



**CITY OF ORLANDO  
FIREFIGHTER PENSION FUND**

DRAFT

October 1, 2019  
Actuarial Valuation Report

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At the request of the plan sponsor, this report summarizes the Firefighter Pension Fund for the City of Orlando as of October 1, 2019. The purpose of this report is to communicate the following results of the valuation:

- Determine Funded Status; and
- Determine Recommended Contribution for the fiscal year October 1, 2020 through September 30, 2021;

This report has been prepared in accordance with the applicable Federal and State laws. Consequently, it may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

The results in this report were prepared using information provided to us by other parties. The census information has been provided to us by the employer. Asset information has been provided to us by the trustee. We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we have made assumptions we believe to be reasonable. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report. A summary of the data used in the valuation is included in this report.

The actuarial assumptions and methods were chosen by the Board. In our opinion, all actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

- plan experience differing from that anticipated by the economic or demographic assumptions;
- changes in economic or demographic assumptions;
- increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement. This report has been prepared in accordance with generally accepted actuarial principles and practice.

This actuarial valuation and/or cost determination 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.

With respect to reporting standards for defined benefit retirement plans or systems contained in Section 112.664(1), Florida Statutes, the actuarial disclosures required under this section were 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, meet the requirements of Section 112.664(1), Florida Statutes, and Rule 60T-1.0035, Florida Administrative Code.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report. To the extent that this report or any attachment concerns tax matters, it is not intended to be used and cannot be used by a taxpayer for the purpose of avoiding penalties that may be imposed by law.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are available for any questions.

Nyhart



Lawrence Watts, Jr., FSA, CFA, EA, MAAA  
Enrolled Actuary No. 20-8496



Kerry Sipe, ASA, EA  
Enrolled Actuary No. 20-8613

April 23, 2020  
Date

Copies of this Report are to be furnished to the Division of Retirement within 60 days of receipt from the actuary at the following addresses:

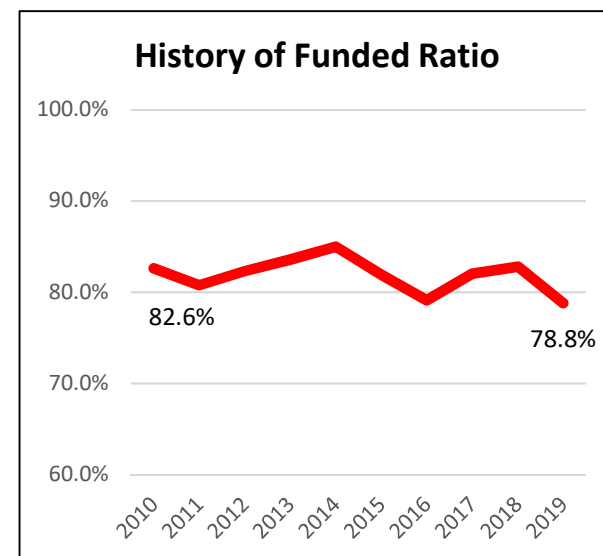
Mr. Stephen Bardin  
Benefits Administrator  
Municipal Police Officers' &  
Firefighters' Trust Funds  
Division of Retirement  
Post Office Box 3010  
Tallahassee, FL 32315-3010

Mr. Keith Brinkman  
Bureau Chief, Bureau of Local Retirement Systems  
Florida Department of Management Services  
Division of Retirement  
Department of Management Services  
P. O. Box 9000  
Tallahassee, FL 32315-9000

## Summary Results

The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on an entry age level percentage of pay.

	October 1, 2018	October 1, 2019
<b>Funded Status Measures</b>		
Accrued Liability	\$507,629,414	\$544,258,275
Actuarial Value of Assets	420,441,619	428,847,109
Unfunded Accrued Liability	\$87,187,795	\$115,411,166
Funded Percentage (AVA)	82.8%	78.8%
Funded percentage (MVA)	83.3%	78.8%
<b>Cost Measures</b>		
Recommended Contribution (City Contribution)	\$20,301,358	\$22,607,064
Recommended Contribution (as a percentage of expected payroll)	47.7%	48.5%
<b>Asset Performance</b>		
Market Value of Assets	409,469,833	428,847,109
Actuarial Value of Assets	420,441,619	428,847,109
Actuarial Value/Market Value	102.7%	100.0%
<b>Member Information</b>		
Active Members	486	496
Terminated Vested Members	7	5
Retirees, Beneficiaries, and Disabled Members	454	471
DROP Participants	24	21
Total	971	993
Payroll	\$40,957,849	\$44,839,453
Expected Payroll	\$42,596,163	\$46,633,031



## Changes since Prior Valuation and Key Notes

The assumption on future payroll growth for the amortization payments was increased to 1.88% to stay at or below the 10 year average of historical pay growth.

The assumed rate of return (interest rate) has been lowered from 7.60% to 7.25% at the direction of the Board. This is accelerated from, and goes beyond, the initial glide path, which had intended to decrease the interest rate five basis points a year until reaching 7.50%.

An experience study was conducted for the period from 2014 to 2018. After presenting the results to the Board, recommended changes to the inflation rate, withdrawal rates, disability rates, and asset valuation method were adopted. Actuarial Value of Assets were set to Market Value of Assets as of October 1, 2019 as part of the asset valuation method change. Please refer to the actuarial experience study report dated November 21, 2019 for more details.

The assumed mortality rates have been updated to match the Florida Retirement System mortality for Special Risk members after an experience study was conducted in 2019 and new mortality tables were adopted for the FRS Actuarial Valuation as of July 1, 2019.

Additional risk disclosures have been integrated into this report, in accordance with the new Actuarial Standard of Practice No. 51. Please read the pages immediately following to familiarize yourself with the information, and let us know if you have any questions or concerns.

**Five Year Valuation Summary**

	10/01/2015	10/01/2016	10/01/2017	10/01/2018	10/01/2019
<b>Funding</b>					
Accrued Liability	\$425,007,824	\$462,270,068	\$475,842,722	\$507,629,414	\$544,258,275
Actuarial Value of Assets	\$348,252,298	\$365,768,349	\$390,325,521	\$420,441,619	\$428,847,109
Unfunded Actuarial Accrued Liability	\$76,755,526	\$95,501,719	\$85,517,201	\$87,187,795	\$115,411,166
Funded Percentage	81.9%	79.1%	82.0%	82.8%	78.8%
Total Normal Cost (NC)	\$13,511,962	\$14,059,252	\$14,132,856	\$14,294,953	\$14,231,677
NC as a Percent of Covered Payroll	33.5%	33.5%	34.1%	35.1%	31.7%
Actual Employer Contribution	\$13,350,348	\$13,481,066	\$16,562,106	\$18,792,096	\$19,200,021
Recommended Contribution	\$13,973,357	\$13,450,900	\$16,256,743	\$18,541,649	\$19,028,110
Recommended Contribution (% of Pay)	32.7%	32.8%	38.7%	42.5%	44.2%
Interest Rate	7.75%	7.75%	7.70%	7.60%	7.25%
Expense Load Assumption	\$163,243	\$149,760	\$167,559	\$146,445	\$206,357
<b>Rate of Return</b>					
Actuarial Value of Assets	6.3%	6.6%	7.3%	6.8%	3.1%
Market Value of Assets	0.1%	8.2%	10.5%	6.6%	5.8%
<b>Demographic Information</b>					
Active Participants	494	481	498	486	496
Terminated Vested Participants	2	3	3	7	5
Retired Participants	262	278	276	276	295
Beneficiaries	59	61	62	61	63
Disabled Participants	113	113	111	117	113
DROP Participants	21	18	17	24	21
Total Participants	951	954	967	971	993
Covered Payroll	\$40,382,106	\$41,973,977	\$41,399,503	\$40,957,849	\$44,839,453
Average Covered Pay	\$81,745	\$87,264	\$83,132	\$84,275	\$90,402

## Identification of Risks

The results presented in this report are shown as single point values. However, these values are derived using assumptions about future markets and demographic behavior. If actual experience deviates from our assumptions, the actual results for the plan will consequently deviate from those presented in this report. Therefore, it is critical to understand the risks facing this pension plan. The following table shows the risks we believe are most relevant to the City of Orlando Firefighter Pension Fund. The risks are generally ordered with those we believe to have the most significance at the top. Also shown are possible methods by which a more detailed assessment of the risk can be performed.

Type of Risk	Additional Information
Investment Return	Portfolio risk and substantial equity position leave the plan open to adverse market results, which could increase costs in the future.
Participant Longevity	The plan has adopted FRS' most recent mortality tables for valuation purposes. These tables are modified from the standard tables, and, compared to the previous tables used by FRS, project a slightly shorter participant longevity overall. There is no guarantee FRS' anticipated mortality experience will mirror your plan's future experience. Deviation from expected mortality rates could impact long-term liabilities and plan cost.
Retirement	The plan has a relatively generous provisions regarding retirement eligibility; if more employees than expected retire or avail themselves of early retirement options, then this could impact estimated plan liabilities.
Salary Growth	The plan has experienced volatility in observed salary increases in the recent past; as benefits are based on final average salary, the salary growth assumption is key to accurately calculating liabilities and future costs.

Type of Risk	Method to Assess Risk
Investment Return	Scenario testing; asset/liability study
Participant Longevity	Benefit projections and contribution strategy
Retirement	Scenario testing; review population and retirement rates
Salary Growth	Review salary history and future budgets; scenario testing



## Plan Maturity Measures - October 1, 2019

Each pension plan has a distinct life-cycle. New plans promise future benefits to active employees and then accumulate assets to pre-fund those benefits. As the plan matures, benefits are paid and the pre-funded assets begin to decumulate until ultimately, the plan pays out all benefits. A plan's maturity has a dramatic influence on how risks should be viewed. The following maturity measures illustrate where the City of Orlando Firefighter Pension Fund falls in its life-cycle.

### Duration of Liabilities: 11.8

Duration is the most common measure of plan maturity. It is defined as the sensitivity of the liabilities to a change in the interest rate assumption. The metric also approximates the weighted average length of time, in years, until benefits are expected to be paid. A plan with high duration is, by definition, more sensitive to changes in interest rates. A plan with low duration is more susceptible to risk if asset performance deviates from expectations as there would be less time to make up for market losses in adverse market environments while more favorable environments could result in trapped surplus from gains. Conversely, high duration plans can often take on more risk when investing, and low duration plans are less sensitive to interest rate fluctuations.

### Demographic Distribution - Ratio of Actively Accruing Participants to All Participants: 49.9%

A plan with a high ratio is more sensitive to fluctuations in salary (if a salary-based plan) and statutory changes. A plan with a low ratio is at higher risk from demographic experience. Such a plan should pay close attention to valuation assumptions as there will be less opportunity to realize future offsetting gains or losses when current experience deviates from assumptions. Plans with a low ratio also have limited opportunities to make alterations to plan design to affect future funded status.

### Asset Leverage - Ratio of Payroll for Plan Participants to Market Value of Assets: 10.5%

Younger plans typically have a large payroll base from which to draw in order to fund the plan while mature plans often have a large pool of assets dedicated to providing benefits to a population primarily consisting of members no longer on payroll. Plans with low asset leverage will find it more difficult to address underfunding, as the contributions needed to make up the deficit will represent a higher percentage of payroll than for a plan with high asset leverage.

### Benefit Payment Percentage - Ratio of Annual Benefit Payments to Market Value of Assets: 7.0%

As a plan enters its decumulation phase, a larger percentage of the pre-funded assets are paid out each year to retirees. A high percentage is not cause for alarm as long as the plan is nearly fully funded. However, such a plan is more sensitive to negative asset performance, especially if cash contributions are not an option to make up for losses.

## Present Value of Future Benefits

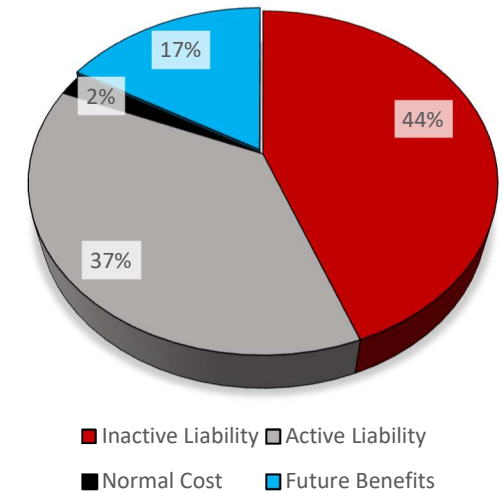
The Present Value of Future Benefits represents the discounted value of all future benefits expected to be payable to current members, considering future service and compensation not yet earned.

October 1, 2019

### Present Value of Future Benefits

Active members	
Retirement	\$335,052,690
Disability	31,910,299
Death	3,854,580
Termination	2,017,687
Return of contributions	337,248
Total active	\$373,172,504
Inactive members	
Retired members	\$214,371,474
DROP members	3,381,172
Beneficiaries	15,663,861
Disabled members	61,855,879
Terminated vested members	797,320
Total inactive	\$296,069,706
Total	\$669,242,210
Present value of future payrolls	\$384,064,852

Breakdown of Present Value of Future Benefits



## Accrued Liabilities

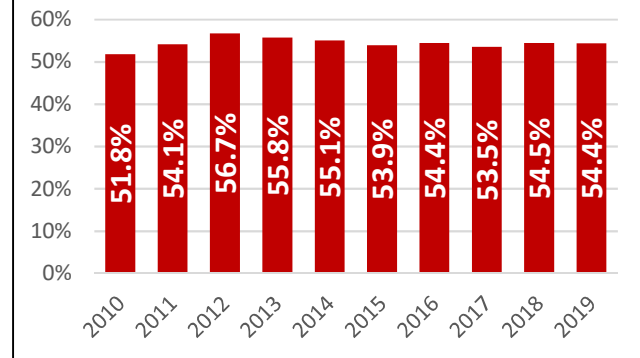
The Accrued Liability measures the present value of benefits earned as of the valuation date, using a specified set of actuarial assumptions. It is not a long-term snapshot of the liabilities.

**October 1, 2019**

### Accrued Liabilities

Active members	
Retirement	\$236,190,207
Disability	9,350,350
Death	1,960,143
Termination	671,731
Refund of contributions	16,138
Total Active	<u>\$248,188,569</u>
Inactive members	
Retired members	\$214,371,474
DROP members	3,381,172
Beneficiaries	15,663,861
Disabled members	61,855,879
Terminated vested members	797,320
Total Inactive	<u>\$296,069,706</u>
Total	<u>\$544,258,275</u>
Normal Cost	\$14,231,677

**History of the Percentage of  
Inactive Liability**



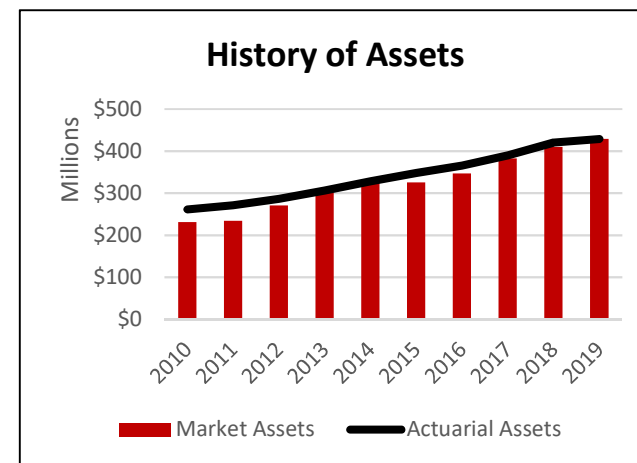
## Asset Information

The amount of assets backing the pension promise is the most significant driver of volatility and future costs within a pension plan. The investment performance of the assets directly offsets the ultimate cost.

October 1, 2019

### Market Value Reconciliation

Market value of assets, beginning of prior year	\$422,713,116
Contributions	
Employer	\$19,200,021
Employee	3,293,197
Non-Employer	2,238,095
Total	24,731,313
Investment income, net expenses	24,997,924
Benefit payments and refunds	(29,959,421)
Administrative expenses	(178,446)
Other expenses	(27,911)
Market value of asset, beginning of current year	\$442,276,575
Return on Market Value	5.84%
Share Plan Assets	\$13,429,466
Market value of assets available for pension benefits	\$428,847,109
<b>Actuarial value of plan assets</b>	
Value at beginning of current year	\$428,847,109



**Asset Information (continued)**

Plan Assets are used to develop funded percentages and contribution requirements.

	October 1, 2019
1. Expected actuarial value of assets	
(a) Actuarial value of assets, beginning of prior year	\$420,441,619
(b) Contributions	24,731,313
(c) Benefit payments	(29,341,597)
(d) Refund of Contributions	(62,911)
(e) Expenses	(206,357)
(f) Expected return	32,431,347
(g) Expected actuarial value of assets, beginning of current year	<u>\$447,993,414</u>
2. Market value of assets, beginning of current year	\$428,847,109
3. Phase in of asset gain/(loss) 20% x \$0	\$0
4. Preliminary actuarial value of assets, beginning of current year *	\$428,847,109
5. 80% Market value of assets	\$343,077,688
6. 120% Market value of assets	\$514,616,531
7. Final Adjusted actuarial value of assets	\$428,847,109
8. Return on actuarial value of assets	3.12%

\* The asset valuation method has been updated for the October 1, 2019 valuation.

The method going forward is a 20% (5-year) phase-in-method with a 20% corridor. The actuarial value of assets was set equal to the market value of assets as of October 1, 2019 using a fresh-start approach to transitioning to the new method.

Reconciliation of Gain/Loss

October 1, 2019

**Liability (gain)/loss**

Actuarial liability, beginning of prior year	\$507,629,414
Normal cost	14,294,953
Benefit payments	(29,404,508)
Expected Interest	38,569,340
Assumption Changes	15,776,137
1-year lag adjustment	<u>260,703</u>
Expected actuarial liability, beginning of current year	\$547,126,039
Actual actuarial liability	<u>\$544,258,275</u>
Liability (gain)/loss	\$(2,867,764)

**Asset (gain)/loss**

Actuarial value of assets, beginning of prior year	\$420,441,619
Contributions	24,731,313
Benefit payments and expenses	(29,610,865)
Expected Investment return	32,431,347
Change in Asset Method	<u>(15,317,044)</u>
Expected actuarial value of assets, beginning of current year	\$432,676,370
Actual actuarial value of assets, beginning of current year (before accumulated reserve adjustment)	<u>\$428,847,109</u>
Asset (gain)/loss	\$3,829,261
<b>Total (gain)/loss</b>	<b>\$961,497</b>

## Development of Recommended Contribution

The minimum recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws. The recommended contribution is composed of the normal cost, administrative expenses, plus an amortization charge.

October 1, 2019

### Funded Position

1. Entry age accrued liability	\$544,258,275
2. Actuarial value of assets	428,847,109
3. Unfunded actuarial accrued liability (UAAL)	\$115,411,166

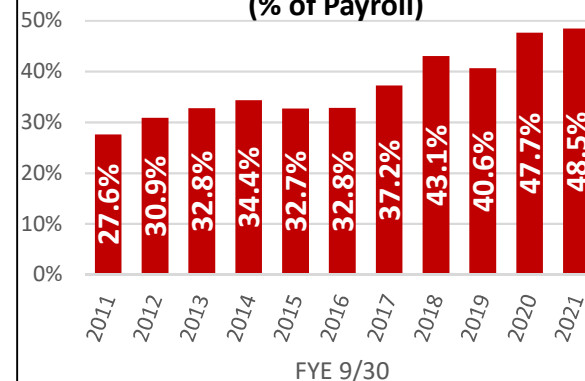
### Employer Contributions

1. Normal Cost	
(a) Total normal cost	\$14,231,677
(b) Expected participant contributions	3,358,475
(c) Net normal cost	\$10,873,202
2. Administrative expenses	206,357
3. Amortization of UAAL	12,246,380
4. Applicable interest	1,691,131
5. Total required contribution	\$25,017,070
6. Expected state contribution	(2,410,006)
7. Total recommended contribution <sup>(1)</sup>	\$22,607,064
As a percentage of current payroll	50.42%
As a percentage of expected payroll	48.48%

### History of Contributions



### History of Recommended Contributions (% of Payroll)



<sup>(1)</sup> Lump sum payment to be made October 1, 2020

## Demographic Information

The foundation of a reliable actuarial report is the participant information provided by the plan sponsor. Monitoring trends in demographic information is crucial for long-term pension planning.

October 1, 2019

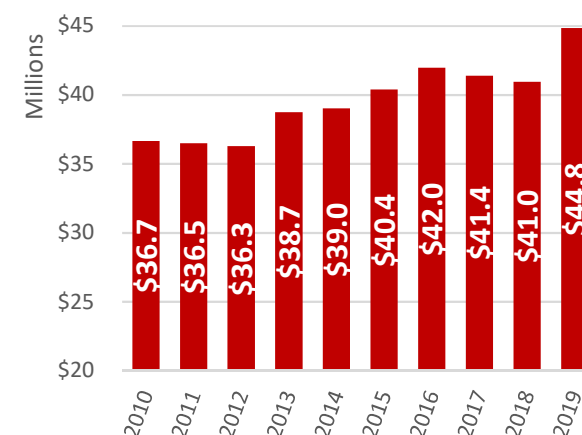
### Participant Counts

Active Participants	496
Retired Participants	295
Beneficiaries	63
Disabled Participants	113
Terminated Vested Participants	5
DROP Participants	21
Total Participants	993

### Active Participant Demographics

Average Age	41.69
Average Service	13.09
Average Compensation	\$90,402
Covered Payroll	\$44,839,453

### History of Covered Payroll





Demographic Information (continued)

October 1, 2019	
<b>Retiree Statistics</b>	
Average Age	66.84
Average Monthly Benefit	\$4,420
<b>Beneficiary Statistics</b>	
Average Age	68.56
Average Monthly Benefit	\$1,984
<b>Disabled Participants Statistics</b>	
Average Age	60.49
Average Monthly Benefit	\$3,894
<b>Terminated Participants Statistics</b>	
Average Age	40.92
Average Monthly Benefit	\$1,510
<b>DROP Participants Statistics</b>	
Average Age	53.27
Average Monthly Benefit	\$6,406

Participant Reconciliation

	Active	Terminated Vested	Disabled	Retired	Beneficiaries	Totals
<b>Prior Year</b>	486	7	117	300	61	971
<b>Active</b>						
To Disabled						
To Retired	(20)	(2)		22		
To Terminated Vested						
To Terminated Non-Vested	(2)					(2)
<b>Terminated Vested</b>						
To Retired						
<b>Disabled</b>						
To Death			(4)			(4)
<b>Retired</b>						
To Death				(6)		(6)
<b>Survivor</b>						
To Death					(1)	(1)
<b>Additions</b>	32				4	36
<b>Departures</b>					(1)	(1)
<b>Corrections</b>						
<b>Current Year</b>	496	5	113	316	63	993

## Active Participant Schedule

Active participant information grouped based on age and service.

Age Group	Years of Service										Total	Average Pay
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	1	4									5	61,368
25 to 29	12	15	10								37	65,501
30 to 34	15	19	31	10							75	76,585
35 to 39	4	15	27	27	16						89	85,409
40 to 44		1	9	34	56	6					106	96,775
45 to 49			6	15	51	26	6				104	100,274
50 to 54			1	3	22	27	5				58	102,699
55 to 59				2	4	12	2				20	95,361
60 to 64						2					2	106,724
65 to 69												
70 & up												
Total	32	54	84	91	149	73	13				496	90,402

## Plan Status

Special Acts beginning in 1945 and ordinances codified in Chapter 12, Articles II and III, Orlando City Code, and Fire Pension Ordinance with coding 12.01.08.

## Eligibility for Participation

All officers and firefighters regularly and continuously employed in the Fire Department, excluding secretaries, stenographers, and switchboard operators. Membership starts immediately upon hire.

## Accrual of Benefits

A participant shall accumulate a benefit payable at normal retirement date based on credited service as of the date of determination and the accrual rate associated with their credited service. The total benefit shall not exceed 100% of Average Monthly Salary.

<u>Credited Service</u>	<u>Accrual per Year of Credited Service</u>
10-20	2%
20-42.5	3.4% (maximum 85%)
42.5+	3.4% (maximum 85%) + 2% for service over 42.5

## Benefits

### Normal Retirement

Eligibility	Completion of 20 Years of Credited Service or attainment of age 47 and completion of 10 Years of Credited Service.
Benefit	Unreduced Accrued Benefit payable immediately

### Early Retirement

Eligibility	Completion of 20 Years of Credited Service or attainment of age 47 and completion of 10 years of Credited Service.
Benefit	Accrued retirement benefit

### Late Retirement

Eligibility	Participation continues after normal retirement date.
Benefit	Accrued retirement benefit

### **Death before Retirement In Line of Duty**

Eligibility	Participant dies while performing duties.
Benefit	Members with less than 10 years of service – Beneficiary receives 75% of 80% of the member's Average Monthly Salary until death.  Members with 10 years of service – Beneficiary receives 100% of accrued benefit for 10 years and 75% of member's 80% of the Average Monthly Salary. The 80% may be increased 3.4% for each year of service over 23.53 years (up to maximum of 85%) and an additional 2% for each year of service over 42.5 years (up to maximum of 100%).  25% of the surviving spouses' pension is directed toward any surviving child under 18.

### **Death before Retirement Not In Line of Duty**

Eligibility	Participant dies while not in line of duty.
Benefit	Members with less than 10 years of service – accumulated contributions without interest paid to Beneficiary.  Members with 10 years of service - Beneficiary receives 100% of Accrued Benefit for 10 years and 65% (75% if members reached normal retirement) of the Accrued Benefit after 10 years until death.

### **Death during Qualified Military Service**

Starting January 1, 2007, the beneficiary of a member who dies while performing qualified military service will be entitled to non-line of duty death benefits, subject to repayment of any withdrawn employee contributions.

### **Termination Benefit**

Eligibility	Fully vested after 10 years of Credited Service.
Benefit	Less than 20 years of service – 2% of Average Monthly Salary per Years of Service  More than 20 years of service – service retirement benefit  Benefit payable at age 47. If the participant terminates prior to 10 years of service a refund of accumulated contributions without interest will be issued

### **Disability Benefit In Line of Duty**

Eligibility	Immediately upon permanent disability
Benefit	80% of average monthly salary plus 2% for credited service between 40 and 50 years. Benefit terminates upon death or recovery.

### Disability Benefit Not In Line of Duty

Eligibility	Immediately upon permanent disability
Benefit	Less than 10 years of service – 3% of Average Monthly Salary per year 10-20 years of service – 4% of Average Monthly Salary per year (maximum 60%) More than 20 years of service - same as service retirement benefit

### Compensation

Salary  
All employees' base pay, EMT and paramedic pay, longevity pay, incentive pay, and fixed monthly remuneration, including pick-up contributions, but excluding overtime pay, education advancement pay, and any other form of compensation.

Average Monthly Salary  
Average Monthly Salary during the last 3 years of Credited Service, or the 5 best years of last 10 years if greater.

### Credited Service

For Vesting and Benefit Accrual  
Continuous service credited under Pension Fund, from most recent date of employment. Upon reemployment a member may restore pre-breach service upon repayment of amount withdrawn plus interest. Periods of Disability in Line of Duty are credited upon returning to service.

After employment, active military service (maximum of 5 years) after March 12, 1999 is included in Credited Service.

### Employee Contributions

1% (basic), .05% for "20 and out", 6.32% for COLA, totaling 7.37% of Compensation; .12% for DROP (not explicit in ordinance).

### DROP

Eligibility	Eligible for service retirement and completion of 20 years of service.
Benefit	Forward Deferred Retirement Option Plan for up to 60 months or a retroactive Deferred Retirement Option Program for up to 60 months. Interest credited is 8.0%  Combined years of credited service and DROP participation may not exceed 360 months. Beneficiaries of DROP participants are not entitled to preretirement death benefits and DROP participants are not eligible for disability benefits.

## COLA

Eligibility	Members who retire with 20 or more years of service, or beneficiaries of these members.
Benefit	5.0% triennial cost-of-living increase beginning 3 years after retirement or DROP exit. Additional cost of benefit is paid by members. Members terminating and not for COLA are not entitled to a refund of contributions to fund the COLA.

## Payment Forms

Normal Form  
10 year Certain and Life

Optional Forms  
50%, 66 2/3%, 75%, and 100% Joint and Survivor Annuity (reduction on first death); Single Life Annuity

Married participants may retain the 75% Joint and Survivor Annuity with 10 years certain

## Plan Provisions Not Included

We are not aware of any plan provisions not included in the valuation.

## Adjustment Made for Subsequent Events

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact results.

## Changes Since Prior Report

There have been no known changes to the plan's provisions since the publication of the prior valuation report.

**Cost Method**

Entry Age Method

**Amortization Method**

Fresh Start of UAAL amortization over 20 years as of 09/30/2005. All new bases are to be amortized over a 20-year closed period with a 4.0% payroll assumption. This assumption was adjusted to 1.88% for 2019 to remain with the Florida 10-year average requirement.

**Asset Valuation Method**

20% (5-year) Phase-in method with a 20% asset corridor. Actuarial Value of Assets set to Market Value of Assets as of October 1, 2019.

**Interest Rates**

7.25% net of investment expenses

The assumed interest rates are based on a study of actuarial experience for the plan during 2014-2018. See the experience study report dated November 21, 2019 as prepared by Nyhart.

**Annual Pay Increases**

2.50% inflation plus merit increases (sample below).

<u>Age</u>	<u>Rates</u>
20	2.5%
30	2.5%
40	2.0%
50	1.0%
60	0.0%

The assumed annual pay increases and inflation rate are based on a study of actuarial experience for the plan during 2014-2018. See the experience study report dated November 21, 2019 as prepared by Nyhart.

**Expense and/or Contingency Loading**

One-year term cost method, based on expenses for the previous year.

**Mortality Rates**

Pre-Retirement:

Pub-2010 Generational using scale MP-2018, Females, Headcount Weighted Safety Employee Female Table, set forward 1 year; Males, Headcount Weighted Safety Below Median Employee Male Table, set forward 1 year

Post-Retirement:

Pub-2010 Generational using scale MP-2018, Females, Headcount Weighted Safety Healthy Retiree Female Table, set forward 1 year; Males, Headcount Weighted Safety Below Median Healthy Retiree Male Table, set forward 1 year



Disabled:

Florida Retirement System special risk disabled mortality

75% of assumed deaths are expected to be in Line of Duty.

Pub-2010, Females, 80% Headcount Weighted General Disabled Retiree Female Table / 20% Headcount Weighted Safety Disabled Retiree Female Table; Males, 80% Headcount Weighted General Disabled Retiree Male Table / 20% Headcount Weighted Safety Disabled Retiree Male Table.

These are the same mortality rates used by the Florida Retirement System in its July 1, 2019 Actuarial Valuation Report.

## Retirement Rates

After completion of 20 years of credited service with the following rates:

<u>Service at Retirement</u>	<u>Rates</u>
20-23	10%
24	20%
25	40%
26-28	30%
29	70%
30+	100%

The assumed retirement rates are based on a study of actuarial experience for the plan during 2009-2014. See the experience study report dated November 19, 2015 as prepared by Nyhart. No changes were recommended based on the experience study for the plan during 2014-2018. See the experience study report dated November 21, 2019 as prepared by Nyhart.

## Disability Rates

<u>Age</u>	<u>Rates</u>
20	2.36%
30	0.35%
40	0.83%
50	1.42%

Disability rates cease upon attainment of 23 years of service.

75% of disabilities are assumed to be In Line of Duty and no offsets are included in any disability benefits. No probabilities of recovery are used.

The assumed disability rates are based on a study of actuarial experience for the plan during 2014-2018. See the experience study report dated November 21, 2019 as prepared by Nyhart.

#### Withdrawal Rates

<u>Age</u>	<u>Rates</u>
20	1.50%
30	1.00%
40	0.50%
50	0.25%
60	0.25%

If not vested upon termination, it is assumed that members withdraw their contribution balances.

The assumed withdrawal rates are based on a study of actuarial experience for the plan during 2014-2018. See the experience study report dated November 21, 2019 as prepared by Nyhart.

#### Marital Status and Ages

80% of active Members are assumed to be married with female spouses assumed to be 3 years younger than male spouses.

#### Cost-of-Living

All members retiring with 20 or more years of service are assumed to receive a 5% cost-of-living increase every 3 years.

#### State Contributions

Premium tax revenues under Chapter 175 are assumed to be \$2,410,006.

#### Changes Since Prior Report

The assumption on future payroll growth for the amortization payments was increased to 1.88% to stay at or below the 10 year average of historical pay growth.

The assumed interest rate was lowered from 7.60% to 7.25%. The inflation rate, withdrawal rates, disability rates and asset valuation method have been updated after an experience study covering the years 2014-2018 was performed.

The assumed mortality rates have been updated to match the Florida Retirement System mortality for Special Risk members after an experience study was conducted in 2019 and new mortality tables were adopted for the FRS Actuarial Valuation as of July 1, 2019.

The actuarial report also shows the necessary items required for plan reporting and the any state requirements.

- ✓ Reconciliation of unfunded actuarial liability
- ✓ Statement of changes in plan net assets
- ✓ Distribution of assets
- ✓ Schedule of amortizations
- ✓ Florida State requirements
  - Comparative Summary of Principal Valuation Results
  - Comparison of Payroll Growth, salary increases and investment results
  - Requirements under Florida Statute 112.664 and F.A.C. 60T – 1.0035
  - Reserve account for benefit improvements under F.L. 99-1 and SB 172
- ✓ Supplemental CAFR information
- ✓ Schedule of Funding Progress and Employer Contributions

DRAFT

## Reconciliation of Unfunded Actuarial Liability

	October 1, 2019
1. Unfunded Actuarial Accrued Liability beginning of prior year	\$87,187,795
2. Normal Cost	14,294,953
3. Expenses	206,357
4. Employer Contributions	(19,200,021)
5. Non-Employer Contributions	(5,531,292)
6. Interest	6,137,993
7. 1-year lag adjustment	260,703
8. Expected Unfunded Actuarial Accrued Liability, beginning of current year	\$83,356,488
9. Changes due to:	
(a) Amendments	\$0
(b) Assumptions	15,776,137
(c) Funding Methods	0
(d) Asset Valuation Methods	15,317,044
(e) Total	\$31,093,181
10. (Gain)/Loss due to:	
(a) Assets	\$3,829,261
(b) Liabilities	(2,867,764)
(c) Total	\$961,497
11. Unfunded Actuarial Liability beginning of current year [8 + 9(e) + 10(c)]	\$115,411,166

**Statement of Changes in Plan Net Assets**

	<u>September 30, 2018</u>	<u>September 30, 2019</u>
1. Additions		
(a) Contributions:		
(i) Employer	\$18,792,096	\$19,200,021
(ii) Member	3,145,616	3,293,197
(iii) Nonemployer contributing entity	2,159,559	2,238,095
(iv) Excess premium tax	0	0
(v) Total	\$24,097,271	\$24,731,313
(b) Investment income		
(i) Net increase in fair value of investments	\$24,079,058	\$22,304,390
(ii) Interest and dividends	4,271,687	4,397,250
(iii) Investment expense, other than from securities lending	(1,657,360)	(1,755,939)
(iv) Securities lending income	429,100	798,963
(v) Securities lending expense	(365,374)	(746,740)
(vi) Total	\$26,757,111	\$24,997,924
(c) Other	0	0
(d) Total additions [(a)+(b)+(c)]	\$50,854,382	\$49,729,237
2. Deductions		
(a) Benefit payments, including refunds of member contributions	\$22,172,428	\$29,959,421
(b) Administrative expense	118,991	178,446
(c) Other	27,454	27,911
(d) Total deductions	\$22,318,873	\$30,165,778
3. Net increase [(1d)-(2d)]	\$28,535,509	\$19,563,459
4. Net assets held in trust for pension benefits, beginning of year	394,177,607	422,713,116
5. Net assets held in trust for pension benefits, end of year [(3)+(4)]	\$422,713,116	\$442,276,575

## Distribution of Assets

	September 30, 2018	September 30, 2019
Cash and deposits	\$2,437,650	\$9,073,737
Securities lending cash collateral	23,565,944	35,544,565
Total cash	\$26,003,594	\$44,618,302
Receivables		
Contributions	\$0	\$0
Other	0	0
Total receivables	\$0	\$0
Investments		
Domestic Equities	\$112,500,954	\$116,732,700
Fixed Income	116,005,595	126,449,799
International Equities	71,647,616	76,287,313
Global Asset Allocation	39,749,428	19,721,657
Share Plan Mutual Fund	13,163,404	13,344,851
Real Estate	26,327,887	27,595,260
Hedge Funds	16,188,026	10,184,850
Short-term Investments/Asset Bonded Securities	4,906,172	13,713,039
Private Debt	15,366,606	22,491,444
Private Equity	4,566,949	6,853,755
Total investments	420,422,637	433,374,668
Payables		
Investment management fees	\$0	\$0
Due to broker for investments purchased	0	0
Collateral payable for securities lending	23,565,944	35,544,565
Other	147,171	171,830
Total liabilities	\$23,713,115	\$35,716,395
Reserved Assets		
Balance in Share fund	(\$13,243,283)	\$(13,429,466)
<b>Assets available for benefits</b>	<b>\$409,469,833</b>	<b>\$428,847,109</b>

Schedule of Amortizations

October 1, 2019

<u>Date Established</u>	<u>Description</u>	<u>Original Amounts</u>	<u>Original Period</u>	<u>Remaining Period Years</u>	<u>Remaining Balance</u>	<u>Annual Payment</u>
9/30/2005	Fresh Start	18,321,886	20	6	12,386,619	2,338,313
9/30/2006	Actuarial (Gain)/Loss	(4,506,959)	20	7	(3,370,740)	(558,808)
9/30/2007	Actuarial (Gain)/Loss	(4,698,623)	20	8	(3,852,966)	(572,507)
9/30/2007	Plan Amendment	809,250	20	8	649,229	96,468
9/30/2008	Actuarial (Gain)/Loss	10,730,175	20	9	9,108,935	1,232,099
9/30/2009	Plan Amendment	8,133,032	20	10	7,205,615	898,136
9/30/2009	Actuarial (Gain)/Loss	14,877,715	20	10	14,492,768	1,806,436
9/30/2010	Actuarial (Gain)/Loss	7,047,273	20	11	7,051,958	817,984
9/30/2010	Assumption Change	4,950,244	20	11	4,953,535	574,579
9/30/2011	Actuarial (Gain)/Loss	6,486,893	20	12	6,618,810	720,259
9/30/2012	Actuarial (Gain)/Loss	(3,644,397)	20	13	(3,768,019)	(387,283)
9/30/2013	Actuarial (Gain)/Loss	(1,136,396)	20	14	(1,184,263)	(115,626)
9/30/2014	Actuarial (Gain)/Loss	(1,834,540)	20	15	(1,922,539)	(179,184)
9/30/2015	Actuarial (Gain)/Loss	6,029,015	20	16	5,891,118	526,360
9/30/2015	Assumption Change	13,660,962	20	16	13,348,506	1,192,664
9/30/2016	Actuarial (Gain)/Loss	11,623,470	20	17	11,416,888	981,525
9/30/2016	Assumption Change	9,364,914	20	17	9,198,471	790,805
9/30/2017	Actuarial (Gain)/Loss	(12,194,307)	20	18	(11,999,675)	(995,875)
9/30/2017	Assumption Change	2,759,850	20	18	2,715,800	225,389
9/30/2018	Actuarial (Gain)/Loss	(1,680,465)	20	19	(1,663,334)	(133,643)
9/30/2018	Assumption Change	6,142,390	20	19	6,079,772	488,489
9/30/2019	Actuarial (Gain)/Loss	961,497	20	20	961,497	74,983
9/30/2019	Assumption Change	15,776,137	20	20	15,776,137	1,230,310
9/30/2019	Asset Method Change	15,317,044	20	20	15,317,044	1,194,507
<b>Total:</b>					<b>115,411,166</b>	<b>12,246,380</b>

Information to Comply with Florida 60T-1.003(4)(i)

**Comparative Summary Of Principal Valuation Results**

	10/1/2019 7.25% (current methods & assumptions)	10/1/2019 7.60% (prior methods & assumptions)	10/1/2018 7.60%
Participant Data			
Active members	496	496	486
Total annual payroll	\$44,839,453	\$42,831,302	\$40,957,849
Members in DROP	21	21	24
Total annualized benefit	\$1,614,397	\$1,614,397	\$1,706,933
Retired members and beneficiaries	358	358	337
Total annualized benefit	\$17,147,974	\$17,147,974	\$15,418,634
Disabled members receiving benefits	113	113	117
Total annualized benefit	\$5,279,602	\$5,279,602	\$5,386,490
Terminated vested members	5	5	7
Total annualized benefit	\$90,594	\$90,594	\$166,199
Assets			
Actuarial value of assets	\$428,847,109	\$444,164,153	\$420,441,619
Market value of assets	\$428,847,109	\$428,847,109	\$409,469,833



Information to Comply with Florida 60T-1.003(4)(i)

**Comparative Summary Of Principal Valuation Results (continued)**

	10/1/2019 7.25% (current methods & assumptions)	10/1/2019 7.60% (prior methods & assumptions)	10/1/2018 7.60%
Liabilities, present value of all future expected benefit payments			
Active members			
Retirement benefits	\$335,052,690	\$320,997,587	\$313,748,793
Vesting benefits	\$2,017,687	\$1,247,028	\$1,239,175
Disability benefits	\$31,910,299	\$39,893,130	\$38,824,013
Death benefits	\$3,854,580	\$5,182,817	\$5,040,553
Return of contribution	337,248	319,894	414,355
Total	\$373,172,504	\$367,640,456	\$359,266,889
Terminated vested members	\$797,320	\$758,768	\$1,599,076
Retired members and beneficiaries	\$233,416,507	\$233,517,060	\$212,880,366
Disabled members	\$61,855,879	\$60,457,228	\$61,957,266
Total	\$669,242,210	\$662,373,512	\$635,703,597
Liabilities due and unpaid	\$0	\$0	\$0
Actuarial accrued liability	\$544,258,275	\$528,482,138	\$507,629,414
Unfunded actuarial accrued liability	\$115,411,166	\$84,317,985	\$87,187,795

Information to Comply with Florida 60T-1.003(4)(i)

**Comparative Summary Of Principal Valuation Results (continued)**

	10/1/2019 7.25% (current methods & assumptions)	10/1/2019 7.60% (prior methods & assumptions)	10/1/2018 7.60%
<b>Actuarial present value of accrued benefits</b>			
Statement of actuarial present value of all accrued benefits			
Vested accrued benefits			
Inactive members and beneficiaries	\$296,069,706	\$294,733,056	\$276,436,708
Active members	151,754,397	148,421,247	154,057,421
Total value of all vested accrued benefits	\$447,824,103	\$443,154,303	\$430,494,129
Non-vested accrued benefits	13,728,659	12,159,296	8,842,398
Total actuarial present value of all accrued benefits	\$461,552,762	\$455,313,599	\$439,336,527
Actuarial present value of accrued benefits, beginning of year	\$439,336,527	\$439,336,527	\$412,698,871
Increase (decrease) during year			
Benefits accumulated	\$13,088,916	\$13,088,916	\$13,722,166
Plan amendment	0	0	0
Changes in actuarial assumptions	6,239,163	0	3,845,172
Interest	32,292,664	32,292,664	30,951,026
Benefits paid	(29,404,508)	(29,404,508)	(21,880,708)
Other changes	0	0	0
Net increase (decrease)	\$22,216,235	\$15,977,072	\$26,637,656
Actuarial present value of accrued benefits, end of year	\$461,552,762	\$455,313,599	\$439,336,527

Information to Comply with Florida 60T-1.003(4)(i)

Comparative Summary Of Principal Valuation Results (continued)

	10/1/2019 7.25% (current methods & assumptions)	10/1/2019 7.60% (prior methods & assumptions)	10/1/2018 7.60%
<b>Pension cost</b>			
Normal Cost	\$14,231,677	\$14,746,089	\$14,294,953
Member contributions	\$3,358,475	\$3,358,475	\$3,053,118
Expected plan sponsor contribution	\$22,607,064	\$20,952,381	\$20,301,358
As % of expected payroll	48.48%	47.04%	47.66%
Member Contributions as % of payroll	7.49%	7.84%	7.45%
<b>Past contributions</b>	<b>9/30/2019</b>	<b>9/30/2019</b>	<b>9/30/2018</b>
Required plan sponsor contribution	\$21,438,116	\$21,438,116	\$20,951,655
Required member contribution	\$3,293,197	\$3,293,197	\$3,145,616
Actual contributions made by:			
Plan's sponsor	\$19,200,021	\$19,200,021	\$18,792,096
Members	\$3,293,197	\$3,293,197	\$3,145,616
Other	\$2,238,095	\$2,238,095	\$2,159,559
<b>Net actuarial (gain)/loss (if applicable)</b>	<b>\$16,278,541</b>	<b>\$961,498</b>	<b>\$(1,680,465)</b>
<b>Other disclosures (where applicable)</b>			
Present value of active member			
Future salaries at attained age	\$384,064,852	\$379,843,931	\$357,719,329
Future contributions at attained age	\$26,279,031	\$25,880,932	\$24,343,855
Accumulated Member Contributions	\$40,936,359	\$40,936,359	\$36,599,666

Information to Comply with Florida 60T-1.003(3)(f)

September 30, 2019

Historical Salary Increases and Asset Performance

<u>Year Ending</u>	<u>Payroll Growth</u>	<u>Salary Growth</u>	<u>Expected Salary Growth</u>	<u>Asset Return (Market)</u>	<u>Asset Return (Actuarial)</u>	<u>Asset Return (Expected)</u>
9/30/2019	4.57%	6.26%	5.55%	5.84%	3.12%	7.60%
9/30/2018	-1.07%	3.75%	5.57%	6.63%	6.77%	7.70%
9/30/2017	-1.37%	-1.84%	5.60%	10.45%	7.29%	7.75%
9/30/2016	3.94%	8.17%	6.14%	8.21%	6.55%	7.75%
9/30/2015	3.46%	6.50%	5.00%	0.10%	6.27%	8.00%
9/30/2014	0.70%	2.70%	5.00%	9.00%	7.80%	8.00%
9/30/2013	6.80%	4.90%	5.00%	11.00%	7.40%	8.00%
9/30/2012	(0.60%)	3.00%	5.00%	16.00%	6.50%	8.00%
9/30/2011	(0.40%)	3.70%	5.00%	2.40%	4.40%	8.00%
9/30/2010	2.80%	5.40%	5.00%	10.80%	4.90%	8.00%
<u>Averages</u>						
3-year				7.62%	5.71%	
5-year				6.19%	5.99%	
10-year	1.88%			7.96%	6.09%	
24-year				7.41%	7.58%	

Amortization of Unfunded Actuarial Accrued Liability

	<u>UAAL</u>	<u>Amortization</u>
10/1/2019	\$115,411,166	\$12,246,380
10/1/2020	\$110,644,233	\$12,476,615
10/1/2021	\$105,284,772	\$12,711,175
10/1/2022	\$99,285,183	\$12,950,144
10/1/2038	\$3,561,190	\$3,561,190

**Information to Comply with Florida Statute 112.664 and Florida Administrative Code 60T-1.0035<sup>1</sup>**

	<b>October 1, 2019</b>			
	GASB 67/68 Valuation 7.60%	- 200 bp <sup>2</sup> 5.25%	Funding Rate <sup>2</sup> 7.25%	+ 200 bp <sup>2</sup> 9.25%
Total pension liability				
Service Cost	\$13,898,491	\$14,294,953	\$14,294,953	\$14,294,953
Interest	38,876,113	38,569,340	38,569,340	38,569,340
Benefit changes	0	0	0	0
Difference between expected and actual experience	(4,524,843)	(2,867,764)	(2,867,764)	(2,867,764)
Changes in assumptions	6,535,123	173,360,065	16,036,840	(90,138,025)
Benefit payments	(29,341,597)	(29,341,597)	(29,341,597)	(29,341,597)
Contribution refunds	(62,911)	(62,911)	(62,911)	(62,911)
Net change in pension liability	\$25,380,376	\$193,952,086	\$36,628,861	(\$69,546,004)
Total pension liability, beginning of year	\$505,688,364	\$507,629,414	\$507,629,414	\$507,629,414
Total pension liability, end of year	\$531,068,740	\$701,581,500	\$544,258,275	\$438,083,410
Plan fiduciary net position				
Contributions – Employer <sup>3</sup>	\$19,200,021	\$19,200,021	\$19,200,021	\$19,200,021
Contributions - Member	3,293,197	3,293,197	3,293,197	3,293,197
Contributions - State	2,238,095	2,238,095	2,238,095	2,238,095
Net investment income	24,256,828	24,256,828	24,256,828	24,256,828
Benefit payments	(29,341,597)	(29,341,597)	(29,341,597)	(29,341,597)
Contribution refunds	(62,911)	(62,911)	(62,911)	(62,911)
Administrative expense	(178,446)	(178,446)	(178,446)	(178,446)
Other	(27,911)	(27,911)	(27,911)	(27,911)
Net change in plan fiduciary net position <sup>4</sup>	\$19,377,276	\$19,377,276	\$19,377,276	\$19,377,276
Plan fiduciary net position, beginning of year	\$409,469,833	\$409,469,833	\$409,469,833	\$409,469,833
Plan fiduciary net position, end of year	\$428,847,109	\$428,847,109	\$428,847,109	\$428,847,109
Net pension liability/(asset)	\$102,221,631	\$272,734,391	\$115,411,166	\$9,236,301
Funded ratio	80.75%	61.13%	78.79%	97.86%
Years that Assets support expected benefit payments	18	15	18	24
Estimated city contribution				
Annual dollar value	\$23,466,538	\$51,651,545	\$22,607,064	(\$1,302,885)
Percentage of payroll	50.32%	110.76%	48.48%	(2.79%)

<sup>1</sup>Includes DROP assets and liabilities

<sup>2</sup>Based on valuation assumption with interest rate changes as noted

<sup>3</sup>Employer contributions reflect member shortfall

<sup>4</sup>Figures may not add due to rounding

Information to Comply with Florida Statute 112.664 and Florida Administrative Code 60T-1.0035<sup>1</sup>

October 1, 2019

Sustainment of Expected Benefit Payments

Mortality GASB 67/68 Valuation  
Interest 7.60%

<u>Year</u>	<u>Market Value of Assets</u>	<u>Investment Return</u>	<u>Benefit Payments</u>
1	\$428,847,109	\$31,500,300	\$29,274,988 <sup>1</sup>
2	431,072,421	31,701,490	28,415,403
3	434,358,508	31,874,016	30,485,335
4	435,747,189	31,885,065	33,018,310
5	434,613,944	31,711,167	35,371,161
6	430,953,950	31,363,749	37,227,752
7	425,089,947	30,834,465	39,469,308
8	416,455,104	30,096,787	41,652,172
9	404,899,719	29,127,319	44,098,516
10	389,928,522	27,874,718	47,175,647
11	370,627,593	26,317,316	49,602,478
12	347,342,431	24,452,978	52,140,159
13	319,655,250	22,262,081	54,463,509
14	287,453,822	19,750,939	56,174,688
15	251,030,073	16,958,164	56,833,325
16	211,154,912	13,854,928	58,782,815
17	166,227,025	10,377,312	60,474,197
18	116,130,140	6,494,803	62,488,621
19	60,136,322		64,039,666

<sup>1</sup>Benefit payments include the DROP balance at 9/30/2019

Information to Comply with Florida Statute 112.664 and Florida Administrative Code 60T-1.0035<sup>1</sup>

October 1, 2019

Sustainment of Expected Benefit Payments

Mortality Pub-2010 Generational using Scale MP-2018  
Interest 7.25%

<u>Year</u>	<u>Market Value of Assets</u>	<u>Investment Return</u>	<u>Benefit Payments</u>
1	\$428,847,109	\$30,048,764	\$29,274,988 <sup>1</sup>
2	429,620,885	30,135,478	28,415,403
3	431,340,960	30,186,461	30,485,335
4	431,042,086	30,074,579	33,018,310
5	428,098,355	29,777,360	35,371,161
6	422,504,554	29,305,686	37,227,752
7	414,582,488	28,651,501	39,469,308
8	403,764,681	27,789,466	41,652,172
9	389,901,975	26,697,291	44,098,516
10	372,500,750	25,326,108	47,175,647
11	350,651,211	23,655,583	49,602,478
12	324,704,316	21,684,052	52,140,159
13	294,248,209	19,393,236	54,463,509
14	259,177,936	16,789,696	56,174,688
15	219,792,944	13,910,826	56,833,325
16	176,870,445	10,729,513	58,782,815
17	128,817,143	7,185,408	60,474,197
18	75,528,354	3,250,226	62,488,621
19	16,289,959		64,039,666

<sup>1</sup>Benefit payments include the DROP balance at 9/30/2019

Information to Comply with Florida Statute 112.664 and Florida Administrative Code 60T-1.0035<sup>1</sup>

October 1, 2019

Sustainment of Expected Benefit Payments

Mortality Pub-2010 Generational using Scale MP-2018  
Interest 5.25%

<u>Year</u>	<u>Market Value of Assets</u>	<u>Investment Return</u>	<u>Benefit Payments</u>
1	\$428,847,109	\$21,755,835	\$29,274,988 <sup>1</sup>
2	421,327,956	21,383,355	28,415,403
3	414,295,908	20,960,531	30,485,335
4	404,771,104	20,394,839	33,018,310
5	392,147,633	19,671,134	35,371,161
6	376,447,606	18,798,771	37,227,752
7	358,018,625	17,773,161	39,469,308
8	336,322,478	16,577,546	41,652,172
9	311,247,852	15,197,733	44,098,516
10	282,347,069	13,600,701	47,175,647
11	248,772,123	11,775,127	49,602,478
12	210,944,772	9,723,429	52,140,159
13	168,528,042	7,436,343	54,463,509
14	121,500,876	4,923,072	56,174,688
15	70,249,260	2,215,294	56,833,325
16	15,631,229		58,782,815

<sup>1</sup>Benefit payments include the DROP balance at 9/30/2019



Information to Comply with Florida Statute 112.664 and Florida Administrative Code 60T-1.0035<sup>1</sup>

October 1, 2019

Sustainment of Expected Benefit Payments

Mortality Pub-2010 Generational using Scale MP-2018  
Interest 9.25%

<u>Year</u>	<u>Market Value of Assets</u>	<u>Investment Return</u>	<u>Benefit Payments</u>
1	\$428,847,109	\$38,344,330	\$29,274,988 <sup>1</sup>
2	437,916,451	39,222,121	28,415,403
3	448,723,169	40,128,125	30,485,335
4	458,365,959	40,905,524	33,018,310
5	466,253,173	41,528,678	35,371,161
6	472,410,690	42,014,280	37,227,752
7	477,197,218	42,355,654	39,469,308
8	480,083,564	42,523,917	41,652,172
9	480,955,309	42,493,912	44,098,516
10	479,350,705	42,206,316	47,175,647
11	474,381,374	41,636,894	49,602,478
12	466,415,790	40,785,305	52,140,159
13	455,060,936	39,629,902	54,463,509
14	440,227,329	38,180,401	56,174,688
15	422,233,042	36,486,141	56,833,325
16	401,885,858	34,515,857	58,782,815
17	377,618,900	32,194,667	60,474,197
18	349,339,370	29,487,703	62,488,621
19	316,338,452	26,364,969	64,039,666
20	278,663,755	22,864,716	64,378,919
21	237,149,552	18,941,381	66,220,103
22	189,870,830	14,523,917	67,196,991
23	137,197,756	9,594,094	68,469,757
24	78,322,093	4,145,404	68,529,248
25	13,938,249		69,119,005

<sup>1</sup>Benefit payments include the DROP balance at 9/30/2019

**Reserve Account For Future Benefit Improvements Under F.L. 99-1**

**Adjusted Base Amount at 10/1/2019**

<u>Year Established</u>	<u>Description</u>	<u>Ch. 175 Fire</u>	<u>Suppl. Fire</u>	<u>Total</u>
1998	Base Year Premium Tax Distribution	\$1,065,707	\$72,788	\$1,138,495
2007	All 99-1 Benefits	221,025	0	221,025
2009	Multiplier Increase	1,123,274	0	1,123,274
	Adjusted Base Amount	<u>\$2,410,006</u>	<u>\$72,788</u>	<u>\$2,482,794</u>

**Reserve Account for 2018/2019**

	<u>Ch. 175 Fire</u>	<u>Suppl. Fire</u>	<u>Total</u>
1. Reserve Account			
(a) Reserve Account at September 30, 2018	\$0	\$0	\$0
(b) Interest on (a) for full year	0	0	0
(c) Distribution to Fire Share Plan	<u>0</u>	<u>0</u>	<u>0</u>
(d) Reserve Account at September 30, 2019 before 2018 Distribution	\$0	\$0	\$0
2. Increase in Reserve Account			
(a) Premium Tax Distribution for 2018	\$2,238,095	\$0	2,238,095
(b) Amount Available	2,410,006	72,788	2,482,794
(c) Increase in Reserve Distribution	<u>0</u>	<u>0</u>	<u>0</u>
(d) Share Plan Allocation	\$0	\$0	\$0
3. Reserve Account at September 30, 2019 [(1d)+ (2d)]	\$0	\$0	\$0

Supplemental CAFR Information

Withdrawal From Active Employment Before Age and Service Retirement Eligibility and Pay Increase Assumptions

Percent of Active Members Separating		Pay Increase Assumption	
Sample Ages	Expected Separations Within Next Year	Sample Ages	Annual Pay Percent Increase
25	1.25%	25	5.00%
30	1.00%	30	5.00%
35	0.75%	35	4.75%
40	0.50%	40	4.50%
45	0.25%	45	4.00%
50	0.25%	50	3.50%
55	0.25%	55	3.00%
60	0.25%	60	2.50%

Supplemental CAFR Information

Schedule of Active Members' Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Payroll	% Increase In Average Pay
9/30/2010	488	36,668,848	75,141	4.10%
9/30/2011	482	36,505,732	75,738	0.79%
9/30/2012	473	36,279,975	76,702	1.27%
9/30/2013	499	38,746,701	77,648	1.23%
9/30/2014	500	39,030,560	78,061	0.53%
9/30/2015	494	40,382,106	81,745	4.72%
9/30/2016	481	41,973,977	87,264	6.75%
9/30/2017	498	41,399,503	83,132	-4.74%
9/30/2018	486	40,957,849	84,275	1.37%
9/30/2019	496	44,839,453	90,402	7.27%

Schedule of Retirees and Beneficiaries Valuation Data

Valuation Date	Added to Rolls		Removed From Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
9/30/2010	21	1,084,866	6	219,648	393	14,262,617	6.46%	36,292
9/30/2011	27	1,655,357	7	76,604	413	15,841,370	11.07%	38,357
9/30/2012	23	1,488,247	4	137,144	432	17,192,473	8.53%	39,797
9/30/2013	17	766,544	11	239,138	438	17,914,975	4.20%	40,902
9/30/2014	14	675,073	7	114,603	445	18,475,445	3.13%	41,518
9/30/2015	19	1,239,892	9	257,454	455	19,457,883	5.32%	42,765
9/30/2016	19	1,816,871	8	440,298	470	20,834,456	7.07%	44,329
9/30/2017	7	625,676	11	205,234	466	21,254,898	2.02%	45,611
9/30/2018	20	1,571,035	8	313,876	478	22,512,057	5.91%	47,096
9/30/2019	26	1,845,850	12	315,934	492	24,041,973	6.80%	48,866

Supplemental CAFR Information

Solvency Test

Valuation Date	Aggregate Accrued Liabilities			Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Reported Assets		
	Active Member Contributions	Retirees and Beneficiaries	Active and Inactive Members (Employer Financed Portion)		Active Member Contributions	Retirees and Beneficiaries	Employer Financed Portion
9/30/2010	21,798,479	164,081,434	132,769,429	261,617,820	100.00%	100.00%	57.04%
9/30/2011	22,599,127	181,766,941	131,499,244	271,231,051	100.00%	100.00%	50.85%
9/30/2012	23,819,935	197,644,370	127,170,334	286,995,495	100.00%	100.00%	51.53%
9/30/2013	25,626,022	204,527,177	136,670,173	306,624,964	100.00%	100.00%	55.95%
9/30/2014	27,702,743	212,744,463	145,867,313	328,357,893	100.00%	100.00%	60.27%
9/30/2015	29,338,918	229,243,370	166,425,536	348,252,298	100.00%	100.00%	53.88%
9/30/2016	30,272,316	251,608,286	180,389,466	365,768,349	100.00%	100.00%	46.50%
9/30/2017	36,942,812	254,703,358	184,196,552	390,325,521	100.00%	100.00%	53.57%
9/30/2018	36,599,666	276,436,708	194,593,040	420,441,619	100.00%	100.00%	55.19%
9/30/2019	40,936,359	296,069,706	207,252,210	428,847,109	100.00%	100.00%	44.31%

Equivalent Single Period Remaining

Investment Return Assumption	7.25%
Payroll Growth Assumption	1.88%
Equivalent Level Dollar Discount Rate	5.27%
Unfunded Actuarial Accrued Liability	\$115,411,166
Amortization Payment (BOY)	\$12,246,380
Weighted Amortization Factor	9.4241
Equivalent Single Amortization Period (yrs.)	14

Supplemental CAFR Information

Schedule of Funding Progress

Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL) Entry Age	Unfunded AAL	Funded Ratio	Active Member Covered Payroll	Unfunded AAL as a Percentage of Active Member Covered Payroll
9/30/2010	261.62	318.65	57.03	82.1%	36.67	155.5%
9/30/2011	271.23	335.87	64.64	80.8%	36.51	177.0%
9/30/2012	287.00	348.63	61.63	82.3%	36.28	169.9%
9/30/2013	306.62	366.82	60.20	83.6%	38.75	155.4%
9/30/2014	328.36	386.31	57.95	85.0%	39.03	148.5%
9/30/2015	348.25	425.01	76.76	81.9%	40.38	190.1%
9/30/2016	365.77	462.27	96.50	79.1%	41.97	229.9%
9/30/2017	390.32	475.84	85.52	82.0%	41.40	206.6%
9/30/2018	420.43	507.63	87.20	82.8%	40.96	212.9%
9/30/2019	428.85	544.26	115.41	78.8%	44.84	257.4%

Schedule of Employer Contributions

Valuation Date	Fiscal Year Ending	Annual Required Contribution	Percentage Contributed	Payment Information
9/30/2008	9/30/2010	11,305,754	100%	2 Lump Sum payments
9/30/2009	9/30/2011	12,752,543	100%	Lump Sum on October 1, 2010
9/30/2010	9/30/2012	14,308,291	100%	Lump Sum on October 1, 2011
9/30/2011	9/30/2013	14,962,383	100%	Lump Sum on October 1, 2012
9/30/2012	9/30/2014	15,349,478	100%	Lump Sum on October 1, 2013
9/30/2013	9/30/2015	15,695,905	100%	Lump Sum on October 1, 2014
9/30/2014	9/30/2016	15,860,906	100%	Lump Sum on October 1, 2015
9/30/2015	9/30/2017	18,666,749	100%	Lump Sum on October 1, 2016
9/30/2016	9/30/2018	20,951,655	100%	Lump Sum on October 1, 2017
9/30/2017	9/30/2019	21,438,116	100%	Lump Sum on October 1, 2018