

CITY OF PALM BEACH GARDENS  
FIREFIGHTERS' PENSION FUND  
ACTUARIAL VALUATION  
AS OF OCTOBER 1, 2019  
CONTRIBUTIONS APPLICABLE TO THE  
PLAN/FISCAL YEAR ENDING SEPTEMBER 30, 2021  
GASB 67/68 DISCLOSURE INFORMATION  
AS OF SEPTEMBER 30, 2019



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS

January 22, 2020

Board of Trustees  
City of Palm Beach Gardens  
Firefighters' Pension Board

Re: City of Palm Beach Gardens Firefighters' Pension Fund

Dear Board:

We are pleased to present to the Board this report of the annual actuarial valuation of the City of Palm Beach Gardens Firefighters' Pension Fund. Included are the related results for GASB Statements No. 67 and No. 68. The funding valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the appropriate funding requirements for the applicable plan year. The calculation of the liability for GASB results was performed for the purpose of satisfying the requirements of GASB Statements No. 67 and No. 68. Use of the results for other purposes may not be applicable and may produce significantly different results.

The valuations have been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflect laws and regulations issued to date pursuant to the provisions of Chapters 112 and 175, Florida Statutes, as well as applicable federal laws and regulations. In our opinion, the assumptions used in the valuations, as adopted by the Board of Trustees, represent reasonable expectations of anticipated plan experience. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuations, we did not perform an analysis of the potential range of such future measurements.

In conducting the valuations, we have relied on personnel, plan design, and asset information supplied by the City of Palm Beach Gardens, financial reports prepared by the custodian bank, and the actuarial assumptions and methods described in the Actuarial Assumptions section of this report. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

The total pension liability, net pension liability, and certain sensitivity information shown in this report are based on an actuarial valuation performed as of October 1, 2018. The total pension liability was rolled-forward from the valuation date to the plan's fiscal year ending September 30, 2019 using generally accepted actuarial principles. It is our opinion that the assumptions used for this purpose are internally consistent, reasonable, and comply with the requirements under GASB No. 67 and No. 68.

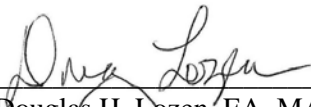
The undersigned are familiar with the immediate and long-term aspects of pension valuations, and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the actuarial opinions.


To our knowledge, no associate of Foster & Foster, Inc. working on valuations of the program has any direct financial interest or indirect material interest in the City of Palm Beach Gardens, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the Firefighters' Pension Fund. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

If there are any questions, concerns, or comments about any of the items contained in this report, please contact us at 239-433-5500.

Respectfully submitted,

Foster & Foster, Inc.

By:   
\_\_\_\_\_  
Douglas H. Lozen, EA, MAAA  
Enrolled Actuary #17-7778

By:   
\_\_\_\_\_  
Drew D. Ballard, EA, MAAA  
Enrolled Actuary #17-8193

DHL/lke

Enclosures

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## SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Palm Beach Gardens Firefighters' Pension Fund, performed as of October 1, 2019, has been completed and the results are presented in this Report. The contribution amounts set forth herein are applicable to the plan/fiscal year ending September 30, 2021.

The contribution requirements, compared with those set forth in the October 8, 2019, Actuarial Impact Statement (determined as of October 1, 2018), are as follows:

Valuation Date Applicable to Fiscal Year Ending	10/1/2019 <u>9/30/2021</u>	10/1/2018 <u>9/30/2020</u>
Minimum Required Contribution % of Projected Annual Payroll	65.75%	67.04%
Member Contributions (Est.) % of Projected Annual Payroll	6.00%	6.00%
City And State Required Contribution % of Projected Annual Payroll	59.75%	61.04%
State Contribution (Est.) <sup>1</sup> % of Projected Annual Payroll	\$699,764 8.74%	\$699,764 8.74%
City Required Contribution <sup>2</sup> % of Projected Annual Payroll	51.01%	52.30%

<sup>1</sup> Represents the amount received in calendar 2019. Per a Mutual Consent Agreement between the Membership and the City, the City may use up to \$750,072.76 annually in State Monies to meet its required contribution. Excess State Monies are split equally between the City as a funding credit and Membership Share Plan.

<sup>2</sup> The required contribution from the combination of City and State sources for the year ending September 30, 2021, is 59.75% of the actual payroll realized in that year. As a budgeting tool, the City may contribute 51.01% of each Member's Salary and then make a one-time adjustment to account for the actual State Monies received. Please note that the City has access to a prepaid contribution of \$2,229,215.03 that is available to offset a portion of the above stated requirements for the fiscal year ending September 30, 2020.

Plan experience was favorable overall on the basis of the plan's actuarial assumptions. The primary source of actuarial gain was an investment return of 8.90% (Actuarial Asset Basis), exceeding the 7.25% assumption. This gain was offset in part by losses associated with unfavorable retirement and turnover experience.

## CHANGES SINCE PRIOR VALUATION

### Plan Changes

There have been multiple plan changes since the prior valuation:

- 1) Ordinance 12, 2019, adopted August 1, 2019, amended the terms for determining the amount of annual state contributions that the City can use to offset its minimum required pension contribution, per a mutual consent agreement with the Union. For the plan year beginning October 1, 2019, and each subsequent year, the City and the Union representing City firefighters have mutually agreed that all annual Chapter 175 premium tax revenues received up to \$750,072.76 shall be used to reduce the City's required annual pension contribution. If the annual Chapter 175 premium tax revenues received exceed \$750,072.76, 50% of the excess shall be allocated to individual member share accounts, and the remaining 50% of the excess shall be used to reduce the City's required annual pension contribution.
  
- 2) Chapter 2019-21, Laws of Florida was signed into effect granting certain disability benefits to firefighters participating in an employer-sponsored retirement plan. Effective July 1, 2019, "the retirement plan must consider the firefighter totally and permanently disabled in the line of duty if he or she meets the retirement plan's definition of totally and permanently disabled due to the diagnosis of cancer or circumstances that arise out of the treatment of cancer." For this purpose, "cancer" is as defined in Section 112.1816(1), Florida Statutes. Please note that the benefit changes only relate to the disability benefits for the Pension Fund and do not provide for other additional benefits that are provided for in Florida Statutes Section 112.1816.

### Actuarial Assumption/Method Changes

In conjunction with this valuation, the investment return assumption has been lowered from 7.25% to 7.15% per year, net of investment related expenses. Also, an increase in the expected percentage of disabilities that are in line-of-duty has been made, as a result of the plan change described above.

## CONTRIBUTION IMPACT OF ANNUAL CHANGES

(1) Contribution Determined as of October 1, 2018	52.30%
(2) Summary of Contribution Impact by component:	
Change in State Contribution Percentage	0.00%
Change in Normal Cost Rate	-1.36%
Change in Administrative Expense Percentage	0.39%
Payroll Change Effect on UAAL Amortization	0.38%
Investment Return (Actuarial Asset Basis)	-2.92%
Salary Increases	-0.09%
Active Decrements	1.02%
Inactive Mortality	0.21%
Assumption Change	2.19%
Gain due to Earnings allocated to Share Balances	-0.43%
Greater than Expected Reduction in the UAAL	-0.51%
Other	<u>-0.17%</u>
Total Change in Contribution	-1.29%
(3) Contribution Determined as of October 1, 2019	51.01%



COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Assump <u>10/1/2019</u>	Old Assump <u>10/1/2019</u>	<u>10/1/2018</u>
A. Participant Data			
Actives	97	97	99
Service Retirees	34	34	29
DROP Retirees	20	20	19
Beneficiaries	3	3	1
Disability Retirees	3	3	5
Terminated Vested	<u>10</u>	<u>10</u>	<u>7</u>
Total	167	167	160
Total Annual Payroll	\$8,327,887	\$8,327,887	\$8,192,718
Payroll Under Assumed Ret. Age	8,007,380	8,007,380	8,096,986
Annual Rate of Payments to:			
Service Retirees	2,761,164	2,761,164	2,286,134
DROP Retirees	1,388,697	1,388,697	1,345,382
Beneficiaries	81,277	81,277	30,070
Disability Retirees	67,011	67,011	118,217
Terminated Vested	118,983	118,983	121,619
B. Assets			
Actuarial Value (AVA) <sup>1</sup>	110,297,515	110,297,515	99,670,579
Market Value (MVA) <sup>1</sup>	110,968,045	110,968,045	103,678,114
C. Liabilities			
Present Value of Benefits			
Actives			
Retirement Benefits	53,066,786	52,099,262	52,993,937
Disability Benefits	507,014	499,578	484,833
Death Benefits	199,923	197,242	204,514
Vested Benefits	3,473,335	3,392,233	3,435,052
Refund of Contributions	65,863	65,765	60,819
Service Retirees	45,640,793	45,101,273	37,674,349
DROP Retirees <sup>1</sup>	31,786,523	31,481,934	29,682,712
Beneficiaries	964,512	955,131	505,361
Disability Retirees	695,382	689,745	1,275,093
Terminated Vested	1,051,924	1,032,333	1,418,216
Share Plan Balances <sup>1</sup>	<u>10,817,365</u>	<u>10,817,365</u>	<u>10,913,336</u>
Total	148,269,420	146,331,861	138,648,222

C. Liabilities - (Continued)	New Assump <u>10/1/2019</u>	Old Assump <u>10/1/2019</u>	<u>10/1/2018</u>
Present Value of Future Salaries	55,577,843	55,306,752	54,097,525
Present Value of Future Member Contributions	3,334,671	3,318,405	3,245,852
Normal Cost (Retirement)	2,083,413	2,044,514	2,181,758
Normal Cost (Disability)	36,486	35,969	32,603
Normal Cost (Death)	9,726	9,590	9,719
Normal Cost (Vesting)	191,480	186,844	185,449
Normal Cost (Refunds)	<u>17,330</u>	<u>17,303</u>	<u>16,404</u>
Total Normal Cost	2,338,435	2,294,220	2,425,933
Present Value of Future Normal Costs	17,129,336	16,737,079	16,711,348
Accrued Liability (Retirement)	37,495,574	36,881,692	37,723,030
Accrued Liability (Disability)	303,259	299,418	302,726
Accrued Liability (Death)	131,782	130,320	140,551
Accrued Liability (Vesting)	2,217,691	2,170,333	2,271,088
Accrued Liability (Refunds)	35,279	35,238	30,412
Accrued Liability (Inactives) <sup>1</sup>	80,139,134	79,260,416	70,555,731
Share Plan Balances <sup>1</sup>	<u>10,817,365</u>	<u>10,817,365</u>	<u>10,913,336</u>
Total Actuarial Accrued Liability (PUC AL)	131,140,084	129,594,782	121,936,874
Unfunded Actuarial Accrued Liability (UAAL)	20,842,569	19,297,267	22,266,295
Funded Ratio (AVA / EAN AL)	84.1%	85.1%	81.7%

D. Actuarial Present Value of Accrued Benefits	New Assump <u>10/1/2019</u>	Old Assump <u>10/1/2019</u>	<u>10/1/2018</u>
Vested Accrued Benefits			
Inactives + Share Plan Balances <sup>1</sup>	90,956,499	90,077,781	81,469,067
Actives	20,125,783	19,734,445	19,898,495
Member Contributions	<u>4,860,262</u>	<u>4,860,262</u>	<u>5,044,089</u>
Total	115,942,544	114,672,488	106,411,651
Non-vested Accrued Benefits	<u>2,118,694</u>	<u>2,091,437</u>	<u>2,148,540</u>
Total Present Value Accrued Benefits (PVAB)	118,061,238	116,763,925	108,560,191
Funded Ratio (MVA / PVAB)	94.0%	95.0%	95.5%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:			
Plan Amendments	0	0	
Assumption Changes	1,297,313	0	
Plan Experience	0	4,601,871	
Benefits Paid	0	(4,119,422)	
Interest	0	7,721,285	
Other	<u>0</u>	<u>0</u>	
Total	1,297,313	8,203,734	

	New Assump	Old Assump	
Valuation Date	10/1/2019	10/1/2019	10/1/2018
Applicable to Fiscal Year Ending	<u>9/30/2021</u>	<u>9/30/2021</u>	<u>9/30/2020</u>

#### E. Pension Cost

Normal Cost (with interest)			
% of Total Annual Payroll <sup>2</sup>	30.25	29.69	31.05
Administrative Expenses (with interest)			
% of Total Annual Payroll <sup>2</sup>	1.68	1.69	1.30
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 29 years (as of 10/1/2019, with interest)			
% of Total Annual Payroll <sup>2</sup>	33.82	32.18	34.69
Minimum Required Contribution			
% of Total Annual Payroll <sup>2</sup>	65.75	63.56	67.04
Expected Member Contributions			
% of Total Annual Payroll <sup>2</sup>	6.00	6.00	6.00
Expected City and State Contribution			
% of Total Annual Payroll <sup>2</sup>	59.75	57.56	61.04

#### F. Past Contributions

Plan Years Ending:	<u>9/30/2019</u>
Total Required Contribution	5,721,066
City and State Requirement	5,228,578
Actual Contributions Made:	
Members (excluding buyback)	492,488
City	4,670,425
State	<u>558,153</u>
Total	5,721,066

G. Net Actuarial (Gain)/Loss (1,370,858)

<sup>1</sup> The asset values and liabilities include accumulated DROP and Share Plan Balances as of 9/30/2019 and 9/30/2018.

<sup>2</sup> Contributions developed as of 10/1/2019 are expressed as a percentage of total annual payroll at 10/1/2019 of \$8,007,380.

H. Schedule Illustrating the Amortization of the Total Unfunded Actuarial Accrued Liability as of:

<u>Year</u>	<u>Projected Unfunded Actuarial Accrued Liability</u>
2019	20,842,569
2020	19,531,494
2021	18,126,681
2028	10,905,513
2035	1,579,345
2041	6,205
2048	0

I. (i) 5 Year Comparison of Actual and Assumed Salary Increases

	<u>Actual</u>	<u>Assumed</u>
Year Ended 9/30/2019	6.24%	5.18%
Year Ended 9/30/2018	4.78%	5.17%
Year Ended 9/30/2017	2.06%	5.16%
Year Ended 9/30/2016	11.82%	5.15%
Year Ended 9/30/2015	0.29%	5.13%

(ii) 5 Year Comparison of Investment Return on Market Value and Actuarial Value

	<u>Market Value</u>	<u>Actuarial Value</u>	<u>Assumed</u>
Year Ended 9/30/2019	5.39%	8.90%	7.25%
Year Ended 9/30/2018	8.75%	8.27%	7.25%
Year Ended 9/30/2017	13.98%	8.33%	7.45%
Year Ended 9/30/2016	8.25%	7.45%	7.65%
Year Ended 9/30/2015	1.21%	9.80%	7.85%

(iii) Average Annual Payroll Growth

(a) Payroll as of:	10/1/2019	\$8,007,380
	10/1/2009	9,993,789
(b) Total Increase		-19.88%
(c) Number of Years		10.00
(d) Average Annual Rate		-2.19%

STATEMENT BY ENROLLED ACTUARY

This actuarial valuation was prepared and completed by me or under my direct supervision, and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate, and in my 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 otherwise taken into account in the valuation. All known events or trends which may require a material increase in plan costs or required contribution rates have been taken into account in the valuation.



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Douglas H. Lozen, EA, MAAA  
Enrolled Actuary #17-7778

Please let us know when the report is approved by the Board and unless otherwise directed we will provide copies of the report to the following offices to comply with Chapter 112, Florida Statutes:

Mr. Keith Brinkman  
Bureau of Local  
Retirement Systems  
Post Office Box 9000  
Tallahassee, FL 32315-9000

Mr. Steve Bardin  
Municipal Police and Fire  
Pension Trust Funds  
Division of Retirement  
Post Office Box 3010  
Tallahassee, FL 32315-3010

RECONCILIATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES

(1) Unfunded Actuarial Accrued Liability as of October 1, 2018	\$22,266,295
(2) Sponsor Normal Cost developed as of October 1, 2018	1,940,114
(3) Expected administrative expenses for the year ended September 30, 2019	101,721
(4) Expected interest on (1), (2) and (3)	1,758,652
(5) Sponsor contributions to the System during the year ended September 30, 2019	5,228,578
(6) Expected interest on (5)	170,079
(7) Expected Unfunded Actuarial Accrued Liability as of September 30, 2019 (1)+(2)+(3)+(4)-(5)-(6)	20,668,125
(8) Change to UAAL due to Assumption Change	1,545,302
(9) Change to UAAL due to Actuarial (Gain)/Loss	(1,370,858)
(10) Unfunded Actuarial Accrued Liability as of October 1, 2019	20,842,569

<u>Type of</u> <u>Base</u>	<u>Date</u> <u>Established</u>	<u>Years</u> <u>Remaining</u>	<u>10/1/2019</u> <u>Amount</u>	<u>Amortization</u> <u>Amount</u>
Prior Experience	10/1/1993	4	6,546,344	1,809,812
Benefit Change	10/1/2002	13	1,967,378	221,562
Experience Loss	10/1/2006	14	639,050	68,811
Assum/Method Chg	10/1/2006	14	(2,005,657)	(215,963)
Experience Gain	10/1/2007	14	(269,129)	(28,979)
Experience Loss	10/1/2008	14	1,273,259	137,100
Experience Loss	10/1/2009	14	798,806	86,013
Experience Loss	10/1/2010	14	417,929	45,001
Experience Loss	10/1/2011	14	3,598,808	387,508
Benefit Change	10/1/2011	14	(2,098,471)	(225,957)
Experience Loss	10/1/2012	14	254,799	27,436
Experience Gain	10/1/2013	4	(1,759,371)	(486,398)
Assumption Change	10/1/2013	14	1,442,172	155,288
Experience Gain	10/1/2014	5	(1,515,795)	(346,406)
Assumption Change	10/1/2014	15	1,577,647	163,194
Experience Gain	10/1/2015	6	(2,068,864)	(406,954)
Assumption Change	10/1/2015	16	1,827,325	182,327
Experience Loss	10/1/2016	7	2,155,493	375,224
Assumption Changes	10/1/2016	17	5,771,893	557,484

Type of <u>Base</u>	Date <u>Established</u>	Years <u>Remaining</u>	10/1/2019 <u>Amount</u>	Amortization <u>Amount</u>
Experience Gain	10/1/2017	8	(541,888)	(85,186)
Assumption Changes	10/1/2017	18	2,835,681	265,947
Experience Gain	10/1/2018	9	(193,226)	(27,855)
Benefit Change	10/1/2018	29	13,942	1,075
Experience Gain	10/1/2019	10	(1,370,858)	(183,420)
Assumption Change	10/1/2019	20	<u>1,545,302</u>	<u>137,723</u>
			20,842,569	2,614,387



## DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of October 1, 2018	\$22,266,295
(2) Expected UAAL as of October 1, 2019	20,668,125
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	(1,678,116)
Salary Increases	(50,530)
Active Decrements	585,586
Inactive Mortality	120,790
Gain due to Earnings allocated to Share Balances	(248,455)
Other	<u>(100,133)</u>
Increase in UAAL due to (Gain)/Loss	(1,370,858)
Assumption Changes	<u>1,545,302</u>
(4) Actual UAAL as of October 1, 2019	\$20,842,569

## ACTUARIAL ASSUMPTIONS AND METHODS

### Mortality Rate

#### *Healthy Active Lives:*

**Female:** RP2000 Generational, 100% Combined Healthy White Collar, Scale BB

**Male:** RP2000 Generational, 10% Combined Healthy White Collar / 90% Combined Healthy Blue Collar, Scale BB

#### *Healthy Inactive Lives:*

**Female:** RP2000 Generational, 100% Annuitant White Collar, Scale BB

**Male:** RP2000 Generational, 10% Annuitant White Collar / 90% Annuitant Blue Collar, Scale BB

#### *Disabled Lives:*

**Female:** 60% RP2000 Disabled Female set forward two years / 40% Annuitant White Collar with no setback, no projection scale

**Male:** 60% RP2000 Disabled Male setback four years / 40% Annuitant White Collar with no setback, no projection scale

The above assumption rates were mandated by Chapter 2015-157, Laws of Florida. This law mandates the use of the assumptions used in either of the two most recent valuations of the Florida Retirement System (FRS). The above rates are those outlined in Milliman's July 1, 2018 FRS valuation report for special risk employees. We feel this assumption sufficiently accommodates future mortality improvements.

### Interest Rate

7.15% (prior year 7.25%) per year compounded annually, net of investment related expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.

### Salary Increases

<u>Age</u>	<u>Increase</u>
20	8.20%
30	5.60
40	5.20
50	4.70
60	4.50

This is based on the results of an actuarial experience study delivered on November 1, 2013.

Final Pay Load

For Members hired prior to October 1, 2011, active liabilities are increased by 3.00% to account for assumed payments of unused sick and annual leave time. Members hired on and after October 1, 2011 are valued with no final pay load.

Retirement Rates

<u>Age</u>	<u>Probability of Retirement</u>
50	5.00%
51	5.00
52	50.00
53	10.00
54	10.00
55	100.00

For those Members who attain 25 years of Credited Service, regardless of Age, the probability of retirement is 100%. The above rates were determined with an Experience Study performed by the prior actuary, and are reasonable for the existing benefit structure.

Termination Rates

<u>Age</u>	<u>Years of Service</u>	<u>% Separating from Employment Within the Next Year</u>
All Ages	0	15.00%
	1	10.00
	2	9.00
	3	8.00
	4	7.00
25	5 & Over	7.00
30		5.90
35		4.40
40		3.00
45		2.10
50		1.70
55		1.00

The above rates were determined with an Experience Study performed by the prior actuary.

Disability Rates

<u>Age</u>	<u>% Become Disabled within Next Year</u>
	0.0545%
25	0.0545
30	0.0580
35	0.0895
40	0.1210
45	0.2750
50	0.4290

It is assumed that 90% (previously 75%) of disablements service related. We feel these rates are consistent with those utilized for plans containing other Florida municipal firefighters.

Payroll Growth

0.00% for purposes of amortizing the Unfunded Actuarial Accrued Liability. This assumption cannot exceed the ten-year average payroll growth, in compliance with Part VII of Chapter 112, Florida Statutes.

Administrative Expenses

\$130,260 annually, based on the average of actual expenses incurred in the prior two fiscal years. Previously, the actual expense in the prior fiscal year was used. Using a two-year average results in a less volatile estimate than the prior method.

Funding Method

Projected Unit Credit Cost Method.

Actuarial Value of Assets

The Actuarial Value of Assets utilizes a four-year smoothing methodology. The annual difference between expected and actual investment earnings (Market Value, net of investment-related expenses), is phased-in over a four-year period.

Amortization Method

New UAAL amortization bases are established according to the following amortization periods:

Experience: 10 Years.

Assumption/Method Changes: 20 Years.

Benefit Changes: 30 Years.

## GLOSSARY

Total Annual Payroll is the projected annual rate of pay as of the valuation date of all covered Members.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

Normal (Current Year's) Cost is determined for each participant as the present value of the increase in the accrued benefit for the plan year, utilizing projected salary.

Projected Unit Credit Actuarial Cost Method (Level Percent of Compensation) is the method used to determine required contributions under the Plan. The use of this method involves the systematic funding of the Normal Cost (described above) and the Unfunded Accrued (Past Service) Liability. The actuarial accrued liability is the present value of accrued benefits, utilizing projected salary for active Plan Participants.

Unfunded Actuarial Accrued Liability (UAAL) is the difference between the actuarial accrued liability (described above) and the actuarial value of assets. Under the Projected Unit Credit Actuarial Cost Method, an actuarial gain or loss, based on actual versus expected UAAL, is determined in conjunction with each valuation of the plan.

Total Required Contribution is equal to the Normal Cost plus an amount sufficient to amortize the Unfunded Accrued Liability over no more than 30 years. The required amount is adjusted for interest according to the timing of contributions during the year.

## DISCUSSION OF RISK

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined using various actuarial assumptions. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

## Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, closed plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature closed plans with a substantial inactive liability. Similarly, mature closed plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the plan, we have provided some relevant metrics in the table following titled “Plan Maturity Measures and Other Risk Metrics”. Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has decreased from 185.7% on October 1, 2016 to 149.2% on October 1, 2019, indicating that the plan has been maturing during the period.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the plan, to the Total Accrued Liability, is 61.1%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors may result in larger increases in contribution requirements than would be needed for a less mature plan. Please note Chapter 112, Florida Statutes, requires that the plan sponsor contributes the minimum required contribution; thus, there is minimal solvency risk to the plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has increased from 79.4% on October 1, 2016 to 84.1% on October 1, 2019.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Market Value of Assets, decreased from 2.5% on October 1, 2016 to 1.4% on October 1, 2019. The current Net Cash Flow Ratio of 1.4% indicates that contributions are generally covering the plan's benefit payments and administrative expenses.

It is important to note that the actuary has identified the risks in this section as the most significant risks based on the characteristics of the plan and the nature of the project, however, it is not an exhaustive list of potential risks that could be considered. Additional advanced modeling, as well as the identification of additional risks, can be provided at the request of the audience addressed on page 2 of this report.

PLAN MATURITY MEASURES AND OTHER RISK METRICS

	<u>10/1/2016</u>	<u>10/1/2017</u>	<u>10/1/2018</u>	<u>10/1/2019</u>
<u>Support Ratio</u>				
Total Actives	91	95	99	97
Total Inactives <sup>1</sup>	49	54	58	65
Actives / Inactives <sup>1</sup>	185.7%	175.9%	170.7%	149.2%
 <u>Asset Volatility Ratio</u>				
Market Value of Assets (MVA)	80,631,588	93,631,077	103,678,114	110,968,045
Total Annual Payroll	7,771,546	7,869,010	8,192,718	8,327,887
MVA / Total Annual Payroll	1,037.5%	1,189.9%	1,265.5%	1,332.5%
 <u>Accrued Liability (AL) Ratio</u>				
Inactive Accrued Liability	55,732,429	64,311,108	70,555,731	80,139,134
Total Accrued Liability (PUC)	103,367,096	113,964,799	121,936,874	131,140,084
Inactive AL / Total AL	53.9%	56.4%	57.9%	61.1%
 <u>Funded Ratio</u>				
Actuarial Value of Assets (AVA)	82,077,152	90,453,020	99,670,579	110,297,515
Total Accrued Liability (PUC)	103,367,096	113,964,799	121,936,874	131,140,084
AVA / Total Accrued Liability (PUC)	79.4%	79.4%	81.7%	84.1%
 <u>Net Cash Flow Ratio</u>				
Net Cash Flow <sup>2</sup>	2,036,178	1,474,897	1,664,525	1,584,458
Market Value of Assets (MVA)	80,631,588	93,631,077	103,678,114	110,968,045
Ratio	2.5%	1.6%	1.6%	1.4%

<sup>1</sup> Excludes terminated participants awaiting a refund of member contributions.

<sup>2</sup> Determined as total contributions minus benefit payments and administrative expenses.



STATEMENT OF FIDUCIARY NET POSITION  
SEPTEMBER 30, 2019

<u>ASSETS</u>	COST VALUE	MARKET VALUE
Cash and Cash Equivalents:		
Short Term Investments	2,547,837.00	2,547,837.00
Cash	2,226,346.87	2,226,346.87
Total Cash and Equivalents	4,774,183.87	4,774,183.87
Receivables:		
City Contributions in Transit	334,254.43	334,254.43
Investment Income	173,892.73	173,892.73
Total Receivable	508,147.16	508,147.16
Investments:		
U. S. Bonds and Bills	4,980,083.40	5,448,401.00
Federal Agency Guaranteed Securities	3,955,332.26	4,029,074.73
Corporate Bonds	12,467,546.64	12,728,824.14
Stocks	23,858,680.37	30,640,884.46
Mutual Funds:		
Fixed Income	11,064,994.10	10,535,211.14
Equity	23,634,463.48	28,064,064.98
Pooled/Common/Commingled Funds:		
Equity	2,896,215.11	5,536,042.71
Real Estate	8,759,872.29	11,047,691.38
Total Investments	91,617,187.65	108,030,194.54
Total Assets	96,899,518.68	113,312,525.57
 <u>LIABILITIES</u>		
Payables:		
Refunds of Member Contributions	9,203.90	9,203.90
Investment Expenses	73,744.69	73,744.69
Administrative Expenses	8,783.16	8,783.16
To Broker for Investments Purchased	23,534.11	23,534.11
Prepaid City Contribution	2,229,215.03	2,229,215.03
Total Liabilities	2,344,480.89	2,344,480.89
NET POSITION RESTRICTED FOR PENSIONS	94,555,037.79	110,968,044.68

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED SEPTEMBER 30, 2019  
Market Value Basis

ADDITIONS

Contributions:

Member	492,487.74
City	4,670,425.40
State	699,764.46

Total Contributions 5,862,677.60

Investment Income:

Net Realized Gain (Loss)	1,014,643.95
Unrealized Gain (Loss)	1,467,555.21
Net Increase in Fair Value of Investments	2,482,199.16
Interest & Dividends	3,643,985.68
Less Investment Expense <sup>1</sup>	(420,711.65)

Net Investment Income 5,705,473.19

Total Additions 11,568,150.79

DEDUCTIONS

Distributions to Members:

Benefit Payments	2,609,477.39
Lump Sum DROP Distributions	679,521.14
Lump Sum Share Distributions	817,577.08
Refunds of Member Contributions	12,846.06

Total Distributions 4,119,421.67

Administrative Expense 158,798.01

Total Deductions 4,278,219.68

Net Increase in Net Position 7,289,931.11

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 103,678,113.57

End of the Year 110,968,044.68

<sup>1</sup>Investment related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION  
September 30, 2019

Actuarial Assets for funding purposes are developed by recognizing the total actuarial investment gain or loss for each Plan Year over a four year period. In the first year, 25% of the gain or loss is recognized. In the second year 50%, in the third year 75%, and in the fourth year 100% of the gain or loss is recognized. The actuarial investment gain or loss is defined as the actual return on investments minus the actuarial assumed investment return. Actuarial Assets shall not be less than 80% nor greater than 120% of Market Value of Assets.

Plan Year Ending	Gain/(Loss)	<u>Gains/(Losses) Not Yet Recognized</u>			
		Amounts Not Yet Recognized by Valuation Year			
		2019	2020	2021	2022
09/30/2016	503,189	0	0	0	0
09/30/2017	5,462,599	1,365,649	0	0	0
09/30/2018	1,533,918	766,958	383,478	0	0
09/30/2019	(1,949,436)	(1,462,077)	(974,718)	(487,359)	0
Total		670,530	(591,240)	(487,359)	0

<u>Development of Investment Gain/(Loss)</u>	
Market Value of Assets, 09/30/2018	103,678,114
Contributions Less Benefit Payments & Admin Expenses	3,813,673
Expected Investment Earnings <sup>1</sup>	7,654,909
Actual Net Investment Earnings	5,705,473
09/30/2019 Actuarial Investment Gain/(Loss)	<u>(1,949,436)</u>

<sup>1</sup> Expected Investment Earnings =  $0.0725 * (103,678,114 + 0.5 * 3,813,673)$

<u>Development of Actuarial Value of Assets</u>	
(1) Market Value of Assets, 09/30/2019	110,968,045
(2) Gain/(Loss) Not Yet Recognized	670,530
(3) Actuarial Value of Assets, 09/30/2019, (1) - (2)	<u>110,297,515</u>
(A) 09/30/2018 Actuarial Assets:	99,670,579
(I) Net Investment Income:	
1. Interest and Dividends	3,643,986
2. Realized Gain (Loss)	1,014,644
2. Unrealized Gain (Loss)	1,467,555
3. Change in Actuarial Value	3,337,005
4. Investment Expenses	(420,712)
Total	<u>9,042,478</u>
(B) 09/30/2019 Actuarial Assets, including Prepaid Contributions:	112,526,730
Actuarial Assets Rate of Return = $2I/(A+B-I)$ :	8.90%
Market Value of Assets Rate of Return:	5.39%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	1,678,116
10/01/2019 Limited Actuarial Assets (not including Prepaid):	110,297,515

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS  
 SEPTEMBER 30, 2019  
 Actuarial Asset Basis

REVENUES

Contributions:		
Member	492,487.74	
City	4,670,425.40	
State	699,764.46	
Total Contributions		5,862,677.60
Earnings from Investments:		
Interest & Dividends	3,643,985.68	
Net Realized Gain (Loss)	1,014,643.95	
Unrealized Gain (Loss)	1,467,555.21	
Change in Actuarial Value	3,337,005.00	
Total Earnings and Investment Gains		9,463,189.84

EXPENDITURES

Distributions to Members:		
Benefit Payments	2,609,477.39	
Lump Sum DROP Distributions	679,521.14	
Lump Sum Share Distributions	817,577.08	
Refunds of Member Contributions	12,846.06	
Total Distributions		4,119,421.67
Expenses:		
Investment related <sup>1</sup>	420,711.65	
Administrative	158,798.01	
Total Expenses		579,509.66
Change in Net Assets for the Year		10,626,936.11
Net Assets Beginning of the Year		99,670,578.57
Net Assets End of the Year <sup>2</sup>		110,297,514.68

<sup>1</sup>Investment related expenses include investment advisory, custodial and performance monitoring fees.

<sup>2</sup>Net Assets may be limited for actuarial consideration.

DEFERRED RETIREMENT OPTION PLAN ACTIVITY  
October 1, 2018 to September 30, 2019

Beginning of the Year Balance	6,388,347.31
Plus Additions	1,418,834.71
Investment Return Earned	397,510.65
Less Distributions	(679,521.14)
End of the Year Balance	7,525,171.53

SUPPLEMENTAL CHAPTER 175 SHARE PLAN ACTIVITY

October 1, 2018 through September 30, 2019

9/30/2018 Balance	10,913,336.00
Prior Year Adjustment	57,738.46
Plus Additions	141,611.69
Investment Return Earned	578,628.86
Administrative Fees	(56,373.24)
Less Distributions	(817,577.08)
9/30/2019 Balance	10,817,364.69

RECONCILIATION OF CITY'S SHORTFALL/(PREPAID) CONTRIBUTION  
FOR THE FISCAL YEAR ENDED (FYE) SEPTEMBER 30, 2019

(1) Total Required Contribution Rate	69.70%
(2) Pensionable Payroll Derived from Member Contributions	\$8,208,129.00
(3) Total Required Contribution (1) x (2)	5,721,065.91
(4) Less Actual Member Contributions	(492,487.74)
(5) Less Allowable State Contribution	<u>(558,152.77)</u>
(6) Equals Required City Contribution for Fiscal 2019	4,670,425.40
(7) Plus 2018 Shortfall Contribution	8.40
(8) Less Actual City Contributions	<u>(6,899,648.83)</u>
(9) Equals City's Shortfall/(Prepaid) Contribution as of September 30, 2019	(\$2,229,215.03)

## STATISTICAL DATA

	<u>10/1/2016</u>	<u>10/1/2017</u>	<u>10/1/2018</u>	<u>10/1/2019</u>
<u>Actives</u>				
Number	91	95	99	97
Average Current Age	41.4	40.4	40.4	40.1
Average Age at Employment	27.7	27.7	28.1	28.1
Average Past Service	13.7	12.7	12.3	12.0
Average Annual Salary	\$85,402	\$82,832	\$82,755	\$85,855
<u>Service Retirees</u>				
Number	18	22	29	34
Average Current Age	55.8	56.7	57.0	57.9
Average Annual Benefit	\$72,966	\$74,986	\$78,832	\$81,211
<u>DROP Retirees</u>				
Number	22	23	19	20
Average Current Age	54.8	54.6	55.8	55.4
Average Annual Benefit	\$76,328	\$72,824	\$70,810	\$69,435
<u>Beneficiaries</u>				
Number	0	1	1	3
Average Current Age	N/A	55.8	56.8	63.4
Average Annual Benefit	N/A	\$29,194	\$30,070	\$27,092
<u>Disability Retirees</u>				
Number	5	5	5	3
Average Current Age	53.1	54.1	55.1	57.8
Average Annual Benefit	\$23,643	\$23,643	\$23,643	\$22,337
<u>Terminated Vested</u>				
Number	4	5	7	10
Average Current Age <sup>1</sup>	49.9	50.3	47.2	45.7
Average Annual Benefit <sup>2</sup>	\$30,270	\$30,256	\$30,405	\$23,797

<sup>1</sup> The Average Current Age excludes participants awaiting a refund of contributions.

<sup>2</sup> The Average Annual Benefit excludes participants awaiting a refund of contributions.



## AGE AND SERVICE DISTRIBUTION

### PAST SERVICE

AGE	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+	Total
15 - 19												0
20 - 24	1											1
25 - 29	3	2	3	2		2						12
30 - 34	1	4	4			3						12
35 - 39	1	2	1	1	1	1	5	8				20
40 - 44	1	1		1		3	2	8	2			18
45 - 49							4	10	4	1		19
50 - 54							2	3	8			13
55 - 59							1		1			2
60 - 64												0
65+												0
<b>Total</b>	<b>7</b>	<b>9</b>	<b>8</b>	<b>4</b>	<b>1</b>	<b>9</b>	<b>14</b>	<b>29</b>	<b>15</b>	<b>1</b>	<b>0</b>	<b>97</b>

## VALUATION PARTICIPANT RECONCILIATION

### 1. Active lives

a. Number in prior valuation 10/1/2018	99
b. Terminations	
i. Vested (partial or full) with deferred annuity	(2)
ii. Vested in refund of member contributions only	0
iii. Refund of member contributions or full lump sum distribution received	(2)
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	0
d. Disabled	0
e. Retired	0
f. DROP	<u>(5)</u>
g. Continuing participants	90
h. New entrants	<u>7</u>
i. Total active life participants in valuation	97

### 2. Non-Active lives (including beneficiaries receiving benefits)

	Service Retirees, Vested Receiving <u>Benefits</u>	DROP <u>Benefits</u>	Receiving Death <u>Benefits</u>	Receiving Disability <u>Benefits</u>	Vested (Deferred Annuity)	Vested (Due Refund)	<u>Total</u>
a. Number prior valuation	29	19	1	5	4	3	61
Retired	5	(4)	0	0	(1)	0	0
DROP	0	5	0	0	0	0	5
Vested (Deferred Annuity)	0	0	0	0	2	0	2
Vested (Due Refund)	0	0	0	0	0	0	0
Hired/Terminated in Same Year	0	0	0	0	0	2	2
Death, With Survivor	0	0	2	(2)	0	0	0
Death, No Survivor	0	0	0	0	0	0	0
Disabled	0	0	0	0	0	0	0
Refund of Contributions	0	0	0	0	0	0	0
Rehires	0	0	0	0	0	0	0
Expired Annuities	0	0	0	0	0	0	0
Data Corrections	0	0	0	0	0	0	0
b. Number current valuation	34	20	3	3	5	5	70

SUMMARY OF CURRENT PLAN  
(Through Ordinance 12, 2019)

<u>Eligibility</u>	Full-time certified Firefighters.
<u>Credited Service</u>	Total years and fractional parts of years of employment with the City as a Firefighter while making Member contributions.
<u>Salary</u>	Total compensation, excluding overtime and payments for unused accrued sick and annual leave for salary earned after September 13, 2012.
<u>Average Final Compensation</u>	Average Salary for the 5 best years of the 10 years immediately preceding retirement or termination.
<u>Member Contributions</u>	6.00% of Salary.
<u>City and State Contributions</u>	Remaining amount required in order to pay current costs and amortize unfunded past service cost, if any, as provided in Part VII, Chapter 112, F.S.
<u>Normal Retirement</u>	
Date	Earlier of:  1) Age 52 with 10 years of Credited Service, or  2) Attainment of 25 years of Credited Service, regardless of Age.
Benefit	3.00% of Average Final Compensation times Credited Service, not to exceed 75% of Average Final Compensation.
Form of Benefit	Ten Year Certain and Life Annuity (options available).
<u>Early Retirement</u>	
Eligibility	Age 50 with 10 years of Credited Service.
Benefit	Accrued benefit, reduced 3.00% per year that the benefit commencement date precedes age 52.

### Vesting

Schedule	25% after 5 years of Credited Service, then 15% for each additional year until 100% after 10 years of Credited Service.
Benefit Amount	Member will receive the vested portion of his (her) accrued benefit payable at age 50 (reduced) or age 52.

### Disability

Eligibility	
Service Incurred	Covered from Date of Employment.
Non-Service Incurred	10 years of Credited Service.
Exclusions	Disability resulting from use of drugs, illegal participation in riots, service in military, etc.
Benefit	
Service Incurred	60% of Average Final Compensation, but not less than 2.00% of Average Final Compensation times Credited Service.
Non-Service Incurred	2.50% of Average Final Compensation times Credited Service.
Duration	Payable for life (with 120 payments guaranteed) or until recovery (as determined by the Board). Optional forms of payment are available.

### Death Benefits

10 or more years of Credited Service	Monthly accrued benefit payable to designated beneficiary for 10 years at otherwise Early (reduced) or Normal (unreduced) Retirement Date.
Less than 10 years of Credited Service	Refund of Member contributions.
Post-Retirement	Benefits payable to beneficiary in accordance with option selected at retirement.

### Cost of Living Adjustment

Eligibility	Normal and Early Retirees and Beneficiaries (including Vested Terminated Retirees). COLA is not payable to Disability Retirees.
Amount	1.00% increase for members who are Age 53, 2.00% increase for members who are Age 54, and 3.00% increase for members who are Age 55 and greater. For those members who were not eligible for Normal Retirement as of September 12, 2012, the COLA beginning at age 55 is based on 3.00% for service prior to September 12, 2012, and 1.50% for service thereafter.

### Deferred Retirement Option Plan

Eligibility	Satisfaction of Normal Retirement requirements.
Participation	Maximum participation period of 60 months.
Rate of Return	At the Member's option, a fixed rate, actual rate of investment return for the Plan, or returns generated by self-directed accounts.
Distribution	Cash lump sum (options available) at termination of employment.

### Chapter 175 Share Accounts

Allocation	Premium tax monies received in excess of \$750,072.76 are allocated annually to each individual Share Account based on Credited Service, determined as of September 30.
Investment Earnings	Net rate of investment return realized by the Plan for the preceding Plan Year.
Vesting Schedule	Active Members who terminate employment with less than 5 years of Credited Service forfeit their Share.
Distribution	Active Members with 5 or more years of Credited Service will be paid a lump sum upon separation from service.