N/A			N/A			705,185	2.5%	1.9%
7. Total Annual Normal Costs	N/A			N/A			\$ 9,875,991	35.4%	26.3%

Summary of Retirement Plan Costs as of October 1, 2019

	Prior Assumptions / Plan			Current Assumptions / Plan		
	Cost	% of	% of	Cost	% of	% of
	<u>Data</u>	<u>Base</u>	<u>Total</u>	<u>Data</u>	<u>Base</u>	<u>Total</u>
		<u>Payroll</u>	<u>Payroll</u>		<u>Payroll</u>	<u>Payroll</u>
C. Total Actuarial Accrued Liability						
1. Age Retirement Benefits Active Employees	\$ 165,110,175	591.2%	439.4%	\$ 165,095,779	591.1%	439.4%
2. Termination Benefits Active Employees	452,507	1.6%	1.2%	454,820	1.6%	1.2%
3. Death Benefits Active Employees	447,189	1.6%	1.2%	292,127	1.0%	0.8%
4. Disability Benefits Active Employees	2,534,625	9.1%	6.7%	2,552,838	9.1%	6.8%
5. Retired or Terminated Vested Participants Receiving Benefits (including DROPs)	715,107,802	2560.4%	1903.1%	708,226,738	2535.7%	1884.8%
6. Terminated Vested Participants Entitled to Future Benefits	1,562,031	5.6%	4.2%	1,568,178	5.6%	4.2%
7. Deceased Participants Whose Beneficiaries are Receiving Benefits	8,886,183	31.8%	23.6%	8,704,832	31.2%	23.2%
8. Disabled Participants Receiving Benefits	15,125,369	54.2%	40.3%	15,033,559	53.8%	40.0%
9. Miscellaneous Liability (Refunds in Process)	35,212	0.1%	0.1%	35,212	0.1%	0.1%
10. Total Actuarial Accrued Liability	<u>\$ 909,261,093</u>	<u>3255.5%</u>	<u>2419.8%</u>	<u>\$ 901,964,083</u>	<u>3229.4%</u>	<u>2400.4%</u>
D. Net Assets (Table V)						
1. Smoothed Actuarial Value of Assets	\$ 690,731,320	2473.1%	1838.2%	\$ 690,731,320	2473.1%	1838.2%
2. Market Value of Assets	\$ 686,503,222	2457.9%	1827.0%	\$ 686,503,222	2457.9%	1827.0%
E. Unfunded Actuarial Accrued Liability (C. - D.1.)	\$ 218,529,773	782.4%	581.6%	\$ 211,232,763	756.3%	562.1%
F. Preliminary Minimum Required Contribution						
1. Total Normal Cost (including expenses)	\$ 9,802,354	35.1%	26.1%	\$ 9,875,991	35.4%	26.3%
2. Amortization of Unfunded Liability	22,657,969	81.1%	60.3%	22,012,143	78.8%	58.6%
3. Interest Adjustment	1,542,409	5.5%	4.1%	1,505,868	5.4%	4.0%
4. Total Preliminary Minimum Required Contribution	<u>\$ 34,002,732</u>	<u>121.7%</u>	<u>90.5%</u>	<u>\$ 33,394,002</u>	<u>119.6%</u>	<u>88.9%</u>

Summary of Retirement Plan Costs as of October 1, 2019

	<u>Prior Assumptions / Plan</u>			<u>Current Assumptions / Plan</u>		
	<u>Cost Data</u>	<u>% of Base Payroll</u>	<u>% of Total Payroll</u>	<u>Cost Data</u>	<u>% of Base Payroll</u>	<u>% of Total Payroll</u>
G. Expected Payroll of Active Employees for 2020-2021 Fund Year						
Excluding DROPs: \$27,929,987 x 1.001	\$ 27,957,917	100.0%	74.3%	\$ 27,957,917	100.0%	74.3%
Including DROPs: \$37,576,231 x 1.001	\$ 37,613,807	134.5%	100.0%	\$ 37,613,807	134.5%	100.0%
H. Contribution Sources for Fiscal Year Ending September 30, 2021						
1. City	\$ 28,586,522	102.2%	76.0%	\$ 27,999,406	100.1%	74.4%
2. State	\$ 2,978,593	10.7%	7.9%	\$ 2,978,593	10.7%	7.9%
3. Member	\$ 2,459,670	8.8%	6.5%	\$ 2,459,670	8.8%	6.5%
I. Actuarial Gains / (Losses)	\$ (8,199,450)	(29.4%)	(21.8%)	\$ (8,199,450)	(29.4%)	(21.8%)
J. Actuarial Present Value of Vested Accrued Benefits						
1. Retired, Terminated Vested, Beneficiaries and Disabled Receiving Benefits (including DROPs)	\$ 739,119,354	2646.3%	1967.0%	\$ 731,965,129	2620.7%	1947.9%
2. Terminated Vested Participants Entitled to Future Benefits and Miscellaneous	1,597,243	5.7%	4.3%	1,603,390	5.7%	4.3%
3. Active Participants Entitled to Future Benefits	<u>140,507,036</u>	503.1%	373.9%	<u>140,560,314</u>	503.3%	374.1%
4. Total Actuarial Present Value of Vested Accrued Benefits	\$ 881,223,633	3155.1%	2345.2%	\$ 874,128,833	3129.7%	2326.3%
K. Unfunded Actuarial Present Value of Vested Accrued Benefits (J. - D.2., not less than zero)	\$ 194,720,411	697.2%	518.2%	\$ 187,625,611	671.8%	499.3%
L. Vested Benefit Security Ratio (D.2. ÷ J.)	77.9%	N/A	N/A	78.5%	N/A	N/A



Comparison of Cost Data of October 1, 2018 and October 1, 2019 Valuations

	October 1, 2018			Prior Assumptions / Plan October 1, 2019			Current Assumptions / Plan October 1, 2019		
	Cost	% of	% of	Cost	% of	% of	Cost	% of	% of
	Data	Base Annual Compensation <sup>1</sup>	Total Annual Compensation <sup>2</sup>	Data	Base Annual Compensation <sup>1</sup>	Total Annual Compensation <sup>2</sup>	Data	Base Annual Compensation <sup>1</sup>	Total Annual Compensation <sup>2</sup>
A. Participants									
1. Active Employees	335	N/A	N/A	342	N/A	N/A	342	N/A	N/A
2. Terminated Vested	5	N/A	N/A	6	N/A	N/A	6	N/A	N/A
3. Receiving Benefits (including DROPs)	389	N/A	N/A	413	N/A	N/A	413	N/A	N/A
4. Annual Payroll of Active Employees excluding DROPs	\$ 27,339,558	100.0%	77.4%	\$ 27,929,987	100.0%	74.3%	\$ 27,929,987	100.0%	74.3%
5. Annual Payroll of Active Employees including DROPs	\$ 35,313,816	129.2%	100.0%	\$ 37,576,231	134.5%	100.0%	\$ 37,576,231	134.5%	100.0%
B. Total Normal Costs	\$ 10,125,089	37.0%	28.7%	\$ 9,802,354	35.1%	26.1%	\$ 9,875,991	35.4%	26.3%
C. Actuarial Accrued Liability (EAN)	\$ 860,082,778	3145.9%	2435.5%	\$ 909,261,093	3255.5%	2419.8%	\$ 901,964,083	3229.4%	2400.4%
D. Present Value of Future Benefits	\$ 919,515,967	3363.3%	2603.8%	\$ 969,307,758	3470.5%	2579.6%	\$ 962,694,241	3446.8%	2562.0%
E. Smoothed Actuarial Value of Assets	\$ 643,679,302	2354.4%	1822.7%	\$ 690,731,320	2473.1%	1838.2%	\$ 690,731,320	2473.1%	1838.2%
F. Unfunded Actuarial Accrued Liability (EAN)	\$ 216,403,476	791.5%	612.8%	\$ 218,529,773	782.4%	581.6%	\$ 211,232,763	756.3%	562.1%
G. City Minimum Funding Payment									
For Fiscal Year Ending September 30, 2020	\$ 28,309,957	103.2% <sup>3</sup>	79.9% <sup>3</sup>	N/A	N/A	N/A	N/A	N/A	N/A
For Fiscal Year Ending September 30, 2021	N/A	N/A	N/A	\$ 28,586,522	102.2% <sup>4</sup>	76.0% <sup>4</sup>	\$ 27,999,406	100.1% <sup>4</sup>	74.4% <sup>4</sup>
H. Vested Benefit Security Ratio	79.9%	N/A	N/A	77.9%	N/A	N/A	78.5%	N/A	N/A

<sup>1</sup> Excludes DROP payroll

<sup>2</sup> Includes DROP payroll

<sup>3</sup> Percent of projected 2019-2020 covered payroll (\$27,421,577 / \$35,419,757)

<sup>4</sup> Percent of projected 2020-2021 covered payroll (\$27,957,917 / \$37,613,807)

Characteristics of Participants in  
Actuarial Valuation as of October 1, 2019

A. Active Plan Participants Summary

1. Active participants fully vested	179
2. Active participants partially vested	0
3. Active participants non-vested	163
4. Total active participants	342
5. Annual rate of pay of active participants excluding DROPs	\$ 27,929,987
6. Annual rate of pay of active participants including DROPs	\$ 37,576,231

B. Retired and Terminated Vested Participant Summary

1. Retired or terminated vested participants receiving benefits (including DROPs)	376
2. Terminated vested participants entitled to future benefits	6
3. Deceased participants whose beneficiaries are receiving benefits	17
4. Disabled participants receiving benefits	20

C. Projected Annual Retirement Benefits

1. Retired or terminated vested receiving benefits (including DROPs)	\$ 36,856,416
2. Terminated vested entitled to future benefits	\$ 201,314
3. Beneficiaries of deceased participants	\$ 713,306
4. Disabled participants	\$ 1,063,464

Statement of Assets as of October 1, 2019

<u>Assets</u>	<u>Market Value</u>
A. <u>Cash and Cash Equivalents</u>	\$ 15,403,602
B. <u>General Investments</u>	
1. Government Securities	\$ 6,811,531
2. Corporate Bonds	89,913,988
3. Equity Securities	416,930,679
4. Fixed Income Mutual Funds	65,402,439
5. Real Estate Funds	86,457,580
6. Property and Equipment, net	324,138
7. DROP Participant Loans	2,362,028
C. <u>Receivables</u>	
1. Accrued Interest	\$ 834,883
2. Contributions Receivable	46,716
3. Accounts Receivable	19,236
D. <u>Prepaid Benefits</u>	\$ 2,468,385
E. <u>Payables</u>	
1. Accounts Payable	\$ 471,983
2. Due to Broker	0
F. <u>Total</u>	
(A. + B. + C. + D. - E.)	\$ 686,503,222

Reconciliation of Plan Assets

A. <u>Total Market Value of Assets as of October 1, 2018</u>		\$ 662,653,584
B. <u>Receipts During Period</u>		
1. Contributions		
a. Member	\$ 2,688,739	
b. City	27,248,665	
c. State	2,978,593	
d. Total	<u>\$ 32,915,997</u>	
2. Investment Income		
a. Interest and dividends	\$ 8,703,043	
b. Other income	0	
c. DROP loan interest	117,322	
d. Realized gains / (losses)	19,230,239	
e. Unrealized gains / (losses)	1,356,970	
f. Investment expenses	<u>(3,538,741)</u>	
g. Net investment income	\$ 25,868,833	
3. Total receipts during period		\$ 58,784,830
C. <u>Disbursements During Period</u>		
1. Pension payments	\$ 28,663,780	
2. DROP distributions	5,456,644	
3. Contribution refunds	65,557	
4. Administrative expenses	<u>749,211</u>	
5. Total disbursements during period		\$ 34,935,192
D. <u>Total Market Value of Assets as of September 30, 2019</u>		\$ 686,503,222
E. <u>Share Plan</u>		
1. Balance as of October 1, 2018	\$ 0	
2. Current year contribution	0	
3. Investment credits	0	
4. Distributions	0	
5. Administrative expenses	<u>0</u>	
6. Balance as of September 30, 2019		\$ 0
F. <u>Reconciliation of DROP Account Balances</u>		
1. DROP Accounts Balance as of October 1, 2018	\$ 138,050,394	
2. Benefit Payments into DROP Accounts during Year	8,435,716	
3. Loan Interest during Year	117,322	
4. Investment Gains / (Losses) during Year	9,699,786	
5. ESI Payments during Year	(52,401)	
6. Distributions from DROP Accounts during Year	<u>(5,456,644)</u>	
7. DROP Accounts Balance as of September 30, 2019		\$ 150,794,173

Development of Smoothed Actuarial Value of Assets as of September 30

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
A. Preliminary smoothed actuarial value from prior year	477,837,128	513,213,837	550,554,481	593,996,849	643,679,302
B. Market value end of year	495,206,739	538,859,146	599,325,724	662,653,584	686,503,222
C. Market value beginning of year	483,895,286	495,206,739	538,859,146	599,325,724	662,653,584
D. Non-investment net cash flow	1,587,994	(515,530)	(1,331,077)	(1,626,048)	(2,019,195)
E. Expected investment return [A. x i] + [D. x i/2]	38,290,490	40,780,008	43,441,226	46,564,930	50,128,237
F. Expected smoothed actuarial value of assets A. + D. + E.	517,715,612	553,478,315	592,664,630	638,935,731	691,788,344
G. Excess of market value over expected smoothed actuarial value B. - F.	(22,508,873)	(14,619,169)	6,661,094	23,717,853	(5,285,122)
H. 20% adjustment towards market value .20 x G.	(4,501,775)	(2,923,834)	1,332,219	4,743,571	(1,057,024)
I. Preliminary smoothed actuarial value end of year F. + H.	513,213,837	550,554,481	593,996,849	643,679,302	690,731,320
J. Upper corridor limit: 120% of B.	594,248,087	646,630,975	719,190,869	795,184,301	823,803,866
K. Lower corridor limit: 80% of B.	396,165,391	431,087,317	479,460,579	530,122,867	549,202,578
L. Smoothed actuarial value end of year I., not more than J., nor less than K.	513,213,837	550,554,481	593,996,849	643,679,302	690,731,320
M. Smoothed actuarial value rate of return	7.1%	7.38%	8.14%	8.65%	7.64%
N. Market value rate of return	2.0%	8.92%	11.48%	10.85%	3.91%
O. Excess of market value over smoothed actuarial value end of year (B. - L.)	(18,007,098)	(11,695,335)	5,328,875	18,974,282	(4,228,098)

Actuarial Gains / (Losses) for Plan Year  
Ended September 30, 2019

A. <u>Derivation of Actuarial Gain / (Loss)</u>	
1. Employer normal cost previous valuation	\$ 7,556,651
2. Unfunded actuarial accrued liability previous valuation	\$ 216,403,476
3. Employer contributions previous year:	
(a) City	\$ 27,248,665
(b) State	2,978,593
(c) Total	<u>\$ 30,227,258</u>
4. Interest on:	
(a) Employer normal cost	\$ 589,419
(b) Unfunded actuarial accrued liability	16,879,471
(c) Contributions	871,436
(d) Net total: (a) + (b) - (c)	<u>\$ 16,597,454</u>
5. Increase / (decrease) in unfunded actuarial accrued liability due to assumption / plan changes	\$ (7,297,010)
6. Expected unfunded actuarial liability current year: (1. + 2. - 3. + 4. + 5.)	\$ 203,033,313
7. Actual unfunded actuarial liability current year	<u>211,232,763</u>
8. Actuarial gain / (loss): (6. - 7.)	<u>\$ (8,199,450)</u>
B. <u>Approximate Portion of Gain / (Loss) due to Investments</u>	
1. Smoothed actuarial value of assets previous year	\$ 643,679,302
2. Contributions during period	32,915,997
3. Benefits, refunds and admin expenses during period	34,935,192
4. Expected net appreciation for period	<u>50,128,237</u>
5. Expected smoothed actuarial value assets current year: (1. + 2. - 3. + 4.)	\$ 691,788,344
6. Actual smoothed actuarial value of assets current year	\$ 690,731,320
7. Approximate gain / (loss) due to investments: (6. - 5.)	\$ (1,057,024)
C. <u>Approximate Portion of Gain / (Loss) due to Liabilities: (A. - B.)</u>	\$ (7,142,426)

Historic Actuarial Gains / (Losses)Historic Gains / (Losses)

<u>Year Ended</u>	<u>Actuarial Gain / (Loss)</u>
09/30/2019	\$ (8,199,450)
09/30/2018	\$ (2,156,725)
09/30/2017	\$ (3,344,371)
09/30/2016	\$ (4,391,458)
09/30/2015	\$ (4,114,818)
09/30/2014	\$ 5,068,959
09/30/2013	\$ 643,561
09/30/2012	\$ (4,435,113)
09/30/2011	\$ (10,855,137)
09/30/2010	\$ (13,820,665)
09/30/2009	\$ (23,430,002)
09/30/2008	\$ (21,456,556)
09/30/2007	\$ 2,084,686
09/30/2006	\$ (14,201,369)
09/30/2005	\$ (10,226,167)
09/30/2004	\$ (9,403,506)
09/30/2003	\$ (4,856,940)

Amortization of Unfunded Actuarial Accrued Liability

A. Unfunded Actuarial Accrued Liability

<u>Date</u>	<u>Unfunded Liability</u>	<u>Amortization Payment</u>
October 1, 2019	\$ 211,232,763	\$ 22,012,143
October 1, 2020	\$ 203,885,218	\$ 22,034,155
October 1, 2021	\$ 195,944,520	\$ 22,056,189
October 1, 2022	\$ 187,364,677	\$ 22,078,245
October 1, 2023	\$ 178,096,130	\$ 22,100,323
...		
...		
October 1, 2049	\$ 0	\$ 0

B. Covered Payroll History

<u>Date</u>	<u>Covered Payroll *</u>	<u>Annual Increase</u>
October 1, 2019	\$ 27,929,987	2.2%
October 1, 2018	\$ 27,339,558	2.6%
October 1, 2017	\$ 26,646,456	2.0%
October 1, 2016	\$ 26,123,963	(2.1%)
October 1, 2015	\$ 26,675,674	(4.3%)
October 1, 2014	\$ 27,875,138	1.0%
October 1, 2013	\$ 27,588,952	2.1%
October 1, 2012	\$ 27,011,016	0.6%
October 1, 2011	\$ 26,857,833	(1.0%)
October 1, 2010	\$ 27,129,273	(1.4%)
October 1, 2009	\$ 27,528,175	N/A

Ten-Year Average Annual Increase

0.1%

\* Excludes DROP payroll

Accounting Disclosure Exhibit

	<u>10/01/2018</u>	<u>Prior Assumptions / Plan 10/01/2019</u>	<u>Current Assumptions / Plan 10/01/2019</u>
<b>I. <u>Number of Plan Members</u></b>			
a. Retirees and beneficiaries receiving benefits	389	413	413
b. Terminated plan members entitled to but not yet receiving benefits	5	6	6
c. Active plan members	335	342	342
d. Total	<u>729</u>	<u>761</u>	<u>761</u>
<b>II. <u>Financial Accounting Standards Board Allocation as of October 1, 2019</u></b>			
<b>A. <u>Statement of Accumulated Plan Benefits</u></b>			
1. Actuarial present value of accumulated vested plan benefits			
a. Participants currently receiving benefits	\$ 681,009,238	\$ 739,119,354	\$ 731,965,129
b. Other participants	148,704,315	142,104,279	142,163,704
c. Total	<u>\$ 829,713,553</u>	<u>\$ 881,223,633</u>	<u>\$ 874,128,833</u>
2. Actuarial present value of accumulated non-vested plan benefits			
	\$ 6,219,628	\$ 6,677,259	\$ 6,828,014
3. Total actuarial present value of accumulated plan benefits	<u>\$ 835,933,181</u>	<u>\$ 887,900,892</u>	<u>\$ 880,956,847</u>
<b>B. <u>Statement of Change in Accumulated Plan Benefits</u></b>			
1. Actuarial present value of accumulated plan benefits as of October 1, 2018			\$ 835,933,181
2. Increase (decrease) during year attributable to:			
a. Plan amendment (through assumption change)			\$ 492,612
b. Change in actuarial assumptions			(7,436,657)
c. Benefits paid including refunds			(34,185,981)
d. Other, including benefits accumulated, increase for interest due to decrease in the discount period			86,153,692
e. Net increase			<u>\$ 45,023,666</u>
3. Actuarial present value of accumulated plan benefits as of October 1, 2019			\$ 880,956,847
<b>C. <u>Significant Matters Affecting Calculations</u></b>			
1. Assumed rate of return used in determining actuarial present values			7.75%
2. Change in plan provisions			See Table X - Item U.
3. Change in actuarial assumptions			See Table XI - Item N.

Accounting Disclosure Exhibit

III. Net Pension Liability and Related Ratios (GASB No. 67 & No. 68)

Measurement Date	9/30/2014	9/30/2015	9/30/2016	9/30/2017	9/30/2018	9/30/2019	Projected 9/30/2020 *
<b>A. Total Pension Liability (TPL)</b>							
Service Cost	\$ 10,631,405	\$ 10,619,978	\$ 9,537,905	\$ 9,212,121	\$ 9,288,146	\$ 9,460,539	\$ 9,170,806
Interest	50,687,264	53,286,992	56,386,139	59,453,153	62,814,379	66,491,126	69,238,295
Benefit Changes	0	765,470	22,338	0	0	0	390,575
Difference Between Actual and Expected Experience	(679,355)	(3,834,368)	399,811	1,830,547	4,956,652	6,212,714	8,477,594
Assumption Changes	0	0	8,511,772	5,790,909	5,779,580	6,152,407	(7,687,585)
Benefit Payments, including Refunds of Member Contributions	(25,391,326)	(27,070,511)	(29,062,537)	(30,611,666)	(32,981,866)	(34,185,981)	(35,475,071)
Net Change in Total Pension Liability	\$ 35,247,988	\$ 33,767,561	\$ 45,795,428	\$ 45,675,064	\$ 49,856,891	\$ 54,130,805	\$ 44,114,614
<b>Total Pension Liability (TPL) - (beginning of year)</b>	636,309,762	671,557,750	705,325,311	751,120,739	796,795,803	846,652,694	900,783,499
<b>Total Pension Liability (TPL) - (end of year)</b>	<u>\$ 671,557,750</u>	<u>\$ 705,325,311</u>	<u>\$ 751,120,739</u>	<u>\$ 796,795,803</u>	<u>\$ 846,652,694</u>	<u>\$ 900,783,499</u>	<u>\$ 944,898,113</u>
<b>B. Fund Fiduciary Net Position</b>							
Contributions - City and State	\$ 26,214,407	\$ 26,190,282	\$ 26,354,499	\$ 27,355,807	\$ 29,196,005	\$ 30,227,258	\$ 30,795,916
Contributions - Member	2,983,425	3,065,485	2,819,814	2,663,136	2,787,802	2,688,739	2,457,213
Net Investment Income	44,138,554	9,650,600	44,141,730	61,789,524	64,922,938	25,868,833	53,090,574
Benefit Payments, including Refunds of Member Contributions	(25,391,326)	(27,070,511)	(29,062,537)	(30,611,666)	(32,981,866)	(34,185,981)	(35,475,071)
Administrative Expenses	(544,463)	(597,262)	(627,306)	(738,354)	(627,989)	(749,211)	(705,185)
Other	(17,372)	72,859	26,207	8,131	30,970	0	0
Net Change in Fund Fiduciary Net Position	\$ 47,383,225	\$ 11,311,453	\$ 43,652,407	\$ 60,466,578	\$ 63,327,860	\$ 23,849,638	\$ 50,163,447
<b>Fund Fiduciary Net Position - (beginning of year)</b>	436,512,061	483,895,286	495,206,739	538,859,146	599,325,724	662,653,584	686,503,222
<b>Fund Fiduciary Net Position - (end of year)</b>	<u>\$ 483,895,286</u>	<u>\$ 495,206,739</u>	<u>\$ 538,859,146</u>	<u>\$ 599,325,724</u>	<u>\$ 662,653,584</u>	<u>\$ 686,503,222</u>	<u>\$ 736,666,669</u>
<b>C. Net Pension Liability (NPL) - (end of year): (A) - (B)</b>	\$ 187,662,464	\$ 210,118,572	\$ 212,261,593	\$ 197,470,079	\$ 183,999,110	\$ 214,280,277	\$ 208,231,444
<b>D. Fund Fiduciary Net Position as a Percentage of TPL: (B) / (A)</b>	72.06 %	70.21 %	71.74 %	75.22 %	78.27 %	76.21 %	77.96 %
<b>E. Covered Employee Payroll **</b>	\$ 28,252,541	\$ 28,831,332	\$ 27,677,991	\$ 27,697,423	\$ 28,431,363	\$ 28,868,635	\$ 27,929,987
<b>F. NPL as a Percentage of Covered Employee Payroll: (C) / (E)</b>	664.23 %	728.79 %	766.90 %	712.95 %	647.17 %	742.26 %	745.55 %
<b>G. Notes to Schedule:</b>							
Valuation Date	10/1/2013	10/1/2014	10/1/2015	10/1/2016	10/1/2017	10/1/2018	10/1/2019
Reporting Date (GASB No. 68)	9/30/2015	9/30/2016	9/30/2017	9/30/2018	9/30/2019	9/30/2020	9/30/2021

Update procedures used to roll forward TPL excluding DROP account balances to the measurement dates - actual DROP account balances as of measurement dates included in TPL.

See Table IX, Item V., Table X, Item V. and Table XI, Item N. for benefit and assumption changes during the years.

\* Projected - actual amounts will be available after fiscal year end.

\*\* Reported payroll on which contributions to the Fund are based as provided under GASB No. 82.



Accounting Disclosure Exhibit

IV. Schedule of Employer Contributions (GASB No. 67 & No. 68)

<u>Fiscal Year Ended</u>	<u>Actuarially Determined Contribution</u>	<u>Actual Contribution</u>	<u>Contribution Deficiency (Excess)</u>	<u>Covered Payroll<sup>1,2</sup></u>	<u>Actual Contribution as a % of Covered Payroll</u>
2010	\$ 24,538,413	\$ 24,538,413	\$ 0	\$ 27,528,175	89.14%
2011	23,289,867	23,289,867	0	27,129,273	85.85%
2012	23,882,116	23,882,116	0	26,857,833	88.92%
2013	25,213,704	25,213,704	0	27,011,016	93.35%
2014	26,214,407	26,214,407	0	28,252,541	92.79%
2015	26,190,282	26,190,282	0	28,831,332	90.84%
2016	26,354,499	26,354,499	0	27,677,991	95.22%
2017	27,355,807	27,355,807	0	27,697,423	98.77%
2018	29,196,005	29,196,005	0	28,431,363	102.69%
2019	30,227,258	30,227,258	0	28,868,635	104.71%
2020 <sup>3</sup>	30,795,916	30,795,916	0	27,929,987	110.26%

<sup>1</sup> Projected prior to fiscal year ended September 30, 2014.

<sup>2</sup> Reported payroll on which contributions to the Fund are based as provided under GASB No. 82.

<sup>3</sup> Projected - actual amounts will be available after fiscal year end.

Accounting Disclosure Exhibit

V. Notes to Schedule of Contributions (GASB No. 67 & No. 68)

**Valuation Date:** Actuarially determined contributions are calculated as of October 1st - two year(s) prior the fiscal year end in which contributions are reported.

**Methods and Assumptions Used to Determine Contribution Rates for Fiscal Year Ending September 30, 2020:**

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage, Closed
Amortization Period	30 years
Asset Valuation Method	5-year smoothed market
Inflation	2.75%
Salary Increases	3% - 8%
Investment Rate of Return	7.80%
Payroll Growth Assumption	5.3%, per annum - not greater than historical 10-year average (0.3% as of October 1, 2018)
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition
Mortality	<p>For healthy participants during employment, RP 2000 Combined Healthy Participant Mortality Tables, separate rates for males and females, with 90% Blue Collar Adjustment / 10% White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB.</p> <p>For healthy participants post employment, RP 2000 Annuitant Mortality Tables, separate rates for males and females, with 90% Blue Collar Adjustment / 10% White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB.</p> <p>For disabled male participants, 60% RP 2000 Disabled Male Mortality Table setback four years / 40% RP 2000 Annuitant Male Mortality Table with White Collar Adjustment with no setback, without projected mortality improvements. For disabled female participants, 60% RP 2000 Disabled Female Mortality Table set forward two years / 40% RP 2000 Annuitant Female Mortality Table with White Collar Adjustment with no setback, without projected mortality improvements.</p>
Cost-of-Living Increases	<p>Firefighters: 0.0%, 1.5%, 2.0% or 3.0%</p> <p>Police: 0.0%, 1.5%, 2.0%, 2.5% or 3.0%</p>

Accounting Disclosure Exhibit

V. Notes to Schedule of Contributions (GASB No. 67 & No. 68) (continued)

**Other Information:**

Benefit Changes

2018 - New tier of benefits added for members hired on or after October 1, 2018 and DROP was extended to 8 years. 2015 - Employee contributions reduced to 7% for Firefighters hired on or after May 1, 2010. 2014 - Employee contributions reduced to 7% for Police Officers hired on or after May 1, 2010. 2013 - Additional benefits provided upon rehire. 2010 - Hours of accrued unused sick and vacation leave frozen as of May 1, 2010, normal retirement multiplier reduced to 3.5% per year of continuous service after April 30, 2010, fixed interest DROP crediting rate reduced or eliminated for certain members along with COLA reduction for certain members.

Assumption Changes

2018 - Investment return updated. 2017 - Investment return updated. 2016 - Assumed mortality rates and investment return updated. 2015 - Assumed mortality rates, investment return, employee withdrawal rates, salary increase rates and retirement rates updated. 2013 - Load added for assumed future rehired members. 2011 - Assumed withdrawal and salary increase rates updated. 2010 - Load on average monthly earnings to reflect additional earnings in pensionable pay reduced, retirement rates and COLA assumptions updated. 2009 - Assumed mortality rates updated, investment return updated to net of investment expenses only and actuarial cost method updated to Entry Age Normal method.

VI. Discount Rate (GASB No. 67 & No. 68)

Discount rates of 7.80% and 7.75% were used to measure the September 30, 2019 TPL and the September 30, 2020 TPL, respectively. These discount rates were based on the expected rate of return on Fund investments of 7.80% and 7.75%. The projection of cash flows used to determine these discount rates assumed member contributions will be made at the current contribution rate and employer contributions will be made at rates equal to the difference between actuarially determined current contribution rates and the member contribution rate. Based on these assumptions, the pension Fund's fiduciary net position was projected to be available to make all projected future expected benefit payments of current Fund members. Therefore, the long-term expected rate of return on Fund investments was applied to all periods of projected benefit payments to determine the TPL.

Accounting Disclosure Exhibit

VII. Sensitivity of the NPL to the Discount Rate Assumption (GASB No. 67 & No. 68)

Measurement date: September 30, 2019

	1% Decrease	Current Discount Rate	1% Increase
Discount Rate	6.80%	7.80%	8.80%
NPL	\$ 308,206,334	\$ 214,280,277	\$ 124,663,197

Measurement date: September 30, 2020 \*

	1% Decrease	Current Discount Rate	1% Increase
Discount Rate	6.75%	7.75%	8.75%
NPL	\$ 349,082,124	\$ 208,231,444	\$ 117,632,150

\* Projected - actual amounts will be available after fiscal year end

Accounting Disclosure Exhibit

VIII. Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions - Reporting Date (GASB No. 68)

Pension Expense for Fiscal Year Ending September 30, 2020 \$ 33,287,985

Summary of Outstanding Deferred Inflows and Outflows of Resources as of September 30, 2020

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Differences between actual and expected experience on liabilities	8,065,659	0
Changes of assumptions or other inputs	10,517,117	0
Net difference between projected and actual earnings on pension plan investments	<u>1,161,222</u>	<u>0</u>
Total	<u>\$ 19,743,998</u>	<u>\$ 0</u>

Projected Deferred Outflows for City Contributions to Be Recognized in the Pension Expense for Fiscal Year Ending September 30, 2021 \$ 28,309,957

Summary of Deferred Outflows and Inflows of Resources that will be Recognized in Pension Expense in Future Years.

<u>Year Ending 30-Sep</u>	<u>Amount</u>
2021	\$ 4,623,561
2022	3,925,040
2023	5,184,834
2024	6,010,563
2025	0
Thereafter	0

Accounting Disclosure Exhibit

The following information is not required to be disclosed but is provided for informational purposes.

IX. Components of Pension Expense (GASB No. 68)

Measurement Date	<u>9/30/2014</u>	<u>9/30/2015</u>	<u>9/30/2016</u>	<u>9/30/2017</u>	<u>9/30/2018</u>	<u>9/30/2019</u>	<u>Projected 9/30/2020 *</u>
Service Cost	\$ 10,631,405	\$ 10,619,978	\$ 9,537,905	\$ 9,212,121	\$ 9,288,146	\$ 9,460,539	\$ 9,170,806
Interest on Total Pension Liability	50,687,264	53,286,992	56,386,139	59,453,153	62,814,379	66,491,126	69,238,295
Current-Period Benefit Changes	0	765,470	22,338	0	0	0	390,575
Contributions - Member	(2,983,425)	(3,065,485)	(2,819,814)	(2,663,136)	(2,787,802)	(2,688,739)	(2,457,213)
Projected Earnings on Plan Investments	(35,050,752)	(38,778,057)	(39,349,485)	(42,517,616)	(46,984,463)	(51,608,231)	(53,090,574)
Administrative Expenses	544,463	597,262	627,306	738,354	627,989	749,211	705,185
Other Changes in Plan Fiduciary Net Position	17,372	(72,859)	(26,207)	(8,131)	(30,970)	0	0
Recognition of Beginning Deferred Outflows / (Inflows) due to Liabilities	(133,207)	(900,081)	1,125,279	2,818,936	5,315,734	8,311,232	8,047,948
Recognition of Beginning Deferred Outflows / (Inflows) due to Assets	<u>(1,817,560)</u>	<u>4,007,931</u>	<u>3,049,482</u>	<u>(804,900)</u>	<u>(4,392,597)</u>	<u>2,572,847</u>	<u>(3,252,646)</u>
Total Pension Expense	<u>\$ 21,895,560</u>	<u>\$ 26,461,151</u>	<u>\$ 28,552,943</u>	<u>\$ 26,228,781</u>	<u>\$ 23,850,416</u>	<u>\$ 33,287,985</u>	<u>\$ 28,752,376</u>

\* Projected - actual amounts will be available after measurement date

Accounting Disclosure Exhibit

The following information is not required to be disclosed but is provided for informational purposes.

X. Recognition of Deferred Outflows and (Inflows) due to Liabilities - Measurement Date (GASB No. 68)

Recognition of Deferred Outflows due to Differences Between Actual and Expected Experience on Liabilities

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2013 / 2014	\$ 0	5.1	0.0	\$ 0	\$ 0
2014 / 2015	0	5.0	0.0	0	0
2015 / 2016	399,811	4.4	0.4	90,866	36,347
2016 / 2017	1,830,547	4.5	1.5	406,788	610,183
2017 / 2018	4,956,652	4.3	2.3	1,152,710	2,651,232
2018 / 2019	6,212,714	4.3	3.3	1,444,817	4,767,897
TOTAL				\$ 3,095,181	\$ 8,065,659

Recognition of Deferred (Inflows) due to Differences Between Actual and Expected Experience on Liabilities

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2013 / 2014	\$ (679,355)	5.1	0.0	\$ (13,320)	\$ 0
2014 / 2015	(3,834,368)	5.0	0.0	(766,872)	0
2015 / 2016	0	4.4	0.4	0	0
2016 / 2017	0	4.5	1.5	0	0
2017 / 2018	0	4.3	2.3	0	0
2018 / 2019	0	4.3	3.3	0	0
TOTAL				\$ (780,192)	\$ 0

Recognition of Deferred Outflows due to Changes of Assumptions or Other Inputs on Liabilities

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2013 / 2014	\$ 0	5.1	0.0	\$ 0	\$ 0
2014 / 2015	0	5.0	0.0	0	0
2015 / 2016	8,511,772	4.4	0.4	1,934,494	773,796
2016 / 2017	5,790,909	4.5	1.5	1,286,869	1,930,302
2017 / 2018	5,779,580	4.3	2.3	1,344,088	3,091,404
2018 / 2019	6,152,407	4.3	3.3	1,430,792	4,721,615
TOTAL				\$ 5,996,243	\$ 10,517,117

Accounting Disclosure Exhibit

The following information is not required to be disclosed but is provided for informational purposes.

X. Recognition of Deferred Outflows and (Inflows) due to Liabilities - Measurement Date (GASB No. 68) (cont'd)

Recognition of Deferred (Inflows) due to Changes of Assumptions or Other Inputs

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2013 / 2014	\$ 0	5.1	0.0	\$ 0	\$ 0
2014 / 2015	0	5.0	0.0	0	0
2015 / 2016	0	4.4	0.4	0	0
2016 / 2017	0	4.5	1.5	0	0
2017 / 2018	0	4.3	2.3	0	0
2018 / 2019	0	4.3	3.3	0	0
TOTAL				\$ 0	\$ 0

XI. Recognition of Deferred Outflows and (Inflows) due to Assets - Measurement Date (GASB No. 68)

Recognition of Deferred Outflows / (Inflows) due to Difference Between Projected and Actual Earnings on Pension Plan Investments

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2014 / 2015	\$ 29,127,457	5	0	\$ 5,825,493	\$ 0
2015 / 2016	(4,792,245)	5	1	(958,449)	(958,449)
2016 / 2017	(19,271,908)	5	2	(3,854,382)	(7,708,762)
2017 / 2018	(17,938,475)	5	3	(3,587,695)	(10,763,085)
2018 / 2019	25,739,398	5	4	5,147,880	20,591,518
TOTAL				\$ 2,572,847	\$ 1,161,222

Outline of Principal Provisions of the Retirement Plan

A. Effective Date:

October 1, 1973, revised and restated as of February 19, 1981. Most recently amended - Ordinance Number 1916.

B. Eligibility Requirements:

1. Participants in previous Retirement Plan as of February 19, 1981 are automatically and immediately included.
2. Mandatory participation (with satisfactory physical) for Police Officers and Firefighters upon date of hire or attainment of age 18, if later. The Fire Chief and Police Chief may elect to participate.

C. Continuous Service:

For Police and Firefighter Members hired before October 1, 2018, years and completed months of uninterrupted service from date of hire to date of retirement or termination.

For Police and Firefighter Members hired on or after October 1, 2018, completed years of uninterrupted service from date of hire to date of retirement or termination.

D. Earnings:

Base wages, regular longevity, overtime up to 300 hours per year, voluntary deductions and IRC 457 deferred compensation. For Police and Firefighter Members hired before October 1, 2018, earnings shall include payment of up to 1,000 hours of accrued unused sick and vacation leave, but limited to amounts accrued as of May 1, 2010. Maximum annual earnings limited to \$275,000 subject to annual increase.

E. Average Monthly Earnings (AME):

For Police and Firefighter Members hired before October 1, 2018, average monthly earnings during the highest two years of continuous service preceding the date on which the participant retires or terminates.

For Police and Firefighter Members hired on or after October 1, 2018, average monthly earnings during the highest five years out of the last ten years of service.

Outline of Principal Provisions of the Retirement Plan

F. Regular Wages:

Base pay including any incentive pay, regular longevity, assignment pay and any current or future additional pensionable compensation, but excluding overtime or accrued unused leave. Regular wages shall be used to calculate the maximum retirement benefit for Firefighters hired on or after April 1, 2006.

G. Average Monthly Regular Wages:

Average monthly regular wages coinciding with the highest years of continuous service for Firefighters preceding the date on which the participant retires or terminates, used in the AME.

H. Normal Retirement:

1. Eligibility:

Earliest of:

- (a) Attainment of age 50 and completion of 10 years of continuous service.
- (b) Completion of 20 years of continuous service.

2. Benefit:

- (a) For Firefighters, 3.0% times AME times years of Continuous Service - maximum 80% of AME.

Firefighters hired on or before June 18, 2003 shall receive a benefit amount equal to 4.0% per year of continuous service prior to May 1, 2010 plus 3.5% per year of continuous service after April 30, 2010 times AME - maximum 80% of AME, provided they retire or enter the DROP anytime on or after attaining age 50 with 10 years of continuous service but no later than the date they accrue the maximum 80% benefit.

Firefighters hired after June 18, 2003 but before May 1, 2010 shall receive a benefit amount equal to 4.0% per year of continuous service prior to May 1, 2010 plus 3.5% per year of continuous service after April 30, 2010 times AME - maximum 80% of AME. To obtain this benefit, such Firefighters were previously required to retire or enter the DROP upon the earlier of completion of 20 years of continuous service or attainment of age 50 with 10 years of service. To obtain this benefit, such Firefighters now are required to retire or enter the DROP no earlier than upon completion of 20 years of continuous service or attainment of age 50 with 10 years of service, and no later than the date they accrue the same accrual percentage they would have reached under the terms of the Fund in effect prior to April 30, 2010.

In no event shall the benefit for firefighters hired after March 31, 2006 exceed 98% of average monthly regular wages.

Firefighters hired after April 30, 2010 shall receive a benefit amount equal to 3.0% times AME times years of continuous service – maximum 80% of AME.

Outline of Principal Provisions of the Retirement Plan

H. Normal Retirement (cont'd):

- (b) For Police Officers, 3.0% times AME times years of Continuous Service up to 20 years of service plus 3.5% times AME times years of Continuous Service in excess of 20 years - maximum 80% of AME.

Police Officers hired before May 1, 2010 shall receive a benefit amount equal to 4.0% per year of continuous service prior to May 1, 2010 plus 3.5% per year of continuous service after April 30, 2010 times AME - maximum 80% of AME, provided they retire or enter the DROP anytime on or after attaining age 50 with 10 years of continuous service but no later than the date they accrue the maximum 80% benefit.

Police Officers hired after April 30, 2010 shall receive a benefit amount equal to 3.0% times AME times years of continuous service – maximum 80% of AME.

I. Deferred Retirement:

1. Eligibility:

Any first day of a month past Normal Retirement Date.

2. Benefit:

Benefit calculated as for Normal Retirement based upon service and pay to Deferred Retirement Date.

J. Disability Retirement:

1. Eligibility:

Totally and permanently disabled meaning incapacity to perform regular duty as Firefighter or Police Officer (and completion of at least 10 years of continuous service for non-service incurred disability).

Effective July 1, 2019, a Firefighter who becomes totally and permanently unable to perform useful and efficient service as a Firefighter due to a diagnosis of cancer or circumstances that arise out of the treatment of such cancer will be presumed to be disabled in-line of duty subject to the limitations in Chapter 112.1816, Florida Statutes.

2. Benefit:

(a) Service Incurred:

Greater of:

- Accrued benefit
- 66 2/3% of monthly earnings rate on date of disability.

(b) Non-Service Incurred:

Greater of:

- Accrued benefit
- 35% of AME on date of disability.

Outline of Principal Provisions of the Retirement Plan

K. Death Benefit:

1. Service Incurred:

To spouse, 50% of AME payable for life. To unmarried children, 5% of AME until death or attainment of age 18 (if full time student attainment of age 22). Total monthly benefit not to exceed 60% of AME. Upon death of spouse, the 5% child allowance shall be increased to 10%, subject to a maximum combined total of 35% of AME.

Benefit above reduced by the actuarial equivalent of payment of:

- if the Member had less than ten (10) years of Continuous Service, Member contributions to the beneficiary with 3% simple interest, or
- if the Member had ten (10) or more years of Continuous Service, benefit otherwise payable to the Member at the Member's Normal Retirement Date, if applicable, for ten years certain.

2. Non-Service Incurred:

- Less than five (5) years of Continuous Service, the designated beneficiary receives a lump sum of \$2,500 or return of Member contributions with 3% interest, whichever is greater.
- Five (5) or more years of Continuous Service, the designated beneficiary receives a lump sum of the greater of Member contributions (without interest) or \$2,500, plus, if married, the spouse receives a monthly benefit equal to 50% of the Accrued Benefit as of Member's date of death but not less than 20% of the monthly Earnings rate. To unmarried children of the deceased Member, same benefits as are payable for Service Incurred death. Combined monthly benefit not to exceed 50% of AME, or 35% of AME after the death or remarriage of spouse.

Benefit above reduced by the actuarial equivalent of payment of:

- if the Member had ten (10) or more years of Continuous Service, benefit otherwise payable to the Member at the Member's Normal Retirement Date, if applicable, for ten years certain.

L. Employee Contributions:

10.4% (6% prior to April 1, 1991) of annual earnings until completion of 26 2/3 years of Continuous Service.

For Firefighters and Police Officers hired on or after May 1, 2010 but before October 1, 2018, 7% of annual earnings until completion of 26 2/3 years of Continuous Service.

For Firefighters and Police Officers hired on or after October 1, 2018, 3% of annual earnings until completion of 26 2/3 years of Continuous Service.

Outline of Principal Provisions of the Retirement Plan

M. Vested Benefit Upon Termination:

1. Eligibility:

Completion of at least ten (10) years of Continuous Service at date of termination.

2. Benefit:

Accrued benefit based upon AME and years of Continuous Service as of date of termination payable at attainment of age 50.

3. Alternate Benefit:

In lieu of the above, deferred benefit payable at Normal Retirement Date; otherwise, a Member can elect to withdraw his employee contributions plus 3% simple interest per annum.

N. Termination Benefit:

1. Eligibility:

Termination of service prior to eligibility for vested benefit upon termination.

2. Benefit:

Refund of Member contributions plus 3% simple interest per annum.

O. Normal Form of Payment of Retirement Income:

For Firefighters and Police Officers hired before October 1, 2018, monthly accrued benefit payable for ten (10) years certain and life thereafter with 100% of benefit continuing to spouse for one year and 50% of benefit payable to spouse thereafter until death.

For Firefighters and Police Officers hired on or after October 1, 2018, monthly accrued benefit payable for ten (10) years certain and life thereafter.

Other Options:

Actuarially equivalent joint and survivor or joint and last survivor at 25%, 50%, 66 2/3%, 75%, 100%; life annuity; or ten years certain and life; or other option (except lump sum), subject to Board approval.

Outline of Principal Provisions of the Retirement Plan

P. Deferred Retirement Option Plan (DROP):

1. Eligibility:

A Member who has reached Normal Retirement Date is eligible to elect to participate in DROP. A Firefighter who reaches Normal Retirement Date before age 50 may participate for the lesser of eight years or until age 58, provided that Firefighters employed as of December 20, 2000 and hired after their 30th birthday, may participate in the DROP no later than completion of 20 years of Continuous Service in order to participate in the DROP for a full eight years. A Police Officer hired after his 25th birthday may participate in the DROP no later than completion of 25 years of Continuous Service in order to participate in the DROP for a full eight years. An election to participate in the DROP is irrevocable.

2. Benefit:

Accrued benefit as of entry into DROP.

3. Interest Credits:

Members entering the DROP prior to May 1, 2010, may elect annually in advance interest credits of (1) fixed 8% per annum or (2) net Fund return.

Members hired before May 1, 2010 entering the DROP after April 30, 2010:

- Credits for the first five years of DROP participation (*Bucket 1*) - may elect annually in advance DROP interest credits based upon either (1) gross Fund return or (2) gross Fund return subject to a minimum of 5% and a maximum of 8% per annum.
- If DROP participation exceeds five years, members may continue to elect annually in advance DROP interest credits based upon either (1) gross Fund return or (2) gross Fund return subject to a minimum of 5% and a maximum of 8% per annum for Bucket 1 until the tenth anniversary of separation of service from the City, after which DROP interest credits for Bucket 1 will be based on net Fund return.
- Credits for years six through eight of DROP participation (*Bucket 2*) - gross Fund return until the tenth anniversary of separation of service from the City, after which DROP interest credits for Bucket 2 will be based on net Fund return.

For Members hired after April 30, 2010, DROP interest credits will be based upon gross Fund return. If DROP participation exceeds five years, DROP interest credits will be based upon net Fund return after the tenth anniversary of separation of service from the City.

4. DROP Loan Program:

Current DROP participants or retirees may borrow against their DROP account balance up to the maximum amount permitted by the IRS.

No interest shall be earned or paid by the Plan on funds loaned from the DROP account until repaid.

The DROP loan program administered in accordance with loan policy adopted by the Board of Trustees and shall comply with all applicable IRS rules and regulations governing such loans.

Outline of Principal Provisions of the Retirement Plan

Q. 13th Check Program (Police Officers only)

1. Eligibility:

Service or disabled retired Police Officer or beneficiary receiving pension or DROP benefits.

2. Benefit:

For Police Officers retired prior to October 1, 2003, up to 2% of investment return in excess of 8% based upon present value of future pension payments of current Police Officer members, not to exceed outstanding balance of cumulative net actuarial gains. Any distributable amount allocated to eligible members based upon years of service with prorata share during first year of entitlement. See Item R. regarding election.

For Police Officers retired on or after October 1, 2003 but before October 1, 2006, up to 2% of investment return in excess of 9% based upon present value of future pension payments of current Police Officer members, not to exceed outstanding balance of cumulative net actuarial gains. Any distributable amount allocated to eligible members based upon years of service with prorata share during first year of entitlement. See Item R. regarding election.

For Police Officers retired on or after October 1, 2006 there is no 13th check.

R. Cost of Living Adjustment

For Firefighters, effective April 1, 2005 and each April 1st thereafter, retirees, beneficiaries and DROP participants who were receiving benefits on June 18, 2003 will receive either a 2% cost of living adjustment or an adjustment equal to the total percentage increase in base wages, excluding performance or merit adjustments, whichever is greater.

For Firefighters, effective April 1, 2005 and each April 1st thereafter, retirees, beneficiaries and DROP participants who were hired on or before June 18, 2003 and retire or enter the DROP prior to May 1, 2010 and anytime on or after attaining age 50 with 10 years of service but no later than attainment of 20 years of service will receive either a 2% cost of living adjustment or an adjustment equal to the total percentage increase in base wages, excluding performance or merit adjustments, whichever is greater. For those receiving for less than one year the increase shall be prorated.

Outline of Principal Provisions of the Retirement Plan

R. Cost of Living Adjustment (cont'd)

Firefighter members who were hired prior to April 1, 2006 who retire prior to May 1, 2010, current retirees and DROP participants shall have the option within sixty (60) days of the effective date of Ordinance 2006-10 to irrevocably elect to receive the cost of living adjustment provided above in lieu of their current cost of living adjustment.

For Firefighters, effective April 1, 2011 and each April 1st thereafter, retirees, beneficiaries and DROP participants who were hired before May 1, 2010 and retire or enter the DROP after April 30, 2010 at their normal retirement age receive a 2% cost of living adjustment – prorated for less than one year receipt of benefits.

For Firefighters hired after April 30, 2010 but before October 1, 2018, the cost of living adjustment is 1.5%.

For Firefighters hired on or after October 1, 2018, there is no cost of living adjustment.

Police Officer retirees, DROPs, disabilities and their beneficiaries who retired prior to October 1, 2003 eligible for any supplemental benefit based upon an 8% Fund return threshold subject to cumulative actuarial gains may elect within 60 days to replace this supplemental benefit eligibility entitlement with an annual 2.0% cost of living adjustment retroactive to October 1, 2004.

Police Officer retirees, DROPs, disabilities and their beneficiaries who retired on or after October 1, 2003 but not later than September 30, 2006 or were in the DROP on or after October 1, 2003 and entered the DROP not later than September 30, 2006 eligible for any supplemental benefit based upon a 9% Fund return threshold subject to cumulative actuarial gains along with a 1.5% cost of living adjustment effective October 1, 2009 and each October 1st thereafter may elect within 60 days to replace this supplemental benefit eligibility and 1.5% deferred cost of living adjustment entitlement with an annual 2.5% cost of living adjustment retroactive to October 1, 2004.

Police Officer retirees, DROPs, disabilities and their beneficiaries who retire or enter the DROP on or after October 1, 2006 but not later than April 30, 2010 will receive a 3.0% cost of living adjustment effective October 1, 2009 and each October 1st thereafter.

For Police Officers, effective October 1, 2010 and each October 1st thereafter, retirees, beneficiaries and DROP participants who were hired before May 1, 2010 and retire or enter the DROP after April 30, 2010 at their normal retirement age receive a 2% cost of living adjustment – prorated for less than one year receipt of benefits.

For Police Officers hired after April 30, 2010 but before October 1, 2018, the cost of living adjustment is 1.5%.

For Police Officers hired on or after October 1, 2018, there is no cost of living adjustment.

Outline of Principal Provisions of the Retirement Plan

S. Excess Benefit Plan

An excess benefits plan is established to pay retirement benefits above the limits permitted by the Internal Revenue Code. Excess Benefit Plan benefits are not included in this actuarial valuation.

T. Share Plan

A Share Plan has been adopted. The Share Plan is currently unfunded.

U. Additional Benefits Upon Rehire

Retired members receiving benefits who are rehired as certified police officers or firefighters who work 30 or more hours per week and 52 weeks per year will again become contributing members of the Fund and accrue benefits during their period of reemployment.

Rehired members shall continue to receive retirement benefit, earnings on DROP accounts and may elect to receive payments from DROP accounts.

V. Changes Since Previous Valuation

1. Disability Retirement Eligibility was:

Totally and permanently disabled meaning incapacity to perform regular duty as Firefighter or Police Officer (and completion of at least 10 years of continuous service for non-service incurred disability).

**Actuarial Assumptions and Actuarial Cost Methods  
Used in the Valuation**

A. Mortality

For healthy participants during employment, PUB-2010 Headcount Weighted Safety Employee Female Mortality Table and Safety Below Median Employee Male Mortality Table, both set forward 1 year, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018.

For healthy participants post employment, PUB-2010 Headcount Weighted Safety Healthy Retiree Female Mortality Table and Safety Below Median Healthy Retiree Male Mortality Table, both set forward 1 year, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018.

For disabled participants, 80% PUB-2010 Headcount Weighted General Disabled Retiree Mortality Table / 20% PUB-2010 Headcount Weighted Safety Disabled Retiree Mortality Table, separate rates for males and females, without projected mortality improvements.

Sample Ages (2019)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Men	Women	Men	Women
	55	30.37	34.25	27.50
60	25.43	29.19	22.93	26.31
62	23.51	27.18	21.21	24.48

Sample Ages (2039)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Men	Women	Men	Women
	55	32.00	35.73	29.39
60	27.00	30.63	24.70	28.04
62	25.04	28.60	22.92	26.16

B. Investment Return

7.75%, compounded annually, net of investment expenses - includes inflation at 2.75%.

C. Allowances for Expenses or Contingencies

Average of actual administrative expenses during prior three (3) years.

Actuarial Assumptions and Actuarial Cost Methods  
Used in the Valuation

D. Employee Withdrawal Rates

Withdrawal rates for males and for females were used in accordance with the following illustrative example:

Age	Withdrawal Rates Per 100 Employees			
	Males		Females	
	<u>First 5 Years</u>	<u>5+ Years</u>	<u>First 5 Years</u>	<u>5+ Years</u>
20	2.50	2.19	5.75	3.93
25	2.50	1.59	5.75	2.58
30	2.50	1.16	5.75	1.79
35	2.50	0.68	5.75	1.08
40	2.50	0.38	5.75	0.76
45	2.50	0.18	5.75	0.41
50	2.50	0.03	5.75	0.23
55	2.50	0.02	5.75	0.14
60	2.50	0.00	5.75	0.04
62 & Over	0.00	0.00	0.00	0.00

E. Disability Rates

1. The 1985 Disability Study - Class 2, with separate rate for males and females.
2. 90% of Firefighter disabilities are assumed to be service incurred - 10% non-service incurred.
3. 80% of Police Officer disabilities are assumed to be service incurred - 20% non-service incurred.

F. Payroll Growth Assumption

5.3%, per annum - not greater than historical 10-year average (0.1% as of October 1, 2019).

G. Load for Future Rehires

The normal cost and accrued liabilities are loaded 0.1% for assumed future rehired members.

Actuarial Assumptions and Actuarial Cost Methods  
Used in the Valuation

H. Salary Increase Factors

Current salary is assumed to increase at a rate based on the table below per year until retirement - includes wage inflation of 3.0%.

<u>Service</u>	<u>Salary Increase</u>
0 years	8%
1	8%
2	7%
3	6%
4	5%
5	4%
6	4%
7 + years	3%

For members hired before May 1, 2010, average monthly earnings for retirements and DROPs are increased between 5.5% and 28.0% to reflect additional earnings during the averaging period including the inclusion in pensionable earnings of up to 1,000 hours of accrued unused leave as of April 30, 2010 payable at retirement or DROP entry.

The increase is calculated as follows:

$$5.5\% + \frac{\text{Total Hours of Accrued Unused Leave (1,000 maximum)}}{1,000} \times 22.5\%$$

For members hired on or after May 1, 2010, average monthly earnings for retirements and DROPs are increased 5.5% to reflect additional earnings during the averaging period.

The assumed salary increase rate after 7+ years of service reflects frozen longevity pay as of April 30, 2010.

I. Assumed Retirement Age

The retirement rates **for members hired before May 1, 2010 who are expected to reach the 80% of AME maximum benefit in the 21st year of service** are as follows:

1. 75% of members are assumed to retire the first year after attaining age fifty (50) and ten (10) years of credited service.
2. 50% of members are assumed to retire each year thereafter until reaching twenty (20) years of credited service.
3. 60% of members are assumed to retire after completing twenty (20) years of credited service.
4. 100% of members are assumed to retire upon attainment of twenty-one (21) years of credited service.

Actuarial Assumptions and Actuarial Cost Methods  
Used in the Valuation

I. Assumed Retirement Age (cont'd)

The retirement rates **for members hired before May 1, 2010 who are expected to reach the 80% of AME maximum benefit in the 22nd year of service** are as follows:

1. 70% of members are assumed to retire the first year after attaining age fifty (50) and ten (10) years of credited service.
2. 20% of members are assumed to retire each year thereafter until reaching twenty (20) years of credited service.
3. 60% of members are assumed to retire after completing twenty (20) years of credited service.
4. 15% of members are assumed to retire after completing twenty-one (21) years of credited service.
5. 100% of members are assumed to retire upon attainment of twenty-two (22) years of credited service.

The retirement rates **for members hired before May 1, 2010 who are expected to reach the 80% of AME maximum benefit in the 23rd year of service** are as follows:

1. 60% of members are assumed to retire the first year after attaining age fifty (50) and ten (10) years of credited service.
2. 18% of members are assumed to retire each year thereafter until reaching twenty (20) years of credited service.
3. 40% of members are assumed to retire after completing twenty (20) years of credited service.
4. 15% of members are assumed to retire after completing twenty-one (21) years of credited service.
5. 15% of members are assumed to retire after completing twenty-two (22) years of credited service.
6. 100% of members are assumed to retire upon attainment of twenty-three (23) years of credited service.

**For Firefighters hired after June 18, 2003 but before May 1, 2010 who are expected to reach age 50 before completion of twenty (20) years of service**, 100% are assumed to retire upon reaching the same multiplier (% of AME) they would have reached under the Plan in effect prior to April 30, 2010.

The retirement rates **for members hired on or after May 1, 2010** are as follows:

1. 50% of members who complete ten (10) years of service after reaching age 50 are assumed to retire upon completion of ten (10) years of credited service.
2. 15% of members who reach age 50 after completion of ten (10) years of credited service are assumed to retire upon reaching age 50.
3. 15% of members are assumed to retire each year thereafter, until reaching twenty (20) years of credited service.
4. 20% of members are assumed to retire upon reaching twenty (20) years of credited service.
5. 15% of members are assumed to retire each year thereafter, until reaching twenty-five (25) years of credited service.
6. 100% of members are assumed to retire upon reaching twenty-five (25) years of credited service.

Actuarial Assumptions and Actuarial Cost Methods  
Used in the Valuation

J. Marital Assumptions

1. 50% of deaths are assumed to be service incurred - 50% non-service incurred.
2. There are no children eligible for benefits.
3. 100% of participants are married.
4. Spouses are assumed to be the same age as members.

K. Cost of Living Adjustment

Firefighters: For Firefighters who retired or entered the DROP prior to May 1, 2010, 2.0% for those who elected the fluctuating COLA and 3.0% for those who elected the fixed COLA. 2.0% for Firefighters hired before May 1, 2010 who are expected to retire or enter the DROP after April 30, 2010. 1.5% for Firefighters hired after April 30, 2010 but before October 1, 2018.

Police Officers: 0.0%, 2.0% or 2.5% based upon election for Police Officers who retired or entered the DROP prior to October 1, 2006. 3.0% for Police Officers who retired or entered the DROP on or after October 1, 2006 but before May 1, 2010. 2.0% for Police Officers hired before May 1, 2010 who are expected to retire or enter the DROP after April 30, 2010. 1.5% for Police Officers hired after April 30, 2010 but before October 1, 2018.

L. Smoothed Asset Valuation Method

Smoothed actuarial value of assets is equal to the expected smoothed actuarial value of assets adjusted by 20% of the difference between the expected smoothed actuarial value and market value.

M. Cost Methods

Normal Retirement, Termination, Disability, and Death Benefits: Entry Age Normal Cost Method

Under this method the normal cost for each active employee is the amount which is calculated to be a level percentage of pay that would be required annually from his entry age to his assumed retirement age to fund his estimated benefits, assuming the Fund had always been in effect. The normal cost for the Fund is the sum of such amounts for all employees. The actuarial accrued liability as of any valuation date for each active employee or inactive employee who is eligible to receive benefits under the Fund is the excess of the actuarial present value of estimated future benefits over the actuarial present value of current and future normal costs. The unfunded actuarial accrued liability as of any valuation date is the excess of the actuarial accrued liability over the assets of the Fund.

Vested Normal Retirement, Termination, Disability, and Death Benefits: Unit Credit Cost Method

Under this method, the actuarial present value of vested accrued benefits is an amount calculated to be the sum of the present values of each individual's vested accrued or earned benefit under the Fund as of the valuation date. Each individual's calculation is based on pay and service as of the valuation date.

The DROP accounts balance is included in the assets and liabilities as of the valuation date.

Actuarial Assumptions and Actuarial Cost Methods  
Used in the Valuation

N. Changes Since Previous Valuation

1. Investment Return was:

7.80%, compounded annually, net of investment expenses.

2. Mortality was:

For healthy participants during employment, RP 2000 Combined Healthy Participant Mortality Tables, separate rates for males and females, with 90% Blue Collar Adjustment / 10% White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB.

For healthy participants post employment, RP 2000 Annuitant Mortality Tables, separate rates for males and females, with 90% Blue Collar Adjustment / 10% White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB.

For disabled male participants, 60% RP 2000 Disabled Male Mortality Table setback four years / 40% RP 2000 Annuitant Male Mortality Table with White Collar Adjustment with no setback, without projected mortality improvements. For disabled female participants, 60% RP 2000 Disabled Female Mortality Table set forward two years / 40% RP 2000 Annuitant Female Mortality Table with White Collar Adjustment with no setback, without projected mortality improvements.

3. Disability Rates were:

80% of disabilities were assumed to be service incurred - 20% non-service incurred for both Firefighters and Police Officers.

4. Marital Assumption was:

95% of participants are married.

Distribution by Attained Age Groups  
and Service Groups as of October 1, 2019

**Active Firefighters**

<u>Attained</u> <u>Age Group</u>	-----COMPLETED YEARS OF SERVICE-----							<u>Total</u>	
	<u>0 - 4</u>	<u>5 - 9</u>	<u>10 - 14</u>	<u>15 - 19</u>	<u>20 - 24</u>	<u>25 - 29</u>	<u>30 &amp; Over</u>		
Under 25	8	-	-	-	-	-	-	8	
25 - 29	19	4	-	-	-	-	-	23	
30 - 34	14	7	3	-	-	-	-	24	
35 - 39	3	1	19	14	-	-	-	37	
40 - 44	2	-	16	20	-	-	-	38	
45 - 49	1	2	6	19	-	-	-	28	
50 - 54	-	-	1	-	-	-	-	1	
55 - 59	-	-	-	1	-	-	-	1	
60 - 64	-	-	-	-	-	-	-	0	
65 & Over	-	-	-	-	-	-	-	0	
<b>TOTAL</b>	<b>47</b>	<b>14</b>	<b>45</b>	<b>54</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>160</b>	
				<u>10/01/2018</u>					<u>10/01/2019</u>
Average Attained Age				38.59 years					37.61 years
Average Hire Age				26.92 years					26.49 years
Average Pay				\$ 83,745					\$ 81,149
Percent Female				2.5%					2.5%



Distribution by Attained Age Groups  
and Service Groups as of October 1, 2019

Active Police Officers

<u>Attained Age Group</u>	-----COMPLETED YEARS OF SERVICE-----							<u>Total</u>
	<u>0 - 4</u>	<u>5 - 9</u>	<u>10 - 14</u>	<u>15 - 19</u>	<u>20 - 24</u>	<u>25 - 29</u>	<u>30 &amp; Over</u>	
Under 25	9	-	-	-	-	-	-	9
25 - 29	32	4	-	-	-	-	-	36
30 - 34	15	21	2	-	-	-	-	38
35 - 39	5	4	10	6	-	-	-	25
40 - 44	4	5	13	20	-	-	-	42
45 - 49	-	-	6	15	3	-	-	24
50 - 54	-	-	1	4	-	-	-	5
55 - 59	1	1	-	-	-	-	-	2
60 - 64	1	-	-	-	-	-	-	1
65 & Over	-	-	-	-	-	-	-	0
<b>TOTAL</b>	<b>67</b>	<b>35</b>	<b>32</b>	<b>45</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>182</b>
				<u>10/01/2018</u>		<u>10/01/2019</u>		
	Average Attained Age			37.94 years		36.89 years		
	Average Hire Age			28.24 years		28.10 years		
	Average Pay			\$ 79,705		\$ 82,121		
	Percent Female			15.8%		15.9%		

Distribution by Attained Age Groups  
and Service Groups as of October 1, 2019

All Active Members

<u>Attained Age Group</u>	-----COMPLETED YEARS OF SERVICE-----							<u>Total</u>
	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30 &amp; Over</u>	
Under 25	17	-	-	-	-	-	-	17
25 - 29	51	8	-	-	-	-	-	59
30 - 34	29	28	5	-	-	-	-	62
35 - 39	8	5	29	20	-	-	-	62
40 - 44	6	5	29	40	-	-	-	80
45 - 49	1	2	12	34	3	-	-	52
50 - 54	-	-	2	4	-	-	-	6
55 - 59	1	1	-	1	-	-	-	3
60 - 64	1	-	-	-	-	-	-	1
65 & Over	-	-	-	-	-	-	-	0
<b>TOTAL</b>	<b>114</b>	<b>49</b>	<b>77</b>	<b>99</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>342</b>

Average Attained Age	<u>10/01/2018</u> 38.25 years	<u>10/01/2019</u> 37.23 years
Average Hire Age	27.62 years	27.35 years
Average Pay	\$ 81,611	\$ 81,667
Percent Female	9.6%	9.6%

**Statistics for Participants Entitled to Deferred Benefits  
and Participants Receiving Benefits**

A. Entitled to Deferred Benefits

<b><u>Current Age Group</u></b>	<b><u>Count</u></b>	<b><u>Total Annual Benefit</u></b>	<b><u>Average Annual Benefit</u></b>
Less than 40	1	\$ 26,701	\$ 26,701
40 - 44	3	87,736	29,245
45 - 49	2	86,877	43,439
50 - 54	-	-	-
55 - 59	-	-	-
60 - 64	-	-	-
65 & Over	-	-	-
<b>TOTAL</b>	<b>6</b>	<b>\$ 201,314</b>	<b>\$ 33,552</b>

B. Receiving Benefits (including DROPs)

<b><u>Current Age Group</u></b>	<b><u>Count</u></b>	<b><u>Total Annual Benefit</u></b>	<b><u>Average Annual Benefit</u></b>
Less than 50	77	\$ 7,457,448	\$ 96,850
50 - 54	99	10,041,115	101,425
55 - 59	116	11,394,553	98,229
60 - 64	59	5,889,702	99,825
65 - 69	30	2,478,166	82,606
70 - 74	15	811,559	54,104
75 - 79	10	393,478	39,348
80 - 84	4	116,402	29,101
85 & Over	3	50,763	16,921
<b>TOTAL</b>	<b>413</b>	<b>\$ 38,633,186</b>	<b>\$ 93,543</b>

Reconciliation of Employee Data - Firefighters

<u>A. Active Participants</u>	
1. Active participants previous year	158
2. Retired during year	0
3. Entered DROP	(12)
4. Died during year	0
5. Disabled during year	0
6. Terminated during year	(4)
7. New active participants	18
8. Transferred from General Plan	0
9. Reinstated during year	0
10. Active participants current year	<u>160</u>
<u>B. Participants Receiving Benefits</u>	
1. Participants receiving benefits previous year	145
2. New retired participants	0
3. New terminated vested receiving benefits	0
4. New disabled receiving benefits	0
5. New beneficiaries receiving benefits	0
6. Former DROPs now receiving benefits	5
7. Died or ceased payment during year	(2)
8. Retired or terminated vested receiving benefits current year	<u>148</u>
<u>C. DROP Participants</u>	
1. DROP participants previous year	40
2. Died during year	0
3. Became disabled during year	0
4. Employment terminated and retired during year	(5)
5. Entered DROP during year	12
6. DROP participants current year	<u>47</u>
<u>D. Terminated Vested Participants Entitled to Future Benefits</u>	
1. Terminated vested entitled previous year	2
2. Died during year	0
3. Commenced receiving benefits during year	0
4. New terminated vested	0
5. Terminated vested paid lump sum	0
6. Terminated vested entitled current year	<u>2</u>

Reconciliation of Employee Data - Police Officers

A. <u>Active Participants</u>	
1. Active participants previous year	177
2. Retired during year	(1)
3. Entered DROP	(13)
4. Died during year	0
5. Disabled during year	0
6. Terminated during year	(4)
7. New active participants	23
8. Transferred from General Plan	0
9. Reinstated during year	0
10. Active participants current year	<u>182</u>
B. <u>Participants Receiving Benefits</u>	
1. Participants receiving benefits previous year	165
2. New retired participants	1
3. New terminated vested receiving benefits	0
4. New disabled receiving benefits	0
5. New beneficiaries receiving benefits	1
6. Former DROPs now receiving benefits	3
7. Died or ceased payment during year	(1)
8. Retired or terminated vested receiving benefits current year	<u>169</u>
C. <u>DROP Participants</u>	
1. DROP participants previous year	39
2. Died during year	0
3. Became disabled during year	0
4. Employment terminated and retired during year	(3)
5. Entered DROP during year	13
6. DROP participants current year	<u>49</u>
D. <u>Terminated Vested Participants Entitled to Future Benefits</u>	
1. Terminated vested entitled previous year	3
2. Died during year	0
3. Commenced receiving benefits during year	0
4. New terminated vested	1
5. Terminated vested paid lump sum	0
6. Terminated vested entitled current year	<u>4</u>

Reconciliation of Employee Data - All Members

A. <u>Active Participants</u>	
1. Active participants previous year	335
2. Retired during year	(1)
3. Entered DROP	(25)
4. Died during year	0
5. Disabled during year	0
6. Terminated during year	(8)
7. New active participants	41
8. Transferred from General Plan	0
9. Reinstated during year	0
10. Active participants current year	<u>342</u>
B. <u>Participants Receiving Benefits</u>	
1. Participants receiving benefits previous year	310
2. New retired participants	1
3. New terminated vested receiving benefits	0
4. New disabled receiving benefits	0
5. New beneficiaries receiving benefits	1
6. Former DROPs now receiving benefits	8
7. Died or ceased payment during year	(3)
8. Retired or terminated vested receiving benefits current year	<u>317</u>
C. <u>DROP Participants</u>	
1. DROP participants previous year	79
2. Died during year	0
3. Became disabled during year	0
4. Employment terminated and retired during year	(8)
5. Entered DROP during year	25
6. DROP participants current year	<u>96</u>
D. <u>Terminated Vested Participants Entitled to Future Benefits</u>	
1. Terminated vested entitled previous year	5
2. Died during year	0
3. Commenced receiving benefits during year	0
4. New terminated vested	1
5. Terminated vested paid lump sum	0
6. Terminated vested entitled current year	<u>6</u>

Projected Retirement Benefits

<u>Fiscal Year</u>	<u>Projected Total Annual Payout</u>
2020	\$ 38,983,651
2021	\$ 41,677,281
2022	\$ 44,260,772
2023	\$ 46,990,976
2024	\$ 49,559,505
2025	\$ 51,728,763
2026	\$ 53,978,081
2027	\$ 56,181,931
2028	\$ 58,384,075
2029	\$ 60,100,634

The above projected payout of Plan benefits during the next ten years is based on assumptions involving all decrements. Actual payouts may differ from the above estimates depending upon the death, salary and retirement experience of the Plan. However, since the projected payment is recomputed each valuation date, there is an automatic correction to the extent that actual experience varies from expected experience.

Analysis of Investment Yield as of October 1, 2019

This Table sets forth the results of an analysis made of investment yields on the assets held under the Pension Plan for Firefighters and Police Officers of the City of Pembroke Pines.

The basic sources for this analysis were the Statements produced by the Plan Auditors.

The basic data was initially checked for internal consistency. Since no difficulties were encountered with the data, yield rates were calculated directly from the transaction information submitted. A summary of the transaction information is set forth on the following page.

Summary of Transaction Information

Year Ending	Benefits Paid <sup>1</sup>	Administrative Expenses	Employee Contributions	City Contributions	State Contributions	Smoothed Actuarial Value <sup>2,3</sup>
09/30/2019	\$ 34,185,981	\$ 749,211	\$ 2,688,739	\$ 27,248,665	\$ 2,978,593	\$ 690,731,320
09/30/2018	32,981,866	627,989	2,787,802	26,710,046	2,485,959	643,679,302
09/30/2017	30,611,666	738,354	2,663,136	24,935,503	2,420,304	593,996,849
09/30/2016	29,062,537	627,306	2,819,814	23,908,967	2,445,532	550,554,481
09/30/2015	27,070,511	597,262	3,065,485	23,719,361	2,470,921	513,213,837
09/30/2014	25,391,326	544,463	2,983,425	23,585,326	2,629,081	477,837,128
09/30/2013	21,666,150	415,911	2,951,917	22,754,765	2,458,939	437,914,935
09/30/2012	22,423,335	423,570	2,945,195	21,540,037	2,342,079	316,002,633
09/30/2011	20,419,430	447,082	3,002,699	21,020,757	2,269,110	294,227,027
09/30/2010	18,268,505	572,279	3,012,468	22,200,904	2,337,509	280,775,729
09/30/2009	16,256,428	461,151	3,153,447	19,505,427	2,429,576	261,948,320
09/30/2008	13,835,750	403,851	3,333,603	15,214,031	2,581,143	246,182,224
09/30/2007	12,327,080	394,778	3,240,932	11,812,342	2,442,108	229,650,770
09/30/2006	9,586,049	376,632	3,474,437	8,205,196	2,028,350	205,102,670
09/30/2005	7,956,368	346,802	4,041,657	6,461,387	1,861,332	186,347,282
09/30/2004	10,865,749	372,004	3,123,907	29,374,983	1,730,676	168,315,697
09/30/2003	11,167,454	740,669	3,019,022	40,192,188	1,426,440	134,868,154
09/30/2002	2,392,216	529,831	2,683,777	3,643,183	1,233,840	96,599,615
09/30/2001	1,801,729	450,439	2,563,794	3,257,207	1,013,126	89,587,047
09/30/2000	1,498,201	430,328	2,113,222	2,580,359	970,129	81,679,522
09/30/1999	1,198,877	379,577	1,971,856	1,762,362	988,366	68,869,101
09/30/1998	1,143,202	310,971	1,790,908	1,450,517	915,599	58,718,121
09/30/1997	842,191	286,905	1,667,877	1,608,478	858,522	50,565,572
09/30/1996	694,974	237,252	1,563,652	1,588,045	671,056	39,919,818
09/30/1995	605,296	208,915	1,294,421	1,934,238	540,655	33,180,866

<sup>1</sup> Effective for year ending September 30, 2013, includes DROP distributions (previously included DROP benefit payments)

<sup>2</sup> Effective for year ending September 30, 2013, includes DROP account balances

<sup>3</sup> Market value prior to 2001

**Table XVI  
(Cont'd)**

**Recent Compensation, Termination and Investment Return Experience**

Valuation Date	Compensation *		Termination	Investment Return		
	% Increase (Decrease)	Assumed Increase	Ratio of Actual to Expected	Net Market Value Yield	Net Actuarial Value Yield	Assumed Rate of Return
10/01/2019	6.7%	3.7%	2.1	3.91%	7.64%	7.80%
10/01/2018	7.5%	3.7%	3.6	10.85%	8.65%	7.85%
10/01/2017	6.1%	3.5%	2.2	11.48%	8.14%	7.90%
10/01/2016	3.5%	3.6%	1.5	8.92%	7.38%	7.95%
10/01/2015	3.1%	4.5%	2.2	2.0%	7.1%	8.0%
10/01/2014	1.2%	4.5%	0.8	10.1%	8.3%	8.0%
10/01/2013	4.0%	4.6%	1.0	14.2%	7.9%	8.0%
10/01/2012	3.8%	4.6%	1.1	19.0%	6.4%	8.0%
10/01/2011	1.6%	5.5%	0.2	(0.2%)	3.8%	8.0%
10/01/2010	3.6%	5.7%	0.2	8.1%	4.5%	8.0%
Last 3 Years	6.8%	3.6%	2.6	8.69%	8.14%	7.85%
Last 5 Years	5.4%	3.8%	2.2	7.4%	7.8%	7.9%
Last 10 Years	4.1%	4.4%	1.1	8.7%	7.0%	7.9%

\* Excludes DROP payroll

Employer Contribution Information

Valuation Date	Contribution Fiscal Year End	Minimum Required Employer Contributions	Actual City Contributions Made	Actual State Contributions Made	Actual Employer Contributions Made
10/01/2019	09/30/2021	\$ 30,977,999	N/A	N/A	N/A
10/01/2018	09/30/2020	\$ 30,795,916	N/A	N/A	N/A
10/01/2017	09/30/2019	\$ 30,227,258	\$ 27,248,665	\$ 2,978,593	\$ 30,227,258
10/01/2016	09/30/2018	\$ 29,196,005	\$ 26,710,046	\$ 2,485,959	\$ 29,196,005
10/01/2015	09/30/2017	\$ 27,355,807	\$ 24,935,503	\$ 2,420,304	\$ 27,355,807
10/01/2014	09/30/2016	\$ 26,354,499	\$ 23,908,967	\$ 2,445,532	\$ 26,354,499
10/01/2013	09/30/2015	\$ 26,190,282	\$ 23,719,361	\$ 2,470,921	\$ 26,190,282
10/01/2012	09/30/2014	\$ 26,214,407	\$ 23,585,326	\$ 2,629,081	\$ 26,214,407
10/01/2011	09/30/2013	\$ 25,213,704	\$ 22,754,765	\$ 2,458,939	\$ 25,213,704
10/01/2010	09/30/2012	\$ 23,882,116	\$ 21,540,037	\$ 2,342,079	\$ 23,882,116
10/01/2010	09/30/2011	\$ 23,289,867	\$ 21,020,757	\$ 2,269,110	\$ 23,289,867
10/01/2009	09/30/2010	\$ 24,538,413	\$ 22,200,904	\$ 2,337,509	\$ 24,538,413
10/01/2008	09/30/2009	\$ 21,935,003	\$ 19,505,427	\$ 2,429,576	\$ 21,935,003
10/01/2007	09/30/2008	\$ 17,795,174	\$ 15,214,031	\$ 2,581,143	\$ 17,795,174
10/01/2006	09/30/2007	\$ 14,254,450	\$ 11,812,342	\$ 2,442,108	\$ 14,254,450
10/01/2005	09/30/2006	\$ 10,233,546	\$ 8,205,196	\$ 2,028,350	\$ 10,233,546
10/01/2004	09/30/2005	\$ 8,322,719	\$ 6,461,387	\$ 1,861,332	\$ 8,322,719

Actuarial Valuation as of October 1, 2019  
State Required Exhibit - Firefighters

	<u>10/01/2018</u>	<u>Prior Assumptions / Plan 10/01/2019</u>	<u>Current Assumptions / Plan 10/01/2019</u>
<b>A. Participant Data</b>			
1. Active participants	158	160	160
2. Retired participants and beneficiaries receiving benefits (including DROPs)	175	186	186
3. Disabled participants receiving benefits	10	9	9
4. Terminated vested participants	2	2	2
5. Annual payroll of active participants excluding DROPs	\$ 13,231,707	\$ 12,983,894	\$ 12,983,894
6. Annual payroll of active participants including DROPs	\$ 17,721,011	\$ 17,856,289	\$ 17,856,289
7. Annual benefits payable to those currently receiving benefits (including DROPs)	\$ 16,971,435	\$ 18,340,454	\$ 18,340,454
<b>B. Liabilities</b>			
1. Actuarial present value of future expected benefit payments for active members			
a. Retirement benefits	\$ 117,785,130	\$ 111,862,997	\$ 112,105,018
b. Vesting benefits	558,395	536,294	532,934
c. Death benefits	569,664	557,846	479,103
d. Disability benefits	3,154,879	3,014,003	3,213,373
e. Total	<u>\$ 122,068,068</u>	<u>\$ 115,971,140</u>	<u>\$ 116,330,428</u>
2. Actuarial present value of future expected benefit payments for terminated vested members	\$ 254,317	\$ 274,776	\$ 277,771
3. Actuarial present value of future expected benefit payments for members currently receiving benefits			
a. Service retired (includes DROPs)	\$ 322,735,727	\$ 348,707,668	\$ 345,730,950
b. Disability retired	7,721,572	6,891,237	6,850,136
c. Beneficiaries	5,998,147	5,859,597	5,751,050
d. Miscellaneous (Refunds in Process)	8,560	17,186	17,186
e. Total	<u>\$ 336,464,006</u>	<u>\$ 361,475,688</u>	<u>\$ 358,349,322</u>

Actuarial Valuation as of October 1, 2019

State Required Exhibit - Firefighters

	<u>10/01/2018</u>	<u>Prior Assumptions / Plan 10/01/2019</u>	<u>Current Assumptions / Plan 10/01/2019</u>
4. Total actuarial present value of future expected benefit payments	\$ 458,786,391	\$ 477,721,604	\$ 474,957,521
5. Actuarial accrued liabilities (EAN)	\$ 430,989,644	\$ 451,370,781	\$ 448,215,089
<b>C. <u>Statement of Accumulated Plan Benefits</u></b>			
1. Actuarial present value of accumulated vested benefits			
a. Participants currently receiving benefits	\$ 336,455,446	\$ 361,458,502	\$ 358,332,136
b. Other participants	77,248,989	77,248,191	77,357,324
c. Total	\$ 413,704,435	\$ 438,706,693	\$ 435,689,460
2. Actuarial present value of accumulated non-vested plan benefits	1,750,417	2,247,301	2,354,110
3. Total actuarial present value of accumulated plan benefits	\$ 415,454,852	\$ 440,953,994	\$ 438,043,570
<b>D. <u>Disclosure of Following Items:</u></b>			
1. Actuarial present value of future salaries - attained age	\$ 86,153,535	\$ 88,028,283	\$ 88,283,646
2. Actuarial present value of future employee contributions - attained age	\$ 8,091,203	\$ 7,412,087	\$ 7,432,715
3. Actuarial present value of future contributions from other sources	N/A	N/A	N/A
4. Amount of active members' accumulated contributions	\$ 15,792,179	\$ 15,289,667	\$ 15,289,667
5. Actuarial present value of future salaries and future benefits at entry age	N/A	N/A	N/A
6. Actuarial present value of future employee contributions at entry age	N/A	N/A	N/A

Actuarial Valuation as of October 1, 2019  
State Required Exhibit - Police Officers

	<u>10/01/2018</u>	<u>Prior Assumptions / Plan 10/01/2019</u>	<u>Current Assumptions / Plan 10/01/2019</u>
<b>A. <u>Participant Data</u></b>			
1. Active participants	177	182	182
2. Retired participants and beneficiaries receiving benefits (including DROPs)	193	207	207
3. Disabled participants receiving benefits	11	11	11
4. Terminated vested participants	3	4	4
5. Annual payroll of active participants excluding DROPs	\$ 14,107,851	\$ 14,946,093	\$ 14,946,093
6. Annual payroll of active participants including DROPs	\$ 17,592,805	\$ 19,719,942	\$ 19,719,942
7. Annual benefits payable to those currently receiving benefits (including DROPs)	\$ 18,424,034	\$ 20,292,732	\$ 20,292,732
<b>B. <u>Liabilities</u></b>			
1. Actuarial present value of future expected benefit payments for active members			
a. Retirement benefits	\$ 109,982,583	\$ 106,815,514	\$ 107,033,836
b. Vesting benefits	704,610	755,489	753,078
c. Death benefits	692,114	736,282	613,303
d. Disability benefits	4,084,533	4,312,736	4,395,077
e. Total	<u>\$ 115,463,840</u>	<u>\$ 112,620,021</u>	<u>\$ 112,795,294</u>
2. Actuarial present value of future expected benefit payments for terminated vested members	\$ 666,482	\$ 1,287,255	\$ 1,290,407
3. Actuarial present value of future expected benefit payments for members currently receiving benefits			
a. Service retired (includes DROPs)	\$ 334,145,717	\$ 366,400,134	\$ 362,495,788
b. Disability retired	8,101,142	8,234,132	8,183,423
c. Beneficiaries	2,306,933	3,026,586	2,953,782
d. Miscellaneous (Refunds in Process)	45,462	18,026	18,026
e. Total	<u>\$ 344,599,254</u>	<u>\$ 377,678,878</u>	<u>\$ 373,651,019</u>

Actuarial Valuation as of October 1, 2019  
State Required Exhibit - Police Officers

	<u>10/01/2018</u>	<u>Prior Assumptions / Plan 10/01/2019</u>	<u>Current Assumptions / Plan 10/01/2019</u>
4. Total actuarial present value of future expected benefit payments	\$ 460,729,576	\$ 491,586,154	\$ 487,736,720
5. Actuarial accrued liabilities (EAN)	\$ 429,093,134	\$ 457,890,312	\$ 453,748,994
<b>C. <u>Statement of Accumulated Plan Benefits</u></b>			
1. Actuarial present value of accumulated vested benefits			
a. Participants currently receiving benefits	\$ 344,553,792	\$ 377,660,852	\$ 373,632,993
b. Other participants	71,455,326	64,856,088	64,806,380
c. Total	<u>\$ 416,009,118</u>	<u>\$ 442,516,940</u>	<u>\$ 438,439,373</u>
2. Actuarial present value of accumulated non-vested plan benefits	<u>4,469,211</u>	<u>4,429,958</u>	<u>4,473,904</u>
3. Total actuarial present value of accumulated plan benefits	\$ 420,478,329	\$ 446,946,898	\$ 442,913,277
<b>D. <u>Disclosure of Following Items:</u></b>			
1. Actuarial present value of future salaries - attained age	\$ 104,215,470	\$ 119,304,734	\$ 119,716,133
2. Actuarial present value of future employee contributions - attained age	\$ 9,057,722	\$ 9,222,919	\$ 9,253,814
3. Actuarial present value of future contributions from other sources	N/A	N/A	N/A
4. Amount of active members' accumulated contributions	\$ 15,080,318	\$ 13,857,096	\$ 13,857,096
5. Actuarial present value of future salaries and future benefits at entry age	N/A	N/A	N/A
6. Actuarial present value of future employee contributions at entry age	N/A	N/A	N/A

Actuarial Valuation as of October 1, 2019

State Required Exhibit - All Members

	<u>10/01/2018</u>	<u>Prior Assumptions / Plan 10/01/2019</u>	<u>Current Assumptions / Plan 10/01/2019</u>
<b>A. <u>Participant Data</u></b>			
1. Active participants	335	342	342
2. Retired participants and beneficiaries receiving benefits (including DROPs)	368	393	393
3. Disabled participants receiving benefits	21	20	20
4. Terminated vested participants	5	6	6
5. Annual payroll of active participants excluding DROPs	\$ 27,339,558	\$ 27,929,987	\$ 27,929,987
6. Annual payroll of active participants including DROPs	\$ 35,313,816	\$ 37,576,231	\$ 37,576,231
7. Annual benefits payable to those currently receiving benefits (including DROPs)	\$ 35,395,469	\$ 38,633,186	\$ 38,633,186
<b>B. <u>Value of Assets (Net)</u></b>			
1. Smoothed Actuarial Value	\$ 643,679,302	\$ 690,731,320	\$ 690,731,320
2. Market Value	\$ 662,653,584	\$ 686,503,222	\$ 686,503,222
<b>C. <u>Liabilities</u></b>			
1. Actuarial present value of future expected benefit payments for active members			
a. Retirement benefits	\$ 227,767,713	\$ 218,678,511	\$ 219,138,854
b. Vesting benefits	1,263,005	1,291,783	1,286,012
c. Death benefits	1,261,778	1,294,128	1,092,406
d. Disability benefits	7,239,412	7,326,739	7,608,450
e. Total	<u>\$ 237,531,908</u>	<u>\$ 228,591,161</u>	<u>\$ 229,125,722</u>
2. Actuarial present value of future expected benefit payments for terminated vested members	\$ 920,799	\$ 1,562,031	\$ 1,568,178
3. Actuarial present value of future expected benefit payments for members currently receiving benefits			
a. Service retired (includes DROPs)	\$ 656,881,444	\$ 715,107,802	\$ 708,226,738
b. Disability retired	15,822,714	15,125,369	15,033,559
c. Beneficiaries	8,305,080	8,886,183	8,704,832
d. Miscellaneous (Refunds in Process)	54,022	35,212	35,212
e. Total	<u>\$ 681,063,260</u>	<u>\$ 739,154,566</u>	<u>\$ 732,000,341</u>

Actuarial Valuation as of October 1, 2019

State Required Exhibit - All Members

	<u>10/01/2018</u>	<u>Prior Assumptions / Plan 10/01/2019</u>	<u>Current Assumptions / Plan 10/01/2019</u>
<b>C. Liabilities (cont'd)</b>			
4. Total actuarial present value of future expected benefit payments	\$ 919,515,967	\$ 969,307,758	\$ 962,694,241
5. Actuarial accrued liabilities (EAN)	\$ 860,082,778	\$ 909,261,093	\$ 901,964,083
6. Unfunded actuarial liabilities (EAN)	\$ 216,403,476	\$ 218,529,773	\$ 211,232,763
<b>D. Statement of Accumulated Plan Benefits</b>			
1. Actuarial present value of accumulated vested benefits			
a. Participants currently receiving benefits	\$ 681,009,238	\$ 739,119,354	\$ 731,965,129
b. Other participants	148,704,315	142,104,279	142,163,704
c. Total	<u>\$ 829,713,553</u>	<u>\$ 881,223,633</u>	<u>\$ 874,128,833</u>
2. Actuarial present value of accumulated non-vested plan benefits	<u>6,219,628</u>	<u>6,677,259</u>	<u>6,828,014</u>
3. Total actuarial present value of accumulated plan benefits	\$ 835,933,181	\$ 887,900,892	\$ 880,956,847
<b>E. Pension Cost</b>			
1. Total normal cost	\$ 10,125,089	\$ 9,802,354	\$ 9,875,991
2. Amortization of unfunded liability	21,634,125	22,657,969	22,012,143
3. Interest adjustment	1,503,481	1,542,409	1,505,868
4. Total required contribution	<u>\$ 33,262,695</u>	<u>\$ 34,002,732</u>	<u>\$ 33,394,002</u>
5. a. Item 4 as a percentage of base payroll <sup>1</sup>	121.7%	121.7%	119.6%
b. Item 4 as a percentage of total payroll <sup>2</sup>	94.2%	90.5%	88.9%
6. Estimated employee contributions	\$ 2,576,143 <sup>3</sup>	\$ 2,459,670 <sup>5</sup>	\$ 2,459,670 <sup>5</sup>
7. a. Item 6 as a percentage of base payroll <sup>1</sup>	9.4%	8.8%	8.8%
b. Item 6 as a percentage of total payroll <sup>2</sup>	7.3% <sup>4</sup>	6.5% <sup>6</sup>	6.5% <sup>6</sup>
8. Estimated State contributions	\$ 2,485,959	\$ 2,978,593	\$ 2,978,593
9. a. Item 8 as a percentage of base payroll <sup>1</sup>	9.1% <sup>4</sup>	10.7% <sup>6</sup>	10.7% <sup>6</sup>
b. Item 8 as a percentage of total payroll <sup>2</sup>	7.0% <sup>4</sup>	7.9% <sup>6</sup>	7.9% <sup>6</sup>
10. Net amount payable by City	\$ 28,309,957	\$ 28,586,522	\$ 27,999,406
11. a. Item 10 as a percentage of base payroll <sup>1</sup>	103.2% <sup>4</sup>	102.2% <sup>6</sup>	100.1% <sup>6</sup>
b. Item 10 as a percentage of total payroll <sup>2</sup>	79.9% <sup>4</sup>	76.0% <sup>6</sup>	74.4% <sup>6</sup>

<sup>1</sup> Excludes DROP payroll

<sup>2</sup> Includes DROP payroll

<sup>3</sup> Percent of pay applied to projected 2019-2020 base payroll excluding DROP payroll (\$27,421,577)

<sup>4</sup> Percent of projected 2019-2020 covered payroll (\$27,421,577 / \$35,419,757)

<sup>5</sup> Percent of pay applied to projected 2020-2021 base payroll excluding DROP payroll (\$27,957,917)

<sup>6</sup> Percent of projected 2020-2021 covered payroll (\$27,957,917 / \$37,613,807)

Actuarial Valuation as of October 1, 2019

State Required Exhibit - All Members

	<u>10/01/2018</u>	<u>Prior Assumptions / Plan 10/01/2019</u>	<u>Current Assumptions / Plan 10/01/2019</u>
<b>F. Past Contributions</b>			
1. Total contribution required (prior valuation)	\$ 32,764,579	\$ 33,372,059	\$ 33,372,059
2. Actual contributions made:			
a. Members	\$ 2,688,739	N/A	N/A
b. City	27,248,665	N/A	N/A
c. State	2,978,593	N/A	N/A
d. Total	<u>\$ 32,915,997</u>	N/A	N/A
<b>G. Disclosure of Following Items:</b>			
1. Actuarial present value of future salaries excluding DROP payroll - attained age	\$ 190,369,005	\$ 207,333,017	\$ 207,999,779
2. Actuarial present value of future employee contributions - attained age	\$ 17,148,925	\$ 16,635,006	\$ 16,686,529
3. Actuarial present value of future contributions from other sources	N/A	N/A	N/A
4. Amount of active members' accumulated contributions	\$ 30,872,497	\$ 29,146,763	\$ 29,146,763
5. Actuarial present value of future salaries and future benefits at entry age	N/A	N/A	N/A
6. Actuarial present value of future employee contributions at entry age	N/A	N/A	N/A

State Required Exhibit

Amortization balances are written down in proportion to amortization payments.

	<u>Unfunded Actuarial Accrued Liabilities</u>	<u>Current Unfunded Liabilities</u>	<u>Current Assumptions Amortization Payment</u>	<u>Prior Assumptions Amortization Payment</u>	<u>Remaining Funding Period</u>
10/01/2003	Gain and Loss Bases	\$ 9,764,420	\$ 1,940,993	\$ 1,943,052	6.000 years
10/01/2003	Others	569,267	113,160	113,280	6.000 years
10/01/2003	Plan Amendment	58,190,920	6,421,673	6,437,543	14.000 years
10/01/2004	Plan Amendment	37,206,273	3,950,428	3,960,794	15.000 years
10/01/2004	Plan Amendment	339,422	36,039	36,133	15.000 years
10/01/2006	Assumption Change	6,718,352	668,000	669,947	17.000 years
10/01/2006	Plan Amendment	29,232,574	2,906,570	2,915,040	17.000 years
10/01/2006	Plan Amendment	2,291,120	227,804	228,468	17.000 years
10/01/2009	Assumption Change	12,875,584	1,186,057	1,189,986	20.000 years
10/01/2009	Method Change	25,368,411	2,336,855	2,344,597	20.000 years
05/01/2010	Plan Amendment	(33,905,367)	(3,084,669)	(3,095,111)	20.583 years
10/01/2010	Actuarial (Gain) / Loss	13,507,890	1,218,568	1,222,755	21.000 years
10/01/2011	Actuarial (Gain) / Loss	10,599,650	938,185	941,520	22.000 years
10/01/2011	Assumption Change	(1,651,453)	(146,172)	(146,691)	22.000 years
10/01/2012	Actuarial (Gain) / Loss	4,333,297	376,943	378,326	23.000 years
10/01/2013	Actuarial (Gain) / Loss	(630,899)	(54,017)	(54,221)	24.000 years
10/01/2013	Plan Amendment	748,155	64,056	64,298	24.000 years
10/01/2014	Actuarial (Gain) / Loss	(4,979,197)	(420,168)	(421,801)	25.000 years
10/01/2014	Plan Amendment	12,846	1,084	1,088	25.000 years
10/01/2015	Actuarial (Gain) / Loss	4,047,025	336,996	338,340	26.000 years
10/01/2015	Plan Amendment	9,075	756	759	26.000 years
10/01/2015	Assumption Change	8,371,534	697,097	699,878	26.000 years
10/01/2016	Actuarial (Gain) / Loss	4,325,320	355,803	357,257	27.000 years
10/01/2016	Assumption Change	5,703,693	469,188	471,106	27.000 years
10/01/2017	Actuarial (Gain) / Loss	3,305,587	268,891	270,015	28.000 years
10/01/2017	Assumption Change	5,712,555	464,684	466,626	28.000 years
10/01/2018	Actuarial (Gain) / Loss	2,145,080	172,703	173,441	29.000 years
10/01/2018	Assumption Change	6,119,189	492,664	494,768	29.000 years
10/01/2019	Actuarial (Gain) / Loss	8,199,450	653,927	656,776	30.000 years
10/01/2019	Assumption / Plan Change	(7,297,010)	(581,955)	N/A	30.000 years
	TOTAL	\$ 211,232,763	\$ 22,012,143	\$ 22,657,969	

This actuarial valuation and/or cost determination was prepared and completed by us or under our direct supervision, and we acknowledge responsibility for the results. To the best of our knowledge, the results are complete and accurate, and in our opinion, the techniques and assumptions used are reasonable and meet the requirements and intent of Part VII, Chapter 112, Florida Statutes. There is no benefit or expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or other wise provided for in the valuation. All known events or trends which may require material increase in plan costs or required contribution rates have been taken into account in the valuation.

*Michelle Jones*

Shelly L. Jones, A.S.A.  
Enrollment Number: 17-08646

*Jennifer Borregard*

Jennifer M. Borregard, E.A.  
Enrollment Number: 17-07624

Dated: March 18, 2020



## Glossary

**Actuarial Accrued Liability.** The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.

**Actuarial Assumptions.** Assumptions about future plan experience that affect costs or liabilities, such as: mortality, withdrawal, disablement, and retirement; future increases in salary; future rates of investment earnings; future investment and administrative expenses; characteristics of members not specified in the data, such as marital status; characteristics of future members; future elections made by members and other items.

**Actuarial Cost Method.** Actuarial Cost Method A procedure for allocating the Actuarial Present Value of Future Benefits between the Actuarial Present Value of Future Normal Costs and the Actuarial Accrued Liability.

**Actuarial Equivalent.** Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.

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

**Actuarial Valuation.** The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB No. 67.

**Actuarial Value of Assets.** The value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially required contribution.

**Amortization Method.** A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the rate at which total covered payroll of all active members is assumed to increase.

Glossary

**Amortization Payment.** That portion of the plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

**Amortization Period.** The period used in calculating the Amortization Payment.

**Annual Required Contribution.** The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The annual required contribution consists of the Employer Normal Cost and Amortization Payment plus interest adjustment.

**Closed Amortization Period.** A specific number of years that is reduced by one each year, and declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc.

**Employer Normal Cost.** The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.

**Equivalent Single Amortization Period.** For plans that do not establish separate amortization bases (separate components of the UAAL), this is the same as the Amortization Period. For plans that do establish separate amortization bases, this is the period over which the UAAL would be amortized if all amortization bases were combined upon the current UAAL payment.

**Experience Gain/Loss.** A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two actuarial valuations. To the extent that actual experience differs from that assumed, Unfunded Actuarial Accrued Liabilities emerge which may be larger or smaller than projected. Gains are due to favorable experience, e.g., the assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. Losses are the result of unfavorable experience, i.e., actual results that produce Unfunded Actuarial Accrued Liabilities which are larger than projected.

**GASB.** Governmental Accounting Standards Board.

Glossary

**GASB No. 67 and GASB No. 68.** These are the governmental accounting standards that set the accounting rules for public retirement plans and the employers that sponsor or contribute to them. Statement No. 67 sets the accounting rules for the plans themselves, while Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement plans.

**Normal Cost.** The annual cost assigned, under the Actuarial Cost Method, to the current plan year.

**Open Amortization Period.** An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.

**Unfunded Actuarial Accrued Liability.** The difference between the Actuarial Accrued Liability and Actuarial Value of Assets.

**Valuation Date.** The date as of which the Actuarial Present Value of Future Benefits are determined. The benefits expected to be paid in the future are discounted to this date.

**Vested Benefit Security Ratio.** The ratio of the Market Value of Assets to the Actuarial Present Value of Vested Accrued Benefits.