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City of Lauderhill

Firefighters' Retirement System

Actuarial Valuation as of October 1, 2016



March 1, 2017

REPORT TO DETERMINE MINIMUM FUNDING REQUIREMENTS
FOR THE PLAN AND FISCAL YEAR
ENDING SEPTEMBER 30, 2017



March 1, 2017

Board of Trustees
City of Lauderhill Firefighters' Retirement System
Lauderhill, Florida

RE: Actuarial Valuation as of October 1, 2016

Dear Board Members:

We are pleased to present the actuarial valuation as of October 1, 2016 for the City of Lauderhill Firefighters' Retirement System (the Plan). This report provides a review of the current funded status of the Plan, establishes the minimum funding requirements for the fiscal year ending September 30, 2017 and provides an analysis of experience since the last valuation. In addition to providing the summary and derivation of actuarial findings, this report describes the data, assumptions, and methods used to create these results.

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 or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

Statement by Enrolled Actuary:

"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."

We look forward to the presentation of these results to you in person and we are always available to answer any questions you may have.

Sincerely,

Handwritten signature of Chad M. Little in black ink.

Chad M. Little, ASA, EA
Partner, Consulting Actuary
Enrollment Number 14-6619

Handwritten signature of Paula C. Freiman in black ink.

Paula C. Freiman, ASA, EA
Partner, Consulting Actuary
Enrollment Number 14-5796

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Section

1

Board Summary

This report presents the results of the October 1, 2016 actuarial valuation of the City of Lauderhill Firefighters' Retirement System (the Plan).

Summary of Principal Valuation Results

A summary of the key valuation findings as of October 1, 2016 are compared with the results of the prior valuation below.

Minimum Funding Requirements

Fiscal Year Ending September 30,	2016	2017
Minimum Required Funding as a Dollar Amount		
Estimated Minimum Required City Contribution	\$3,818,317	\$3,521,059
Estimated State Contribution	<u>167,361</u>	<u>195,829</u>
Total Minimum Funding Requirement (City plus State)	\$3,985,678	\$3,716,888
Minimum Required Funding as a % of Payroll		
Estimated Minimum Required City Contribution	51.00%	45.53%
Estimated State Contribution	<u>2.24%</u>	<u>2.53%</u>
Total Minimum Funding Requirement (City plus State)	53.24%	48.06%

Funded Status

Valuation Date October 1,	2015	2016
Accrued Liability (AL)	\$81,913,355	\$86,941,866
Actuarial Value of Assets	<u>(65,524,026)</u>	<u>(70,067,764)</u>
Unfunded Accrued Liability (UAL)	\$16,389,329	\$16,874,102
Funded Percentage	79.99%	80.59%

Key Assumptions

Valuation Date October 1,	2015	2016
Assumed Rate of Investment Return*	8.00%	7.85%
Salary Increase Assumption	7.00%	7.00%
Funding Method	Entry Age	Entry Age

*The assumed rate of investment return was gross of investment expenses for the October 1, 2015 actuarial valuation and is net of investment expenses for the October 1, 2016 actuarial valuation.

Summary of Significant Events

Determinations of the funded status of the Plan and minimum funding requirements are based on participant data, asset information, Plan provisions, actuarial methods and assumptions, as well as contributions made to the Plan by the State of Florida. Any significant events associated with these items are discussed in the following.

In preparing our report we relied, without audit, on information (some oral and some written) supplied by the Plan Administrator. This information includes, but is not limited to, statutory provisions, employee census, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

Participant Data

While the number of active Members remained level at 83, total payroll increased 3.3%. The following provides a summary of the average actual pay increases for continuing active members, by individual, to the expected pay increases for the 12 month periods ending on the date specified.

Year Ending September 30	Actual	Assumed
2016	4.6 %	7.0 %
2015	2.4 %	7.0 %
2014	3.2 %	7.0 %
2013	4.4 %	7.0 %
2012	7.2 %	7.0 %
2011	4.0 %	7.0 %
2010	0.5 %	7.0 %
2009	11.9 %	7.0 %
2008	9.4 %	7.0 %
2007	16.1 %	7.0 %
2006	7.2 %	7.0 %
2005	6.6 %	7.0 %
2004	7.7 %	7.0 %
2003	5.4 %	7.0 %
2002	4.6 %	7.0 %
2001	11.2 %	7.0 %
2000	8.2 %	7.0 %
1999	8.3 %	7.0 %
1998	9.0 %	7.0 %
19-Yr Avg	6.9 %	7.0 %
10-Yr Avg	6.3 %	7.0 %
5-Yr Avg	4.3 %	7.0 %

Note that although the average individual salary increases were 4.3% over the last five years, the average was 6.3% over the last ten years and 6.9% over the last 19 years.



Overall, there was a small demographic gain.

In general, should a pattern of consistent gains or losses develop, assumptions may require revision.

Assets

While the investment return on the Market Value of Assets, gross of investment expenses, was 10.59% for the year, the investment return on the Actuarial Value of Assets, gross of investment expenses, was 8.34%. These returns are in comparison to the 8.0% assumed rate of return, gross of investment expenses, resulting in an actuarial investment gain. The following provides a summary of the actual to the expected return on investments for the 12 month periods ending on the date specified.

Year Ending September 30	Return on Market Value		Return on Actuarial Value		Assumed Return, Gross of Expenses
	Gross of Investment Expenses	Net of Investment Expenses	Gross of Investment Expenses	Net of Investment Expenses	
2016	10.59 %	9.88 %	8.34 %	7.66 %	8.0 %
2015	(0.05)%	(0.80)%	10.65 %	9.80 %	8.0 %
2014	9.57 %	8.83 %	12.22 %	11.38 %	8.0 %
2013	16.30 %	15.49 %	12.42 %	11.55 %	8.0 %
2012	20.69 %	19.82 %	6.66 %	5.86 %	8.0 %
2011	(0.95)%	(1.65)%	(1.69)%	(2.38)%	8.0 %
2010	10.25 %	9.61 %	2.62 %	2.05 %	8.0 %
2009	(3.67)%	(4.24)%	0.66 %	0.11 %	8.0 %
2008	(12.91)%	(13.49)%	6.11 %	5.38 %	8.0 %
2007	17.71 %	16.99 %	12.88 %	12.10 %	8.0 %
Geometric Average	6.25 %	5.54 %	6.97 %	6.24 %	8.0 %

Note that the return on the Market Value of Assets for the years ending in 2007 through 2013 have been revised from those shown in the prior actuarial valuations to include DROP balances in the Market Value of Assets.

Investment returns less than the assumed rate of return result in increased annual minimum required contributions.

The board of trustees made a decision to revise the assumption used for valuation purposes from 8.0%, gross of investment expenses, as used in the October 1, 2015 actuarial valuation to 7.85%, net of investment expenses, for this October 1, 2016 actuarial valuation of the Plan.

We have noted that the difference between the actual investment return gross of investment expenses and that net of investment expenses averaged 0.71% on the Market Value and 0.73% on the Actuarial Value over the last 10 years.

Plan Provisions

Ordinance No. 160-01-100 was adopted effective February 8, 2016 which created a defined contribution component to the Plan. Because the defined contribution component has not been funded, there has been no impact for the change. However, should funding of the defined contribution component through collective bargaining change the portion of State premium taxes used toward payment of the actuarially determined contribution, there would be an impact at that time.

Methods and Assumptions

Note that the board of trustees has sole authority to determine the methods and actuarial assumptions used for the valuation.

Changes in the Unfunded Accrued Liability due to Plan changes, assumption changes, method changes, or gains and losses are all amortized over a 25-year period effective October 1, 2016. Prior to this change there was a 30-year amortization period.

In the prior valuation, the mortality table was the RP-2000 Combined Mortality Table where Scale AA was applied to reflect mortality improvements to the valuation year. The mortality table has been revised to the mortality assumption used for special risk employees in the July 1, 2015 valuation of the Florida Retirement System (FRS), as required by state statute. The mortality rates are as follows:

Healthy mortality:	Males: 10% RP-00 Annuitant White Collar + 90% RP-00 Annuitant Blue Collar
	Females: 100% RP-00 Annuitant White Collar
	Both male and female rates fully generational using Scale BB
Disabled mortality:	Males: 60% RP-00 Disabled Retiree Set Back 4 Years + 40% RP-00 Annuitant White Collar
	Females: 60% RP-00 Disabled Retiree Set Forward 2 Yrs + 40% RP-00 Annuitant White Collar
	No mortality improvement is assumed for disabled lives.

Note that GASB statements and required State reporting under F.S. 112.664 specifically require use of a long-term expected rate of return that is net of investment expenses. The board of trustees made a decision to revise the assumption used for valuation purposes from 8.0%, gross of investment expenses, as used in the October 1, 2015 actuarial valuation to 7.85%, net of investment expenses, for this October 1, 2016 actuarial valuation of the Plan. See the section entitled "Net Pension Liability" in the GASB 67/68 supplement for more information provided by the investment monitor regarding the selection of the net assumed rate of return.

State Contributions

There have been significant changes in state law related to the use of premium tax revenues. Florida Statutes Section 175.131(1) states changes become effective upon entering into a Collective Bargaining Agreement (CBA) on or after July 1, 2015.

The current CBA between the City of Lauderhill and the Metro Broward Professional Firefighters, Local 3080, is for the period from October 1, 2015 to September 30, 2018. We understand that there is a memorandum of understanding between the City and the union which indicates:



- During the first year of the CBA (from October 1, 2015 through September 30, 2016) only, that premium tax revenue received would be used the same as in prior years where \$167,361 would be used toward funding the actuarially determined contribution for fiscal 2016.
- Commencing October 1, 2016, 50% of the State premium tax revenues will be used toward funding the actuarially determined contribution or toward payment of the unfunded accrued liability.
- The balance of accumulated insurance premium tax revenues received prior to 2016 are to be used to fund the supplemental retirement benefit.

The Estimated Minimum Required City Contribution shown on page 1 assumes that the premium tax money received from the State for fiscal 2017 will be in the same amount received for fiscal 2016. Should the amount received for fiscal 2017 be less than that received in the fiscal 2016, the City will need to contribute any potential shortfall to the Plan.

Section 2 Results Derivation

In this section, the assets and liabilities of the Plan are shown in detail. Assets and liabilities are then compared to determine the funded status and minimum funding requirements. Finally, analysis is performed to explain movement in results from the prior valuation.

While asset information is based on the fair market value of assets, along with any techniques used to smooth out market fluctuations, liabilities are determined through a combination of the benefit provisions, participant census data which contains information for the members who will receive those benefits, and the methods and assumptions used with regard to how benefits will be paid to members. A summary of participant data, an outline of the benefit provisions, and a description of the methods and assumptions used in this valuation are described in Section 4.

Financial Information

Over the life of the Plan, the majority of assets are typically generated from investment return. In this section, we describe how the assets of the Plan are invested, show how the actuarial value of assets is derived, and review the investment results since the prior valuation.

Investment Allocation

Valuation Date October 1,	2015		2016	
Equities	\$38,103,039	60 %	\$41,836,456	60 %
Fixed Income	10,241,268	16 %	12,732,358	18 %
Real Estate Fund	10,426,895	16 %	11,297,030	16 %
Cash & Cash Equivalents	4,106,740	6 %	2,684,172	4 %
Receivables	<u>1,003,943</u>	<u>2 %</u>	<u>1,046,702</u>	<u>2 %</u>
Fair Market Value of Assets	<u>\$63,881,885</u>	<u>100 %</u>	<u>\$69,596,718</u>	<u>100 %</u>

Reconciliation of Market Value of Assets

Year ending September 30,	2015	2016
1. Market value at beginning of year	\$62,842,972	\$63,881,885
2. Contributions		
a. City	\$4,064,434	\$3,822,621
b. State	485,663	391,657
c. Employee contributions	<u>972,711</u>	<u>986,417</u>
d. Total contributions	\$5,522,808	\$5,200,695
3. Investment earnings		
a. Realized gains and losses	\$3,843,800	\$1,819,756
b. Unrealized gains and losses	(5,000,423)	4,027,826
c. Interest and dividends	1,127,384	862,747
d. Investment expense	<u>(478,123)</u>	<u>(423,980)</u>
e. Net investment income	\$(507,362)	\$6,286,349
4. Deductions		
a. Benefits paid	\$(3,730,013)	\$(5,500,238)
b. Refunds of contributions	(69,592)	(52,793)
c. Administrative expenses	<u>(176,928)</u>	<u>(219,180)</u>
d. Total deductions	\$(3,976,533)	\$(5,772,211)
5. Net increase	\$1,038,913	\$5,714,833
6. Market value of assets end of year	\$63,881,885	\$69,596,718

Development of Historical Gain or Loss on Market Value of Assets

Year ending September 30,	2014	2015	2016
1. Market value of assets BOY	\$56,334,474	\$62,842,972	\$63,881,885
2. Expected interest on beginning value	4,506,758	5,027,438	5,110,551
3. Contributions			
a. City	\$4,164,581	\$4,064,434	\$3,822,621
b. State	492,840	485,663	391,657
c. Employee contributions	<u>970,011</u>	<u>972,711</u>	<u>986,417</u>
d. Total Contributions	\$5,627,432	\$5,522,808	\$5,200,695
4. Pension benefits	\$(3,986,091)	\$(3,799,605)	\$(5,553,031)
5. Expenses			
a. Investment expenses	\$(407,505)	\$(478,123)	\$(423,980)
b. Administrative expenses	<u>(169,317)</u>	<u>(176,928)</u>	<u>(219,180)</u>
c. Total expenses	\$(576,822)	\$(655,051)	\$(643,160)
6. Interest on items (3), (4) and (5)	22,867	23,300	(55,486)
7. Expected assets at end of year	\$61,928,618	\$68,961,862	\$67,941,454
8. Market value of assets EOY	\$62,842,972	\$63,881,885	\$69,596,718
9. Gain (Loss) = (8) - (7)	\$914,354	\$(5,079,977)	\$1,655,264

Development of Actuarial Value of Assets

1.	Market Value of Assets as of 9/30/2016			\$69,596,718
2.	Phase-In Gains (Losses) Over Four Year Period			
		Original Gain (Loss)	Percent Unrecognized	Unrecognized Gain (Loss)
a.	Year Ending 9/30/2016	\$1,655,264	75 %	\$1,241,448
b.	Year Ending 9/30/2015	(5,079,977)	50 %	(2,539,989)
c.	Year Ending 9/30/2014	914,354	25 %	<u>228,589</u>
d.	Total			\$(1,069,952)
3.	Preliminary Actuarial Value of Assets as of 9/30/2016 = 1. - 2.d.			\$70,666,670
4.	Corridor Around Market Value			
a.	Minimum = 80% of Market Value of Assets			\$55,677,374
b.	Maximum = 120% of Market Value of Assets			\$83,516,062
c.	Corridor Adjustment to Preliminary Actuarial Value			\$0
5.	Cumulative Balance of State Monies Available for Benefit Improvement			\$598,906
6.	Actuarial Value of Assets as of 9/30/2016 = 3. + 4.c. - 5.			\$70,067,764

Historical Asset Values

Year Ending September 30	Market Value of Assets		Actuarial Value of Assets
	Including DROP	Reported by Auditor	
2016	\$69,596,718	\$69,596,718	\$70,067,764
2015	63,881,885	63,881,885	65,524,026
2014	62,842,972	62,842,972	58,163,473
2013	56,334,474	55,236,797	49,705,303
2012	47,216,351	46,265,563	43,060,519
2011	39,163,277	37,433,460	39,620,622
2010	38,762,351	37,462,362	39,963,208
2009	35,818,770	33,196,711	38,262,703
2008	35,819,095	33,760,557	37,424,773
2007	39,411,245	37,685,174	34,195,441

Note: Beginning with the year ending 9/30/2014 DROP balances are included in the Market Value of Assets reported by the auditor. Prior to that year asset values excluded the DROP balances.

Historical Rates of Investment Return

Year Ending September 30	Return on Market Value		Return on Actuarial Value		Assumed Return, Gross of Expenses
	Gross of Investment Expenses	Net of Investment Expenses	Gross of Investment Expenses	Net of Investment Expenses	
2016	10.59 %	9.88 %	8.34 %	7.66 %	8.0 %
2015	(0.05)%	(0.80)%	10.65 %	9.80 %	8.0 %
2014	9.57 %	8.83 %	12.22 %	11.38 %	8.0 %
2013	16.30 %	15.49 %	12.42 %	11.55 %	8.0 %
2012	20.69 %	19.82 %	6.66 %	5.86 %	8.0 %
2011	(0.95)%	(1.65)%	(1.69)%	(2.38)%	8.0 %
2010	10.25 %	9.61 %	2.62 %	2.05 %	8.0 %
2009	(3.67)%	(4.24)%	0.66 %	0.11 %	8.0 %
2008	(12.91)%	(13.49)%	6.11 %	5.38 %	8.0 %
2007	17.71 %	16.99 %	12.88 %	12.10 %	8.0 %
Geometric Average	6.25 %	5.54 %	6.97 %	6.24 %	8.0 %

Note that the return on the Market Value of Assets for the years ending in 2007 through 2013 have been revised from those shown in the prior actuarial valuations to include DROP balances in the Market Value of Assets.



Derivation of State Contribution Funding Reserves

Year Ending September 30	State Contributions			Recognized State Funding	Cumulative Balance Available for Benefit Improvement
	Regular	Supplemental	Total		
2016	\$391,657	\$0	\$391,657	\$505,775	\$598,906
2015	485,663	0	485,663	524,815	713,024
2014	492,840	0	492,840	512,760	752,176
2013	472,633	0	472,633	525,643	772,096
2012	440,960	0	440,960	482,257	825,106
2011	403,937	0	403,937	399,633	866,403
2010	407,979	0	407,979	338,402	862,099
2009	459,295	0	459,295	261,031	792,522
2008	360,239	60,369	420,608	230,889	594,258
2007	378,553	5,537	384,090	202,102	404,539
2006	250,977	0	250,977	167,361	222,551
2005	244,943	0	244,943	167,361	138,935
2004	228,714	0	228,714	167,361	61,353
2003	203,319	0	203,319	203,319	0
2002	134,534	0	134,534	134,534	0
2001	118,403	0	118,403	118,403	0
2000	132,060	0	132,060	132,060	0
1999	137,229	0	137,229	137,229	0
1998	137,869	0	<u>137,869</u>	<u>137,869</u>	0
			\$5,947,710	\$5,348,804	

Year Ending September 30	Recurring Cost Benefit Improvements	One-Time Cost Benefit Improvements	Base Plus Benefit Improvements
	2016	\$0	\$338,414
2015	0	357,454	167,361
2014	0	345,399	167,361
2013	0	358,282	167,361
2012	0	314,896	167,361
2011	0	232,272	167,361
2010	0	171,041	167,361
2009	0	93,670	167,361
2008	0	63,528	167,361
2007	0	34,741	167,361
2006	0	0	167,361
2005	0	0	167,361
2004	29,492	0	167,361
2003	0	65,450	137,869
2002	0	0	137,869
2001	0	0	137,869
2000	0	0	137,869
1999	0	0	137,869
1998	<u>0</u>	<u>0</u>	137,869
	\$29,492	\$2,036,733	

FLA

FREIMAN LITTLE ACTUARIES

Present Value of Benefits

Valuation as of October 1,	2015	2016
1. Active Members		
a. Service Retirement	\$49,382,291	\$53,005,088
b. Deferred Benefits	1,468,339	1,466,241
c. Survivor Benefits	203,542	635,290
d. Disability Benefits	<u>2,234,936</u>	<u>1,938,478</u>
e. Total	\$53,289,108	\$57,045,097
2. Inactive Members		
a. Retirement (Including DROP)	\$45,250,367	\$46,391,057
b. Terminated Vested	0	0
c. Beneficiaries	3,707,052	3,921,895
d. Disability Retirement	<u>2,262,736</u>	<u>1,999,557</u>
e. Total	\$51,220,155	\$52,312,509
3. All Members	\$104,509,263	\$109,357,606

Accrued Liability

Valuation as of October 1,	2015	2016
1. Active Members		
a. Service Retirement	\$29,956,890	\$33,809,382
b. Deferred Benefits	58,512	61,512
c. Survivor Benefits	58,070	190,306
d. Disability Benefits	<u>619,728</u>	<u>568,157</u>
e. Total	\$30,693,200	\$34,629,357
2. Inactive Members		
a. Retirement (Including DROP)	\$45,250,367	\$46,391,057
b. Terminated Vested	0	0
c. Beneficiaries	3,707,052	3,921,895
d. Disability Retirement	<u>2,262,736</u>	<u>1,999,557</u>
e. Total	\$51,220,155	\$52,312,509
3. All Members	\$81,913,355	\$86,941,866

Normal Cost

Valuation as of October 1,	2015	2016
1. Preliminary Normal Cost		
a. Service Retirement	\$2,158,803	\$2,231,724
b. Deferred Benefits	160,000	166,521
c. Survivor Benefits	16,898	53,482
d. Disability Benefits	<u>191,400</u>	<u>167,346</u>
e. Total	\$2,527,101	\$2,619,073
2. Total Normal Cost		
a. Preliminary Normal Cost	\$2,527,101	\$2,619,073
b. Expense Load	<u>615,937</u>	<u>219,180</u>
c. Total Normal Cost	\$3,143,038	\$2,838,253
d. Total Normal Cost as a % of Pay	42.0%	36.7%
3. Actual Employer Normal Cost		
a. Preliminary Normal Cost	\$2,527,101	
b. Actual Expenses	643,160	
c. Actual Employee Contributions	<u>(986,417)</u>	
d. Actual Employer Normal Cost	\$2,183,844	
4. Payroll		
a. Payroll Expected in Funding Year	\$7,364,997	\$7,515,399
b. Annualized Payroll in Funding Year	\$7,486,533	\$7,733,774

Unfunded Accrued Liability

Derivation of Unfunded Accrued Liability (UAL)

Unfunded Accrued Liability as of October 1,	2016
1. Actuarial Accrued Liability	\$86,941,866
2. Actuarial Value of Assets	<u>70,067,764</u>
3. Unfunded Accrued Liability	\$16,874,102
Determination of Expected Unfunded Accrued Liability	
1. Unfunded Accrued Liability for Prior Year	\$16,389,329
2. Employer Normal Cost (Including Administrative and Investment Expenses)	2,183,844
3. Interest for a full year on (1) and (2)	1,485,854
4. Contributions for this Period	
a. State contributions toward minimum funding	\$167,361
b. State contributions used for supplemental benefits	338,414
c. City	<u>3,822,621</u>
d. Total	\$4,328,396
5. Interest on Contribution for Time on Deposit	152,905
6. Plan change - supplemental benefits	338,414
7. Other changes in plan, methods or assumptions	<u>1,946,542</u>
8. Expected Unfunded Accrued Liability	\$17,862,682
Calculation of (Gain) or Loss	
1. Actual Unfunded Accrued Liability	\$16,874,102
2. Expected Unfunded Accrued Liability	<u>17,862,682</u>
3. Total (Gain) or Loss	\$(988,580)
4. Breakdown of (Gain) or Loss	
a. Portion of (Gain) / Loss Due to Investments	\$(238,680)
b. Portion of (Gain) / Loss Due to Demographic Experience	<u>(749,900)</u>
c. Total (Gain) or Loss	\$(988,580)
Determination of Actuarial Asset Gain (Loss)	
1. Actuarial value of assets - BOY	\$65,524,026
2. Expected interest on beginning value	5,241,922
3. Contributions	
a. City	\$3,822,621
b. State	505,775
c. Employee contributions	<u>986,417</u>
d. Total contributions	\$5,314,813
4. Pension benefits	(5,553,031)
5. Expenses	
a. Investment expense	(423,980)
b. Administrative expense	<u>(219,180)</u>
c. Total expenses	(643,160)
6. Interest on items (3), (4), and (5)	<u>(55,486)</u>
7. Expected value of assets EOY	\$69,829,084
8. Actuarial value of assets - EOY	\$70,067,764
9. Gain (Loss) = (8) - (7)	\$238,680

Amortization of Unfunded Liability

The Unfunded Accrued Liability is being amortized in a level dollar amount based on the 7.85% net assumed investment return assumption. Changes in the Unfunded Accrued Liability due to Plan changes, assumption changes, method changes, or gains and losses are all amortized over a 25-year period effective October 1, 2016. Prior to this change there was a 30-year amortization period.

Amortization Bases

	10/1	Source	Original Balance	Remaining Balance	Adjusted Remaining Balance	Years Remain	Amortization Payment
1.	1997	Funding Method	\$1,388,294	\$620,303	\$620,401	6	\$123,869
2.	1998	Plan Amendment	2,280,896	1,571,255	1,571,507	12	191,853
3.	2001	(Gain)/Loss	693,992	542,675	542,762	15	58,258
4.	2002	(Gain)/Loss	2,590,283	2,094,099	2,094,434	16	217,300
5.	2003	(Gain)/Loss	351,479	292,790	292,837	17	29,470
6.	2003	Plan Amendment	1,954,593	1,628,230	1,628,491	17	163,883
7.	2004	(Gain)/Loss	754,262	624,783	624,883	18	61,181
8.	2005	(Gain)/Loss	(51,468)	(43,697)	(43,704)	19	(4,174)
9.	2005	Software Change	(370,516)	(314,574)	(314,624)	19	(30,049)
10.	2006	(Gain)/Loss	(866,092)	(751,961)	(752,081)	20	(70,235)
11.	2006	Plan Amendment	5,295,975	4,598,086	4,598,823	20	429,471
12.	2007	(Gain)/Loss	6,078	5,389	5,390	21	493
13.	2008	(Gain)/Loss	1,229,709	1,115,904	1,116,083	22	100,248
14.	2009	(Gain)/Loss	4,331,045	4,023,536	4,024,180	23	355,402
15.	2010	(Gain)/Loss	1,092,000	1,032,293	1,032,458	24	89,789
16.	2010	Method Change	(131,558)	(124,364)	(124,384)	24	(10,817)
17.	2011	Plan Amendment	(114,527)	(108,897)	(108,914)	25	(9,339)
18.	2011	(Gain)/Loss	4,025,679	3,827,819	3,828,432	25	328,288
19.	2012	(Gain)/Loss	1,168,892	1,127,531	1,127,712	26	95,464
20.	2012	Assumption Change	2,128,355	2,053,043	2,053,372	26	173,823
21.	2013	(Gain)/Loss	(2,265,872)	(2,214,968)	(2,215,323)	27	(185,334)
22.	2013	Assumption Change	89,691	87,675	87,689	27	7,336
23.	2014	(Gain)/Loss	(2,740,798)	(2,705,161)	(2,705,594)	28	(223,915)
24.	2014	Assumption Change	96,389	95,136	95,151	28	7,875
25.	2015	(Gain)/Loss	(3,292,562)	(3,263,498)	(3,264,021)	29	(267,463)
26.	2015	Assumption Change	101,056	100,164	100,180	29	8,209
27.	2016	(Gain)/Loss	(988,580)	(988,580)	(988,580)	25	(84,771)
28.	2016	Assumption Change	1,946,542	1,946,542	1,946,542	25	166,916
				\$16,871,553	\$16,874,102		\$1,723,031

Projected Unfunded Accrued Liability and Amortization Payments

Year Beginning October 1,	Outstanding Bases	Amortization Payment
2016	\$16,874,102	\$1,723,031
2017	16,340,430	1,723,030
2018	15,764,866	1,723,029
2019	15,144,121	1,723,030
2020	14,474,647	1,723,030
2021	13,752,619	1,723,027
2022	12,973,915	1,599,164
2023	12,267,669	1,599,160
2024	11,505,987	1,599,161
2025	10,684,511	1,599,159
2026	9,798,553	1,599,163
2027	8,843,042	1,599,158
2028	7,812,528	1,407,308
2029	6,908,030	1,407,306
2030	5,932,531	1,407,312
2031	4,880,448	1,349,049
2032	3,808,614	1,131,751
2033	2,886,997	938,396
2034	2,101,566	877,216
2035	1,320,462	911,438
2036	441,132	552,206
2037	(119,793)	551,710
2038	(724,216)	451,464
2039	(1,267,971)	96,063
2040	(1,471,111)	17,093
2041	(1,605,029)	(384,005)
2042	(1,316,874)	(653,290)
2043	(715,675)	(475,293)
2044	(259,253)	(259,253)
2045	0	0

Actions Taken to Reduce Unfunded Actuarial Accrued Liability

The required contributions calculated each year include a payment for the amortization of the unfunded actuarial accrued liability. This payment is designed to reduce the unfunded actuarial accrued liability in an orderly fashion over the next 29 years.



Minimum Funding Requirements

Year Ending September 30,	2016	2017
1. Total Normal Cost	\$3,143,038	\$2,838,253
2. Amortization of UAL	1,654,521	1,723,031
3. Interest	<u>198,597</u>	<u>186,717</u>
4. Total Minimum Required Contribution	\$4,996,156	\$4,748,001
5. Expected City Minimum Required Funding	\$3,818,317	\$3,521,059
6. State Funding Expected	167,361	195,829
7. Employee Contributions Expected*	<u>1,010,478</u>	<u>1,031,113</u>
8. Total Minimum Required Contribution	\$4,996,156	\$4,748,001
9. City Funding as a % of Pay	51.00 %	45.53 %
10. State Funding Expected as a % of Pay	2.24 %	2.53 %
11. Employee Contributions as a % of Pay	<u>13.50 %</u>	<u>13.33 %</u>
12. Total Required Funding as a % of Pay	66.74 %	61.39 %
13. City Plus State Funding	\$3,985,678	\$3,716,888
14. City Plus State Funding as a % of Pay	53.24 %	48.06 %
15. Payroll		
a. Payroll Expected in Funding Year	\$7,364,997	\$7,515,399
b. Annualized Payroll in Funding Year	7,486,533	7,733,774
16. Assumed Return on Investments**	8.00 %	7.85 %

*Employee contributions expected are those based on payroll expected in the funding year which takes into account the expected decrement of members during the year.

**The assumed rate of investment return was gross of investment expenses for the October 1, 2015 actuarial valuation and is net of investment expenses for the October 1, 2016 actuarial valuation.

Reconciliations

Reconciliation of Funded Status

As of Prior Valuation		79.99 %
Changes in Funded Status due to:		
Normal Operation of Plan	1.45 %	
Investment Experience	0.28 %	
Demographic Experience	0.72 %	
Required Mortality Change	(0.45)%	
Net Assumed Return Change	<u>(1.40)%</u>	
Total Changes	0.60 %	

As of Current Valuation		80.59 %
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Reconciliation of City Minimum Funding Requirement

As of Prior Valuation		\$3,818,317
Changes in Required Contribution due to:		
Expected Change	\$149,479	
Change in Expense Load	34,496	
Investment Experience	(21,531)	
Demographic Experience	(193,268)	
Required Mortality Change	10,848	
Net Assumed Return Change	(249,932)	
MOU RE Premium Tax Revenue	<u>(27,350)</u>	
Total Changes	\$(297,258)	

As of Current Valuation		\$3,521,059
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Section
3

Accounting Information

Information Required by GASB 67/68

A supplemental report provides information under the Governmental Accounting Standards Board No. 67/68.

Statement of Accumulated Plan Benefits (FASB 35)

The following table is based on prior accounting standards and is required by the State. The present value of accrued benefits is an estimate of the liability for all benefits accrued to date.

Year Beginning October 1,	2015	2016
1. Actuarial present value of accumulated plan benefits		
a. Participants currently receiving benefits	\$51,220,155	\$52,312,509
b. Other participants	<u>16,132,322</u>	<u>21,301,047</u>
c. Total vested plan benefits	\$67,352,477	\$73,613,556
d. Total non-vested plan benefits	<u>5,183,390</u>	<u>3,290,457</u>
e. Total accumulated plan benefits	\$72,535,867	\$76,904,013
2. Change in present value of accumulated plan benefits		
a. Accumulated plan benefits beginning of year		\$72,535,867
b. Increase (decrease) during year due to:		
i. Plan amendment		\$0
ii. Change in assumptions or methods		1,794,959
iii. Benefits paid		(5,553,031)
iv. Other (including increase for interest due to decrease in the discount period and benefits accumulated)		<u>8,126,218</u>
v. Net increase (decrease)		\$4,368,146
c. Accumulated plan benefits end of year		\$76,904,013

Other Disclosures Required by the State of Florida

Year Beginning October 1,	2015	2016
Present value of active member:		
Future salaries (attained age)	\$67,930,201	\$66,556,640
Future contributions (attained age)	9,320,024	9,131,571



Required Disclosure Under F.S. 112.664(1)

As required under F.S. Section 112.664(1) we have produced the following information:

- (a) Total pension liability calculated based on mortality used in one of the last two Florida Retirement System (FRS) valuations. This actuarial valuation assumes healthy mortality as follows: Male: 10% RP-2000 Annuitant White Collar + 90% RP-2000 Annuitant Blue Collar / Female: 100% RP-2000 Annuitant White Collar, where both the male and female rates are fully generational from 2000 using Scale BB. Disabled mortality is as follows: Male: 60% RP-2000 Disabled Retiree Set Back 4 years + 40% RP-2000 Annuitant White Collar / Female: 60% RP-2000 Disabled Retiree Set Forward 2 Years + 40% RP-2000 Annuitant White Collar, where no mortality improvement is assumed for disabled lives.
- (b) Total pension liability calculated using an assumed interest rate that is 200 basis points lower than that assumed in the valuation of the Plan.
- (c) Determination of the number of months or years for which the current market value of assets is adequate to sustain the payment of expected retirement benefits.
- (d) Recommended contribution to the Plan using the most recent valuation and the contributions necessary prepared pursuant to (a) and (b) stated as a dollar amount and % of payroll.

	2% Decrease <u>(5.85%)</u>	Current Discount Rate <u>(7.85%)</u>	2% Increase <u>(9.85%)</u>
Total pension liability	\$112,165,137	\$87,540,772	\$70,775,837
Plan fiduciary net position	<u>(69,596,718)</u>	<u>(69,596,718)</u>	<u>(69,596,718)</u>
Net pension liability	<u>\$42,568,419</u>	<u>\$17,944,054</u>	<u>\$1,179,119</u>
 Plan fiduciary net position as a percentage of the total pension liability	 62.05%	 79.50%	 98.33%
 Years of benefit payments:			
Expected for current members:	97	97	97
Paid for with current assets:	14.23	16.93	22.08
 City Plus State Contribution Requirement, Plus Expected Employee Contributions			
Dollar Amount	\$7,796,296	\$4,748,001	\$2,377,593
Percent of Payroll	100.80%	61.39%	30.74%

Note: Exhibits in Section 2 of this report entitled 'Present Value of Benefits' and 'Accrued Liability' exclude the cumulative balance of State monies available for benefit improvement. The total pension liability shown above includes the cumulative balance of State monies available for benefit improvement totaling \$598,906.

Required Disclosure Under F.S. 112.664(2)(b)2.

F.S. Section 112.664(2)(b)2. - For the previous five years, beginning with 2013, a side-by-side comparison of the plan's assumed rate of return compared to the actual rate of return, as well as the percentages of cash, equity, bond and alternative investments in the plan portfolio.

Year Ending September 30,	2016	2015	2014	2013	2012	2011
Assumed rate of return	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Actual rate of return	10.6%	(0.1%)	9.6%	16.7%	21.4%	(1.0%)
Percentages of assets in:						
Cash	4%	6%	5%	7%	4%	5%
Equity	60%	60%	62%	67%	66%	64%
Bond	18%	16%	16%	17%	21%	27%
Alternative	18%	18%	17%	9%	9%	4%
Total	100%	100%	100%	100%	100%	100%

Section
4Supplementary
Information

Summary of Participant Data

Member Statistics

Year Beginning October 1,	2015	2016
<u>Active Participants</u>		
Number	83	83
Average Age	37.3	38.0
Average Credited Service	9.7	10.4
Percent Male	92.8	92.8
Average Valuation Salary	\$84,298	\$87,082
Total Valuation Salary (Prior to Impute)	\$6,996,760	\$7,227,826
Total Valuation Salary (Imputed to Next Year)	\$7,486,533	\$7,733,774
Payroll Expected in Funding Year	\$7,364,997	\$7,515,399
Accumulated Employee Contributions With Interest	\$10,175,910	\$11,380,528
<u>Terminated With Rights to Deferred Benefits</u>		
Number	0	0
Average Age	0.0	0.0
Percent Male	0.0	0.0
Average Monthly Benefit	\$0	\$0
<u>DROP</u>		
Number	8	4
Average Age	52.4	53.7
Percent Male	100.0	100.0
Average Monthly Benefit	\$5,969	\$6,087
DROP Balances	\$1,852,419	\$751,144

Member Statistics (Continued)

Year Beginning October 1,	2015	2016
<u>Service Retirements</u>		
Number	55	60
Average Age	59.7	60.1
Percent Male	96.4	96.7
Average Monthly Benefit	\$4,433	\$4,620
<u>Beneficiaries</u>		
Number	5	5
Average Age	58.9	59.9
Percent Male	0.0	0.0
Average Monthly Benefit	\$5,062	\$5,124
<u>Disability Retirements</u>		
Number	6	6
Average Age	54.9	55.9
Percent Male	83.3	83.3
Average Monthly Benefit	\$2,563	\$2,575
<u>Total In Payment Status</u>		
Number	66	71
Average Age	59.2	59.7
Percent Male	87.9	88.7
Average Monthly Benefit	\$4,311	\$4,482

Number of Active Members by Age and Service as of October 1, 2016

Age	Service							Total	
	<1	<5	<10	<15	<20	<25	<30		<35
<25		1							1
<30	1	9	4						14
<35		2	9	7					18
<40	1	3	3	11	1				19
<45			3	5	9				17
<50		1	2		2	2			7
<55				4		1		1	6
<60				1					1
<65									
Total	2	16	21	28	12	3		1	83

Active Valuation Pay by Age and Service as of October 1, 2016

Age	Service							Total	
	<1	<5	<10	<15	<20	<25	<30		<35
<25		67,132							67,132
<30	49,518	66,929	81,585						69,873
<35		68,983	83,286	91,532					84,904
<40	51,116	67,469	85,212	94,169	129,755				88,146
<45			89,389	100,750	104,088				100,512
<50		63,901	89,163		96,297	87,453			87,104
<55				92,153		88,310		115,838	95,460
<60				88,251					88,251
<65									
Total	50,317	67,110	84,669	94,185	104,928	87,739		115,838	87,082

Reconciliation of DROP Accounts

Year Ending September 30,	2015	2016
DROP Balances as of Beginning of Year	1,253,385.07	1,852,418.60
Additions	524,954.06	483,393.01
Investment Return	74,079.47	72,004.95
Distributions	<u>0.00</u>	<u>1,656,672.50</u>
DROP Balances as of End of Year	1,852,418.60	751,144.06

Reconciliation of Plan Participants

	Active	Deferred	DROP	Retiree	Survivor	Disabled	Totals
As of October 1, 2012	80	0	8	53	3	3	147
Active							
To DROP Participant	(1)		1				0
To Nonvested Term	(1)						(1)
DROP Participant							
To Retiree			(1)	1			0
New Hires	6						6
As of October 1, 2013	84	0	8	54	3	3	152
Active							
To Retiree	(1)			1			0
To DROP Participant	(1)		1				0
To Disabled Retiree	(2)					2	0
To Death With Survivor	(1)				1		0
To Nonvested Term	(1)						(1)
DROP Participant							
To Retiree			(2)	2			0
New Hires	8						8
As of October 1, 2014	86	0	7	57	4	5	159
Active							
To DROP Participant	(1)		1				0
To Disabled Retiree	(1)					1	0
To Nonvested Term	(2)						(2)
Retiree							
To Survivor				(1)	1		0
No Survivor				(1)			(1)
New Hires	1						1
As of October 1, 2015	83	0	8	55	5	6	157
Active							
To DROP Participant	(1)		1				0
To Nonvested Term	(1)						(1)
DROP							
To Retiree			(5)	5	0	0	0
New Hires	2	0	0	0	0	0	2
As of October 1, 2016	83	0	4	60	5	6	158



Outline of Plan Provisions

Plan Type: Single-employer Defined Benefit Pension Plan

Legal Authority: The Plan was established and is amended by local ordinance.

Effective Date: July 1, 1977. The Plan was most recently amended effective February 8, 2016 with Ordinance No. 160-01-100.

Plan Administrator: The Board of Trustees

Board Composition: Two members are elected from among the fire employees of the City, who are members of the plan, two city residents appointed by the Commission and one person is chosen by a majority of the previous four members.

Funding Requirements: Employer contributions are actuarially determined and subject to State statute. Employee contributions are as described below and may be amended by ordinance.

Plan Year: The 12-month period from October 1st to the following September 30th.

Member: Firefighters become Members immediately upon hire (after medical examination and the firefighter acceptance of the terms and conditions which may include a declaration of ineligibility for disability benefits, designation of a Beneficiary and authorization for Employee Contribution deductions). Employees hired prior to October 1, 2009 are part of Tier One. Employees hired on or after October 1, 2009 are part of Tier Two.

Actuarial Equivalence: Actuarial Equivalence is determined using an interest rate of 7.0% and the 1971 Group Annuity Mortality Table for males.

Credited Service: Years and completed months of service (omitting intervening years and fractional parts of years when not employed as a full-time firefighter by the City) for which Employee Contributions are not withdrawn. Credited Service may be granted for an authorized leave of absence (not more than 6 months) and military leave (not more than 5 years).

Vesting: 100% upon earning ten years of Credited Service.

Earnings: Fixed monthly remuneration paid by the City to a firefighter, excluding overtime, bonuses and any other non-regular payment.

Employee Contributions: Effective October 1, 1997, 13.72% of Earnings.

Accumulated Contributions means a member's own contributions and contributions picked up on behalf of a Member, plus interest compounded annually. All benefits payable under this system are in lieu of a refund of Accumulated Contributions. In any event, each Member is guaranteed the payment of benefits at least equal to Accumulated Contributions with interest.

A Member who terminates non-vested is entitled to refund of accumulated Employee Contributions with interest.

Vested Members who terminate employment prior to being eligible to receive an annuity may leave their Accumulated Contributions in the fund, and begin commencement of the Accrued Benefit as early as age 50 as defined under the Early Retirement Benefit.



Contributions may be repaid with interest upon reentry into the Plan due to rehire in order to maintain prior Credited Service.

Average Monthly Earnings: Effective October 1, 2003, for Tier One Members, 1/12 of the average of annual Earnings for the three highest consecutive years of the last ten full years immediately preceding the actual retirement or termination date. The Average Monthly Earnings for Tier Two Members who retire with 25 or more years of Credited Service is computed in the same manner. The Average Monthly Earnings for Tier Two Members who retire with less than 25 years of Credited service is 1/12 of the average annual Earnings for the four highest consecutive years of the last ten full years immediately preceding the actual retirement or termination date.

Normal Retirement Date: Effective October 1, 1998, the first day of the month coincident with or next following the earliest of (i) age 55 and completion of 10 years of Credited Service, or (ii) 20 years Credited Service, regardless of age.

Normal Retirement Benefit: The Accrued Benefit.

Accrued Benefit: Effective for Members retiring on or after October 1, 2003 who are part of Tier One:

3.0% x Average Monthly Earnings x Credited Service Prior to 10/1/2003

Plus

4.0% x Average Monthly Earnings x Credited Service on or After 10/1/2003

The Tier Two Accrued Benefit is 3.0% x Average Monthly Earnings x Credited Service, limited to not more than 75% of Average Monthly Earnings. Tier Two members may increase their pension multiplier to 3.5% provided all costs associated with such an increase (or its actuarially equivalent cost) are borne solely by the Tier Two Member as determined by the Plan actuary. Tier Two members who increase their pension multiplier to 3.5% are not subject to the 75% cap. In no circumstance should a Tier Two Member's total benefit exceed 100% of Average Monthly Earnings.

This benefit is payable as a 10 year certain and continuous annuity.

Early Retirement Date: The first day of the month coincident with or next following the attainment of age 50 and the completion of 10 years of Credited Service.

Early Retirement Benefit: The Accrued Benefit reduced by 3% per year by which the commencement of benefits precedes the Normal Retirement Date.

Delayed Retirement Date: A date following the Normal Retirement Date upon which a Member actually retires.

Delayed Retirement Benefit: On the first day of any month coincident with or next following the Delayed Retirement Date, the benefit payable is computed as described under the Normal Retirement Benefit based on Average Monthly Earnings and Credited Service as of the Delayed Retirement Date.

Cost-of-Living Adjustment (COLA): Effective October 1, 2006, for Tier One Members, a 1.5% annual COLA is payable after three years of retirement (for both then current and future retirees).

Tier Two Members' monthly retirement benefits are increased annually after three years of retirement by the net investment return of the Plan. However, the Tier Two COLA is not less than 0% and not more than 1.5% annually.

Following the death of the retiree, the COLA is paid to each beneficiary.

FLA

FREIMAN LITTLE ACTUARIES

Variable Benefit: For all firefighters employed on or after October 1, 1997, a Variable Benefit will be paid, effective October 1, 1999. Effective each October 1, a benefit increase of no more than 3% may be granted which is funded solely based on a total experience gains as compared to actuarial assumptions. Members who retired during the prior fiscal year are provided a prorata increase reflecting the number of payments they received divided by 12.

Supplemental Benefit: This type of benefit and the payment of such benefit shall be determined by negotiations between the City and the union.

The Supplemental Benefit will be paid only to eligible persons who retired on or after October 1, 2000. The first Supplemental Benefit is paid effective October 1, 2003, if funding is available.

Each year, a "Supplemental Retirement Benefit Account" is funded with 75% of the prior year's actuarial gain remaining after the application of payment of the Variable Benefit and any increase in State contributions over that received for fiscal 1997 in the amount of \$167,361 after all minimum benefits are paid, hereafter referred to as the "adjusted base amount."

The Supplemental Benefit is re-determined each October 1 in an amount equal to the Supplemental Retirement Benefit Account divided by the total number of retirees and vested participants. Payments are made on a monthly basis. In no event will the Supplemental Benefits paid to a retiree exceed one year's payment of individual retiree health insurance provided by the City for the previous year ending September 30.

All funds not distributed to retirees remain in the Supplemental Retirement Benefit Account to be used for additional future benefits to retirees and their designated beneficiaries.

We understand that there is a memorandum of understanding between the City and the Metro Broward Professional Firefighters, Local 3080, which indicates during the first year of the collective bargaining agreement (from October 1, 2015 through September 30, 2016) only, that premium tax revenue received would be used the same as in prior years where the "Supplemental Retirement Benefit Account" is funded with premium tax revenues over \$167,361. Commencing October 1, 2016, 50% of the State premium tax revenues fund the "Supplemental Retirement Benefit Account" along with the balance of accumulated insurance premium tax revenues received prior to 2016.

Disability Retirement: Members become eligible for service incurred disability benefits immediately upon Plan entry. Members become eligible for non-service incurred disability benefits upon earning 2 years of Credited Service.

The benefit payable to any Member who is wholly prevented either mentally or physically from rendering useful and efficient service as a firefighter is the greater of (i) 50% of the rate of monthly Earnings in effect on the date of disability and (ii) the Accrued Benefit. Total benefits paid (including workers compensation for example) shall not exceed 100% of the employee's salary.

This benefit is payable as a 10 year certain and continuous annuity.

In the event of recovery from disability, the period of time while disabled is included as Credited Service in future retirement benefits for (i) those who are immediately reemployed as a firefighter upon recovery, and (ii) those who are not immediately reemployed as a firefighter because they were not offered a position. Members who are offered reemployment and do not accept are treated as if they terminated employment on the date of disability.

At age fifty-five (55), the firefighter shall have the option of converting the disability to a normal retirement benefit, provided eligibility requirements are met.



Death Benefits: In the event of service incurred death, the benefit payable is the greater of a monthly benefit equal to 20% of the rate of monthly Earnings at the time of death and a refund of contributions with interest. The monthly benefit is payable to the Spouse until the death of the Spouse. If there is no Spouse or upon the death of the Spouse, the monthly benefit is divided equally among the Member's surviving children under the age of 18 until the youngest child reaches the age of 18. If there is no Spouse and a refund of contributions with interest is greater than the monthly benefit, the amount is divided equally amongst surviving children under the age of 18. The Member may choose one or more persons other than their spouse and children under the age of 18 to receive the refund of contributions with interest. If there is no designated beneficiary, no Spouse and no children under the age of 18, the refund of contributions with interest is payable to the Member's estate.

In the event of service incurred death of a firefighter who had earned at least 10 years of Credited Service at the time of their death, the beneficiary may instead elect to receive the Accrued Benefit payable as a 10-year certain only annuity commencing when the Member would have reached their Normal Retirement Date, or with reduction for early commencement as defined for an early retirement benefit payable at the Early Retirement Date.

In the event of non-service incurred death of an active Member who has attained their Normal Retirement Date or the Early Retirement Date, a death benefit is payable to the Member's Spouse as if the Member retired from employment on the date of death, elected to receive a benefit in the form of a 50% joint and survivor annuity, and died the next day. Upon the death of the surviving Spouse, this monthly benefit is divided equally among the Member's surviving children under the age of 18 until the youngest child reaches the age of 18. If at the time of death there is no Spouse, the monthly benefit is payable in the form of a 10 year certain and continuous annuity where the monthly benefit is divided equally among the Member's surviving children under the age of 18 until the youngest child reaches the age of 18. However, at the election of the Spouse or children (for a Member who did not designate a beneficiary other than their Spouse or children), a firefighter who has continued employment beyond his Normal Retirement Date and has made an election as to the form of benefit desired upon retirement prior to death, the monthly benefit will be paid in the form of benefit chosen by the Member as if the Member retired on the day of death. For Members who designated a beneficiary other than their Spouse or children, the designated beneficiary is entitled to receive the Accrued Benefit payable as a 10-year certain only annuity commencing when the Member would have reached their Normal Retirement Date, or with reduction for early commencement as defined for an early retirement benefit payable at the Early Retirement Date.

In the event of non-service incurred death of an active Member who is not eligible for Normal Retirement or Early Retirement, and the Member earned less than 10 years of Credited Service at the time of death, a refund of employee contributions with interest is payable. For Members who had earned at least 10 years of Credited Service at the time of their death, the designated beneficiary is entitled to receive the Accrued Benefit payable as a 10-year certain only annuity commencing when the Member would have reached their Normal Retirement Date, or with reduction for early commencement as defined for an early retirement benefit payable at the Early Retirement Date.

Optional Forms of Benefit: The Accrued Benefit described above is payable in the form of a 10 year certain and continuous annuity (except as noted to be a 10-year certain only annuity under certain death benefits). Members may optionally choose an actuarially equivalent single life annuity, joint and survivor annuity (based on a fraction designated by the Member), a joint and last survivor annuity (with 50%, 66 2/3%, 75%, or 100% continuance), or joint and survivor annuity with an optional "pop-up" to the single life annuity form in the event the beneficiary predeceases the Member. Members may also choose benefits to be paid in any form approved by the board so long as actuarial equivalence with the benefit otherwise payable is maintained. The value of optional benefits shall be actuarially equivalent to the value of benefits otherwise payable, and the present value of payments to the retiring Member must be at least equal to 50% of the total present value of payments to the retiring Member and his beneficiary.

Deferred Retirement Option Plan (DROP): Effective October 1, 2003, Tier One Members are eligible to enter the DROP on the first day of the month following the Member's completion of 20 years of Credited Service or upon earning a pension benefit equal to 80%. The maximum participation in the DROP is 60 months. For Tier One Members who enter the DROP more than 90 days after attaining the 80% Accrued Benefit, the amount of time after the accrual of the 80% benefit until the entry into the DROP will result in a commensurate reduction in the maximum time allowed for DROP participation. Members who were in the DROP on the effective date of the adoption of this section may extend their DROP participation so that their maximum participation in the DROP is 60 months. Members with 20 years of Credited Service as of October 1, 2000 were eligible to elect within a 90 day period after the enactment of this section to enter the DROP retroactively to October 1, 2000. The maximum participation in the DROP was 36 months as of October 1, 2000.

Tier Two Members may enter the DROP on the first day of the month following completion of 25 years of Credited Service for a maximum period of 60 months. However, the DROP term for Tier Two Members is reduced one month for each month of eligibility following the completion of 25 years of Credited Service during which the Member did not participate in the DROP.

DROP participants are not eligible for death or disability benefits.

The Accrued Benefit is frozen and no further Employee Contributions are payable at DROP entry. No payment shall be made for accrued unused leave upon entering the DROP, nor shall the amount of accrued unpaid leave be used in the calculation of the amount of pension benefits.

The monthly retirement benefits, including any variable benefits that would have been payable had the Member elected to cease employment and not join the DROP, are deposited in the participant's DROP account. These payments accumulate with interest, credited quarterly, at a rate equal to the actual rate of return achieved by the trust fund net of administrative expenses. However, DROP account earnings for Tier Two Members is never less than 0% per month. At the option of the Tier One Member, the DROP account will be paid a fixed amount as determined by the board of trustees (currently 65.625% of the Plan's actuarially assumed investment return), but no higher than the actuarially assumed investment earnings. Following resignation and prior to distribution, a rate of interest, as determined by the board of trustees, shall be credited to the participant's DROP account.

Within 30 days following the end of any calendar quarter after the termination of the Member's employment as a firefighter, the balance credited to the DROP account is distributed in a single lump sum, either directly to the Member (subject to applicable tax withholding) or as a direct rollover.

Defined Contribution Plan Component: Ordinance No. 160-01-100 was adopted effective February 8, 2016 which created a defined contribution (DC) component to the Plan. This component of the Plan is not activated until a portion of Chapter 175 premium tax revenues have been assigned to fund the DC Plan.

Description of Assumptions and Methods

Assumed Rate of Investment Return: 7.85% per year, net of investment expenses. In the prior year, 8.0% per year, gross of investment expenses

Salary Increase – Individual: 7.0% per year.

Inflation: 3.0%

Administrative Expenses: Actual administrative expense for the prior year is added to the Normal Cost. In the prior year, an average of total expenses paid during the previous two years was added to the Normal Cost.

Percentage Married at Retirement: 80% of active Members are assumed to be married at retirement.

Spouse Ages: Where spousal information was supplied, that information was used. Otherwise, wives are assumed to be three years younger than their husbands.

Mortality: In the prior valuation, the mortality table was the RP-2000 Combined Mortality Table where Scale AA was applied to reflect mortality improvements to the valuation year. The mortality table has been revised to the mortality assumption used for special risk employees in the July 1, 2015 valuation of the Florida Retirement System (FRS), as required by state statute. The mortality rates are as follows:

Healthy mortality:	Males:	10% RP-00 Annuitant White Collar + 90% RP-00 Annuitant Blue Collar
	Females:	100% RP-00 Annuitant White Collar
		Both male and female rates fully generational using Scale BB
Disabled mortality:	Males:	60% RP-00 Disabled Retiree Set Back 4 Years + 40% RP-00 Annuitant White Collar
	Females:	60% RP-00 Disabled Retiree Set Forward 2 Yrs + 40% RP-00 Annuitant White Collar
		No mortality improvement is assumed for disabled lives.

Retirement: For the current valuation retirement is assumed at 50% of those eligible to retire or DROP with 20 through 24 years of service with 100% choosing to retire or DROP at 25 years of service or upon reaching age 55 with 10 years of service.

Termination: For the current valuation, unisex rates, as follows:

<u>Service</u>	<u>Rate</u>	<u>Service</u>	<u>Rate</u>	<u>Service</u>	<u>Rate</u>	<u>Service</u>	<u>Rate</u>
0-1	3.8%	6	3.0%	11	2.4%	16	1.3%
2	3.7%	7	2.8%	12	2.1%	17	1.1%
3	3.5%	8	2.8%	13	1.8%	18	0.9%
4	3.3%	9	2.7%	14	1.6%	19	0.9%
5	3.2%	10	2.6%	15	1.4%	20+	0.0%

Disability: Unisex rates, as follows:

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
15-21	0.14%	36	0.24%	46	0.59%	56	1.68%
22-25	0.15%	37	0.25%	47	0.70%	57	1.81%
26-27	0.16%	38	0.26%	48	0.79%	58	1.95%
28-29	0.17%	39	0.28%	49	0.90%	59	2.09%
30	0.18%	40	0.30%	50	1.00%	>=60	0.00%
31	0.19%	41	0.32%	51	1.10%		
32	0.20%	42	0.35%	52	1.20%		
33	0.21%	43	0.39%	53	1.31%		
34	0.22%	44	0.44%	54	1.43%		
35	0.23%	45	0.51%	55	1.55%		

On and Off Duty Disability and Death: 75% of disabilities are assumed to be in the line of duty.

Funding Method: Entry Age Normal (level percent of salary).

Actuarial Value of Assets: The market value of assets is adjusted to recognize gains and losses over a four-year period. The Actuarial Value of Assets shall not be more than 120% or less than 80% of the market value of assets.

Glossary of Actuarial Terms

Present Value of Benefits (PVB): The present value, as of the valuation date, of all benefits that will become payable by the Plan for the current group of members in the census.

Normal Cost (NC): The value of the portion of the total benefit for active members which accrues in the year following the valuation date. Under the Entry Age Normal (Level Percent of Salary) funding method, the NC is a constant fraction of salary from the member's date of entry into the Plan to the member's assumed date of termination, retirement, disability or death.

Accrued Liability (AL): This is the portion of the PVB attributable to the past at the valuation date. For active members, AL is the annual NC accumulated from date of entry to the valuation date for each member. For retired and terminated members, the PVB and the AL are equal. The AL is the estimated liability owed by the pension fund at the valuation date.

Unfunded Accrued Liability (UAL): Any excess of the Accrued Liability over the fund assets. A negative UAL indicates fund assets are greater than the Accrued Liability, otherwise known as a surplus.

Actuarial Value of Assets: The value of assets used in the actuarial valuation of the Plan which is compared to the AL to determine the UAL and minimum funding requirements. A method may be used to smooth out short term volatility in the fair market value of assets.