

City of Tampa
Pension Fund for
Firefighters and Police Officers

Actuarial Valuation as of
October 1, 2019

Contributions Applicable to City's
Plan/Fiscal Year Ending September 30, 2021

May 20, 2020

Ms. Tiffany Ernst, Plan Administrator
The City of Tampa Pension Fund for Firefighters and Police Officers
3001 North Boulevard
Tampa, FL 33603

Re: October 1, 2019 Actuarial Valuation

Dear Tiffany:

We are pleased to present to the Board this report of the annual actuarial valuation of the City of Tampa Pension Fund for Firefighters and Police Officers. The funding valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the appropriate funding requirements for the applicable plan year. Please note that this valuation may not be applicable for any other purposes.

The valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflects laws and regulations issued to date pursuant to the provisions of Chapters 112, 175, and 185 Florida Statutes, as well as applicable federal laws and regulations. In our opinion, the assumptions used in this valuation, as adopted by the Board of Trustees, represent reasonable expectations of anticipated plan experience. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of this valuation, we did not perform an analysis of the potential range of such future measurements.

For determining required contributions under Florida Statutes, funded percentages and unfunded liabilities are measured on an actuarial value of assets basis. The same measurements using market value of assets would result in different funded percentages and unfunded liabilities. The funded percentage and unfunded liabilities are appropriate for assessing the need and level of future contributions but do not assess the funded status of the plan if the plan were to settle all or a portion of its liabilities.

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

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

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

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

Respectfully submitted,

Foster & Foster, Inc.

By: 

Joseph Griffin, ASA, EA, MAAA
Enrolled Actuary #20-6938

By: 

Timothy Bowen, EA, MAAA
Enrolled Actuary #20-7204

Enclosures

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Section I – Summary of Report

The regular annual actuarial valuation of the City of Tampa Pension Fund for Firefighters and Police Officers (the Plan), performed as of October 1, 2019, has been completed and the results are presented in this Report. The contribution amounts set forth herein are applicable to the City's plan/fiscal year ended September 30, 2021.

The contribution requirements, compared with those developed in the October 1, 2018 actuarial valuation report, are as follows:

Valuation Date	10/1/2019	10/1/2018
Applicable Plan/Fiscal Year End	9/30/2021	9/30/2020
Total Required Contribution	\$ 49,872,305	\$ 36,375,145
% of Total Annual Payroll	36.64%	28.53%
Less Estimated State Contributions ¹	\$ 7,008,388	\$ 6,760,704
% of Total Annual Payroll	5.15%	5.30%
Equals Required City and Member	\$ 42,863,917	\$ 29,614,441
% of Total Annual Payroll	31.49%	23.23%
Member Contribution	\$ 18,317,913	\$ 12,655,744
% of Total Annual Payroll	13.46%	9.93%
City Contribution	\$ 24,546,004	\$ 16,958,697
% of Total Annual Payroll	18.03%	13.30%

¹ Represents the amount received in calendar 2019.

The required contributions are based upon Base Plan benefits only. Separate accounting of assets is maintained to support cost of living (COLA) benefits, the deferred retirement option program (DROP) and for the 13th Check Program. These other programs do not directly impact the funding for the Base Plan benefits. As requested by the Florida Division of Retirement, the DROP account balances are included in valuation assets (Actuarial and Market Value of Assets) and liabilities. The inclusion of the DROP in both valuation assets and liabilities has no impact on the unfunded liabilities or required contributions.

The required contribution less the estimated State contribution is split between the Members and the City at a ratio of 1 to 1.34. The active Members contribute based upon a graduated schedule (Full Scale Contribution Rate, FSCR) of covered pay. The Member contribution rate as a percentage of the FSCR is developed through the actuarial valuation. The City matches 134% of the Members' contributions deposited at the end of each quarter. The expected member contributions as a percentage of the FSCR is 58.69% for the fiscal year ending September 30, 2021.

Section I – Summary of Report

Investment Return Allocation

For the year ending September 30, 2019 the actual return on the total fund was \$80,254,839 and was allocated across accounts as follows:

	Investment Return Allocation	Approximate Investment Return
Base Plan (Base)	\$ 78,653,411	6.75%
Postretirement Adjustment Account (PRAA)	0	0%
Base + PRAA	78,653,411	3.83%
Deferred Retirement Option Plan (DROP)	1,601,428	3.18%
13 th Check	0	0%
Total Investment Return	\$ 80,254,839	3.79%

Plan Experience

For the fiscal year ending September 30, 2019 the plan experienced an overall loss of \$10.4 million which will be amortized over a period of 15 years. This resulted in an increase in the unfunded actuarial accrued liability. The primary sources of gains and losses are as follows:

Losses on the Actuarial Value of Assets

The Actuarial Value of Assets for the Base Plan including the DROP increased from \$1,266.2 million to \$1,305.5 during the fiscal year ending September 30, 2019, reflecting an investment rate of return on 7.71% compared to the assumed rate of investment return of 8.50%. This resulted in a loss of \$9.0 million.

Losses on the Actuarial Accrued Liability

There was an overall loss on the Actuarial Accrued Liability of approximately \$10.6 million. This was primarily due to higher than expected salary increases and variances in actual versus expected rates of retirement, termination, death and disability.

Gains due to contribution timing

Under Florida Statutes, Plans can elect an actuarial valuation date for determining required contributions that is up to one year prior to the applicable fiscal year. This allows Plan sponsors time to adequately budget for upcoming contribution requirements, but results in year-over-year gains and losses due to the timing of contributions. Over time, these gains and losses are expected to largely offset each other. For the year ending September 30, 2019, the Plan experienced a gain of \$9.2 million due to the timing of contributions.

Section I – Summary of Report

Discussion of Risks

In reviewing the actuarial results contained in this report it is important to consider key risk factors that may impact the future solvency of the Plan and/or future contribution requirements. One of the most significant risks is the risk of adverse investment performance. Prolonged periods of investment performance below the assumed rate of investment return will reduce the Plan's funded status and increase contribution requirements over the long-term. The resulting increases will impact both the members' and the City's contribution requirements.

The required contributions are based upon Base Plan benefits only. Separate accounting of assets is maintained to support cost of living (COLA) benefits, the deferred retirement option program (DROP) and for the 13th Check Program. The first 5% of investment returns of the combined accounts (total Fund) is allocated to fund Base Plan benefits. Investment returns above this level are used to provide annual cost of living adjustments and 13th checks that are paid upon reaching certain requirements. Currently, a 5% allocation of the total Fund's return is projected to support the 8.5% return on investments assumed in this report. Periods of prolonged adverse investment performance can limit contributions returns that are allocated to provide funding of cost of living adjustments, causing the assets set aside for this purpose to shrink. In this scenario, the 8.5% investment return assumption may no longer be supportable, causing an increase in the amount of contributions required by members and the City to fund Base Plan benefits. Past and future cost of living adjustments are only payable as long as there are sufficient funds available in the account set aside to make COLA payments and are not funded with contributions. The study titled The City of Tampa Pension Fund for Firefighters and Police Officers Stochastic Projection Study dated December 18, 2019 provides further details.

A further discussion of risks is in the Discussion of Risks section of this report.

Changes in Plan Provisions and Assumptions

There were no changes in plan provisions from the prior valuation.

There were no changes in actuarial assumptions from the prior valuation.

Section II - Valuation Information

Summary of Results

Valuation Date	October 1, 2019	October 1, 2018
Participant Data		
Actives	1,457	1,410
Service Retirees	1,392	1,341
DROP Retirees	157	181
Beneficiaries	315	311
Disability Retirees	312	313
Terminated Vested	11	15
Total	3,644	3,571
Payroll Under Assumed Ret. Age	\$ 130,884,666	\$ 122,597,298
Projected Payroll	136,120,053	127,501,190
Annual Rate of Payments to:		
Service Retirees	\$ 62,989,262	\$ 59,127,544
DROP Retirees	10,979,167	12,119,888
Beneficiaries	4,788,768	4,635,858
Disability Retirees	8,560,085	8,257,138
Terminated Vested	296,559	525,527
Unfunded Liabilities		
Actuarial Accrued Liability	\$ 1,381,066,375	\$ 1,318,531,419
Actuarial Value of Assets	1,305,479,692	1,266,174,971
Unfunded Accrued Liability	\$ 75,586,683	\$ 52,356,448
Funded Percentage	94.5%	96.0%
Development of Required Contribution		
(1) Normal Cost and Administrative Expenses ¹	\$ 41,400,071	\$ 36,375,145
(2) Unfunded Liability Payment ¹	8,472,234	(8,807,691)
(3) Preliminary Annual Cost (1) + (2)	\$ 49,872,305	\$ 27,567,454
(4) Minimum required under Florida Statute 112.66(13)	41,400,071	36,375,145
(5) Total Required Contribution max[(3), (4)]	\$ 49,872,305	\$ 36,375,145
Minimum Required Contribution by Source		
Estimated Member Contributions	\$ 18,317,913	\$ 12,655,744
Net City Contribution	24,546,004	16,958,697
Estimated State Contributions	7,008,388	6,760,704
Minimum Required Contribution by Source (% of Projected Payroll)		
Estimated Member Contributions	13.46%	9.93%
Net City Contribution	18.03%	13.30%
Estimated State Contributions	5.15%	5.30%

¹ Includes interest adjustments

Section II - Valuation Information
Summary of Results (Continued)

October 1, 2019	Firefighters	Police	Total
Participant Data by Fire and Police			
Actives	631	826	1,457
Service Retirees	546	846	1,392
DROP Retirees	46	111	157
Beneficiaries	160	155	315
Disability Retirees	142	170	312
Terminated Vested	5	6	11
Total	1,530	2,114	3,644

October 1, 2018	Firefighters	Police	Total
Participant Data by Fire and Police			
Actives	608	802	1,410
Service Retirees	537	804	1,341
DROP Retirees	53	128	181
Beneficiaries	160	151	311
Disability Retirees	142	171	313
Terminated Vested	6	9	15
Total	1,506	2,065	3,571

Section II - Valuation Information
Reconciliation of Unfunded Actuarial Accrued Liabilities

Fiscal Year Ending	<u>September 30, 2019</u>
(1) Unfunded Actuarial Accrued Liability as of October 1, 2018	\$ 52,356,448
(2) Sponsor Normal Cost	18,145,933
(3) Administrative Expenses	3,255,523
(4) Expected interest on (1), (2) and (3)	6,131,062
(5) Sponsor contributions to the System during the year	23,190,389
(6) Expected interest on (5)	<u>687,735</u>
(7) Expected Unfunded Actuarial Accrued Liability as of September 30, 2019 (1)+(2)+(3)+(4)-(5)-(6)	\$ 56,010,842
(8) Change to UAAL due to Assumption Change	0
(9) Change to UAAL due to Actuarial (Gain)/Loss	<u>19,575,841</u>
(10) Unfunded Actuarial Accrued Liability as of October 1, 2019 (7)+(8)+(9)	\$ 75,586,683
(11) Expected Unfunded Actuarial Accrued Liability Based on Outstanding Bases	<u>65,178,788</u>
(12) Additional Actuarial (Gain) / Loss for Contribution Timing Needed to Maintain Equation of Balance (7) - (11)	\$ (9,167,946)

Section II - Valuation Information
Detailed Actuarial (Gain) Loss Analysis

Fiscal Year Ending	<u>September 30, 2019</u>
(1) Unfunded Actuarial Accrued Liability (UAAL) as of October 1, 2018	\$ 52,356,448
(2) Expected UAAL as of October 1, 2019	\$ 65,178,788
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	\$ 9,041,752
Salary Increases	1,985,059
Active Decrements	8,186,546
Inactive Mortality	508,314
Contribution Timing	(9,167,946)
Other	<u>(145,830)</u>
Increase in UAAL due to (Gain)/Loss	\$ 10,407,895
Assumption Changes	<u>0</u>
(4) Actual UAAL as of October 1, 2019	\$ 75,586,683

Section II - Valuation Information
Unfunded Liability Bases

Type of Base	Date Established	Years Remaining	10/1/2019 Amount	Amortization Amount
Asset Method Change	10/1/2001	12	\$ (47,087,267)	\$ (6,411,066)
Change in Assump	10/1/2003	14	6,534,366	815,766
Benefit Improvement	10/1/2003	14	56,265,958	7,024,380
Actuarial Gain	10/1/2005	1	(3,739,523)	(4,057,384)
Actuarial Loss	10/1/2006	2	2,067,477	1,167,330
Actuarial Loss	10/1/2007	3	1,151,811	450,980
Change in Assump	10/1/2008	19	(7,062,186)	(762,020)
Actuarial Loss	10/1/2008	4	28,853,871	8,808,737
Actuarial Loss	10/1/2009	5	60,408,828	15,329,691
Actuarial Gain	10/1/2010	6	(32,048,999)	(7,038,187)
Change in Assump	10/1/2011	22	11,899,533	1,213,025
Actuarial Loss	10/1/2011	7	4,717,470	921,648
Change in Assump	10/1/2012	23	121,772,576	12,222,548
Benefit Improvement	10/1/2012	23	1,768,895	177,548
Actuarial Gain	10/1/2012	8	(94,425,923)	(16,744,611)
Actuarial Gain	10/1/2013	9	(6,891,976)	(1,126,313)
Actuarial Loss	10/1/2014	10	1,388,943	211,685
Actuarial Loss	10/1/2015	11	18,547,268	2,661,402
Actuarial Gain	10/1/2016	12	(31,730,051)	(4,320,137)
Change in Assump	10/1/2016	27	5,015,168	479,251
Actuarial Gain	10/1/2017	13	(15,599,657)	(2,028,312)
Plan Change	10/1/2017	28	2,310,284	218,643
Actuarial Gain	10/1/2018	14	(20,564,377)	(2,567,307)
Change in Assump	10/1/2018	29	1,626,299	152,556
Actuarial Loss	10/1/2019	15	10,407,895	1,253,324
			\$ 75,586,683	\$ 8,053,177

Section II - Valuation Information
Cumulative Actuarial (Gains) Losses

Year End 9/30	(1) Beginning Balance	(2) Interest	(3) Amortization Payment	(4) (Gain) Loss for Year ¹	(5) Impact of 13th Check ²	(1)+(2)-(3)+(4)-(5) Ending Balance
2000	\$ 0	\$ 0	\$ 0	\$ 118,611,565	N/A	\$ 118,611,565
2001	118,611,565	11,861,157	15,594,310	80,023,466	N/A	194,901,878
2002	194,901,878	19,490,188	26,115,297	(87,420,039)	N/A	100,856,730
2003	100,856,730	10,085,673	14,621,855	(128,921,932)	(7,595,166)	(25,006,218)
2004	(25,006,218)	(2,500,622)	(1,329,433)	(32,620,807)	N/A	(58,798,214)
2005	(58,798,214)	(5,879,821)	(5,618,215)	9,433,884	N/A	(49,625,936)
2006	(49,625,936)	(4,962,594)	(4,377,906)	3,662,854	N/A	(46,547,770)
2007	(46,547,770)	(4,654,777)	(3,896,336)	71,888,724	N/A	24,582,513
2008	24,582,513	2,458,251	5,555,146	125,685,458	N/A	147,171,076
2009	147,171,076	14,717,108	22,079,489	(57,961,330)	N/A	81,847,365
2010	81,847,365	8,184,737	14,459,094	7,622,396	N/A	83,195,404
2011	83,195,404	8,319,540	15,461,239	(139,051,210)	N/A	(62,997,505)
2012	(62,997,505)	(5,354,788)	(2,114,704)	(9,353,164)	N/A	(75,590,753)
2013	(75,590,753)	(6,425,214)	(3,241,015)	1,757,885	N/A	(77,017,067)
2014	(77,017,067)	(6,546,451)	(3,029,330)	22,100,911	N/A	(58,433,277)
2015	(58,433,277)	(4,966,829)	(367,928)	(35,875,441)	N/A	(98,907,619)
2016	(98,907,619)	(8,407,148)	(19,779,020)	(16,843,583)	N/A	(104,379,330)
2017	(104,379,330)	(8,872,243)	(29,899,913)	(21,319,524)	N/A	(104,671,184)
2018	(104,671,184)	(8,897,051)	(23,502,673)	10,407,895	N/A	(79,657,667)
2019	(79,657,667)					

¹ The (Gain)/Loss for the year is calculated before allocations are made to the 13th Check Account.

² 13th Check allocation generally does not impact Base Plan gain or loss (impact at 10/1/2004 was due to outstanding make-up to Base).

Section III - Information Required by Florida Statute
Comparative Summary of Principal Valuation Results

Valuation Date	October 1, 2019	October 1, 2018
A. Participant Data		
Actives	1,457	1,410
Service Retirees	1,392	1,341
DROP Retirees	157	181
Beneficiaries	315	311
Disability Retirees	312	313
Terminated Vested	11	15
Total	3,644	3,571
Total Annual Payroll	\$ 131,885,510	\$ 123,335,506
Payroll Under Assumed Ret. Age	130,884,666	122,597,298
Projected Payroll	136,120,053	127,501,190
Annual Rate of Payments to:		
Service Retirees	\$ 62,989,262	\$ 59,127,544
DROP Retirees	10,979,167	12,119,888
Beneficiaries	4,788,768	4,635,858
Disability Retirees	8,560,085	8,257,138
Terminated Vested	296,559	525,527
B. Assets		
Actuarial Value (AVA) ¹	\$ 1,305,479,692	\$ 1,266,174,971
Market Value (MVA) ¹	1,268,121,262	1,242,495,627
C. Liabilities		
Present Value of Benefits		
Actives		
Retirement Benefits	\$ 635,130,644	\$ 574,946,423
Disability Benefits	61,331,309	50,601,033
Death Benefits	8,138,305	6,626,559
Vested Benefits	2,630,688	2,491,121
Service Retirees	671,935,563	631,115,578
DROP Retirees ¹	179,023,117	193,299,651
Beneficiaries	42,161,953	41,269,264
Disability Retirees	83,076,206	79,783,506
Terminated Vested	2,926,759	5,282,660
Excess State Monies Reserve	0	0
Total	\$ 1,686,354,544	\$ 1,585,415,795

Section III - Information Required by Florida Statute
Comparative Summary of Principal Valuation Results (Continued)

Valuation Date	October 1, 2019	October 1, 2018
C. Liabilities - (Continued)		
Present Value of Future Salaries	\$ 1,159,603,563	\$ 1,089,194,208
Normal Cost (Retirement)	\$ 27,361,072	\$ 24,914,197
Normal Cost (Disability)	6,087,852	4,460,192
Normal Cost (Death)	589,896	426,919
Normal Cost (Vesting)	474,216	420,745
Total Normal Cost	\$ 34,513,036	\$ 30,222,053
Present Value of Future Normal Costs	\$ 305,288,169	\$ 266,884,376
Accrued Liability (Retirement)	\$ 391,404,669	\$ 353,903,181
Accrued Liability (Disability)	9,287,930	12,445,654
Accrued Liability (Death)	3,120,112	2,992,472
Accrued Liability (Vesting)	(1,869,934)	(1,560,547)
Accrued Liability (Inactives) ¹	979,123,598	950,750,659
Excess State Monies Reserve	0	0
Total Actuarial Accrued Liability (AAL)	\$ 1,381,066,375	\$ 1,318,531,419
Unfunded Actuarial Accrued Liability (UAAL)	\$ 75,586,683	\$ 52,356,448
Funded Ratio (AVA / AAL)	94.5%	96.0%

Section III - Information Required by Florida Statute
Comparative Summary of Principal Valuation Results (Continued)

Valuation Date	October 1, 2019	October 1, 2018
D. Actuarial Present Value of Accrued Benefits		
Vested Accrued Benefits		
Inactives ¹	\$ 979,123,598	\$ 950,750,659
Actives	195,705,921	163,849,847
Member Contributions	101,109,807	95,764,375
Total	1,275,939,326	1,210,364,881
Non-vested Accrued Benefits	\$ 29,791,666	\$ 25,707,662
Total Present Value Accrued Benefits (PVAB)	\$ 1,305,730,992	\$ 1,236,072,543
Funded Ratio (MVA / PVAB)	97.1%	100.5%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:		
Plan Amendments	\$ 0	
Assumption Changes	0	
New Accrued Benefits	56,965,884	
Benefits Paid	(88,607,771)	
Interest	101,300,336	
Other	0	
Total	\$ 69,658,449	

Section III - Information Required by Florida Statute
Comparative Summary of Principal Valuation Results (Continued)

Valuation Date Applicable to Fiscal Year Ending	October 1, 2019 September 30, 2021	October 1, 2018 September 30, 2020
E. Pension Cost		
Normal Cost (with interest)	\$ 39,395,226	\$ 34,497,243
% of Total Annual Payroll ²	28.94%	27.06%
Administrative Expenses (with interest)	\$ 2,004,845	\$ 1,877,902
% of Total Annual Payroll ²	1.47%	1.47%
Payment Required to Amortize Unfunded Actuarial Accrued (as of 10/1/2019, with interest)	\$ 8,472,234	\$ (8,807,691)
% of Total Annual Payroll ²	6.22%	-6.91%
Total Required Contribution	\$ 49,872,305	\$ 36,375,145
% of Total Annual Payroll ²	36.64%	28.53%
Expected State Contributions	\$ 7,008,388	\$ 6,760,704
% of Total Annual Payroll ²	5.15%	5.30%
Expected Member Contributions	\$ 18,317,913	\$ 12,655,744
% of Total Annual Payroll ²	13.46%	9.93%
Expected City Contribution	\$ 24,546,004	\$ 16,958,697
% of Total Annual Payroll ²	18.03%	13.30%
F. Past Contributions		
Plan Year Ending	September 30, 2019	
Total Required Contribution	\$ 34,742,913	
City and State Requirement	23,190,389	
Actual Contributions Made:		
Members (excluding buyback)	\$ 12,076,120	
City	16,182,001	
State	7,008,388	
Total	\$ 35,266,509	
G. Net Actuarial (Gain)/Loss	\$ 10,407,895	

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

² Contributions developed as of 10/1/2019 are expressed as a percentage of projected payroll of \$136,120,053.

**Section III - Information Required by Florida Statute
Comparative Summary of Principal Valuation Results (Continued)**

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

Year	Projected Unfunded Actuarial Accrued Liability
2019	\$ 75,586,683
2020	73,958,373
2021	68,134,269
2028	83,327,386
2035	57,830,169
2042	2,320,022
2049	0

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

		Actual	Assumed
Year Ended	9/30/2019	8.48%	6.35%
Year Ended	9/30/2018	4.78%	6.57%
Year Ended	9/30/2017	6.07%	6.44%
Year Ended	9/30/2016	11.35%	6.00%
Year Ended	9/30/2015	5.89%	6.00%

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

		Market	Actuarial	Assumed
Year Ended	9/30/2019	6.75%	7.71%	8.50%
Year Ended	9/30/2018	8.68%	7.98%	8.50%
Year Ended	9/30/2017	10.86%	7.89%	8.50%
Year Ended	9/30/2016	22.02%	13.08%	8.50%
Year Ended	9/30/2015	-5.04%	5.51%	8.50%

(iii) Average Annual Payroll Growth

(a) Payroll as of:	10/1/2019	\$131,885,510
	10/1/2009	95,114,117
(b) Total Increase		38.66%
(c) Number of Years		10.00
(d) Average Annual Rate		3.32%

Section III – Information Required by Florida Statute
Statement by Enrolled Actuary

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



Joseph L. Griffin, EA, ASA, MAAA
Enrolled Actuary #20-6938

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

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

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

Section IV -Valuation Assets
Reconciliation of Market Value (Base Plus DROP Accounts)

Fiscal Year Ending	September 30, 2019	September 30, 2018
Beginning of the Year Including DROP Accounts and Receivables	\$ 1,242,495,627	\$ 1,189,225,174
DROP Accounts	(51,573,700)	(47,423,463)
Contribution Receivable	(628,344)	(619,998)
Beginning of the Year Excluding DROP and Receivables	<u>\$ 1,190,293,583</u>	<u>\$ 1,141,181,713</u>
Contributions:		
Member (including service buybacks)	\$ 13,105,547	\$ 12,878,408
City	16,182,001	15,868,243
State	7,008,388	6,760,704
Total Contributions	<u>\$ 36,295,936</u>	<u>\$ 35,507,355</u>
Investment Income:		
Investment Income Allocation	\$ 83,878,980	\$ 102,265,244
Investment Expenses ¹	(5,225,569)	(5,242,076)
Net Investment Income	<u>\$ 78,653,411</u>	<u>\$ 97,023,168</u>
Distributions to Members:		
Base Benefits	\$ (72,754,043)	\$ (69,284,901)
Benefit Payments to DROP Accounts	(11,890,062)	(12,215,885)
Refunds of Member Contributions	(98,492)	(276,471)
Total Distributions	<u>\$ (84,742,597)</u>	<u>\$ (81,777,257)</u>
Administrative Expenses	<u>\$ (3,255,523)</u>	<u>\$ (1,641,400)</u>
End of Year	\$ 1,217,244,810	\$ 1,190,293,579
Contributions Receivable ²	0	628,344
DROP Accounts	50,876,452	51,573,704
Beginning of the Year Including DROP Accounts and Receivables	<u>\$ 1,268,121,262</u>	<u>\$ 1,242,495,627</u>
Estimated Return	6.75%	8.68%

¹ Investment related expenses include investment advisory, custodial and performance monitoring fees.

² Effective October 1, 2019, contribution receivable for service purchases are included as a part of the plan's liabilities.

Section IV - Valuation Assets

Actuarial Value of Assets

Fiscal Year Ending	September 30, 2019	September 30, 2018
1. Actuarial Value of Assets Beginning of Year		
a. Actuarial Value of Assets (AVA)	\$ 1,266,174,971	\$ 1,218,362,297
b. DROP Accounts	51,573,704	47,423,463
c. AVA net of DROP Accounts (1.a. - 1.b.)	<u>\$ 1,214,601,267</u>	<u>\$ 1,170,938,834</u>
2. Net Cash Flow Base Account:		
a. Contributions	\$ 36,295,936	\$ 35,507,355
b. Benefit Payments	(84,742,597)	(81,777,257)
c. Administrative Expenses	(3,255,523)	(1,641,400)
d. Total (2.a. + 2.b. + 2.c.)	<u>\$ (51,702,184)</u>	<u>\$ (47,911,302)</u>
3. Projected Investment Return		
a. Expected Return (8.50% x 1.c. + 4.25% x 2.d.)	\$ 101,043,765	\$ 97,493,571
b. Make-up of prior investment losses	0	0
c. Total (3.a. + 3.b.)	<u>\$ 101,043,765</u>	<u>\$ 97,493,571</u>
4. Expected Actuarial Value of Assets (1.c. + 2.d. + 3.c.)	\$ 1,263,942,848	\$ 1,220,521,103
5. Market Value of Assets (MVA) Base Account	\$ 1,217,244,810	\$ 1,190,921,923
6. Gain (Loss) (5. - 4.)	\$ (46,698,038)	\$ (29,599,180)
7. 20% Adjustment toward Market Value (20% X 6.)	\$ (9,339,608)	\$ (5,919,836)
8. Preliminary Actuarial Value of Assets		
a. Preliminary AVA net of DROP Accounts (4. + 7.)	\$ 1,254,603,240	\$ 1,214,601,267
b. DROP Accounts	50,876,452	51,573,704
c. Preliminary Actuarial Value of Assets (8.a. + 8.b.)	<u>\$ 1,305,479,692</u>	<u>\$ 1,266,174,971</u>
9. Actuarial Value of Assets Corridor		
a. MVA Base Account	\$ 1,217,244,810	\$ 1,190,921,923
b. DROP Accounts	50,876,452	51,573,704
c. MVA Base plus DROP Accounts (9.a. + 9.b.)	<u>\$ 1,268,121,262</u>	<u>\$ 1,242,495,627</u>
d. 80% of MVA Base plus DROP Accounts (80% X 9.c.)	\$ 1,014,497,010	\$ 993,996,502
e. 120% of MVA Base plus DROP Accounts (120% X 9.c.)	\$ 1,521,745,514	\$ 1,490,994,752
10. Actuarial Value of Assets End of Year (8.c not less than 9.d., not more than 9.e.)	\$ 1,305,479,692	\$ 1,266,174,971
11. Estimated Return	7.71%	7.98%

Section IV - Valuation Assets
Make-Up to Base Plan of Prior Cumulative Investment Returns Below 5%

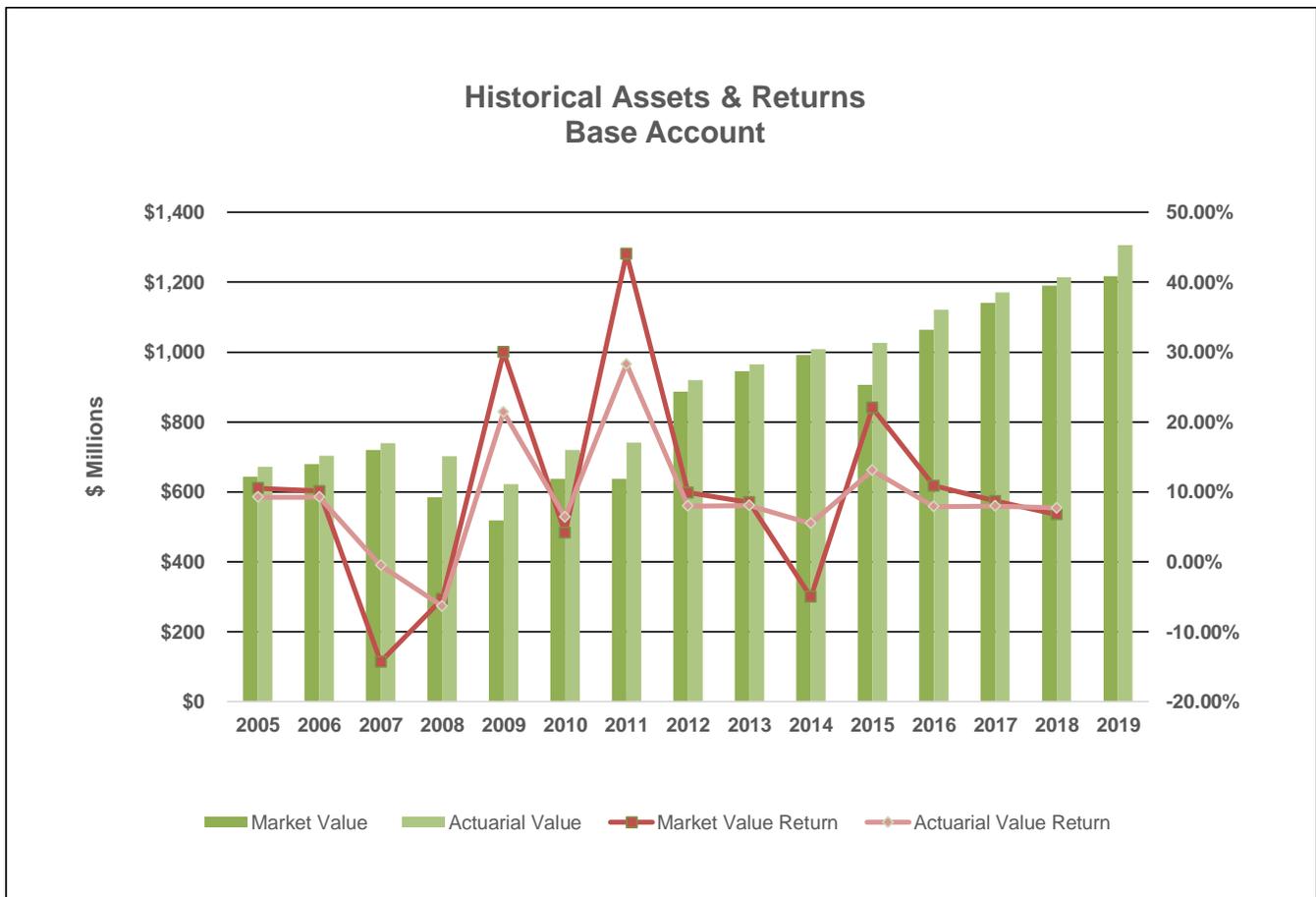
Plan Year Ending 9/30	Market Value of Base Plan Assets (BOY)	Market Value of PRAA Assets (BOY)	Market Value of Base + PRAA Assets (BOY)	Contributions	Benefits and Expenses	Expected 5% Return Allocation to Base Plan	Actual Return Allocation to Base Plan	Base Plan (Shortfall)/Makeup Payment in Year	Cumulative Makeup Payment
2008	\$ 719,097,961	\$ 934,239,630	\$ 1,653,337,591	\$ 12,569,135	\$ 65,614,562	\$ 81,340,744	\$ (100,511,234)	\$ (181,851,978)	\$ (181,851,978)
2009	584,699,200	784,499,273	1,369,198,473	13,973,973	70,619,460	67,043,786	(30,140,703)	(97,184,489)	(279,036,467)
2010	518,870,559	723,101,511	1,241,972,070	21,778,015	76,558,537	60,729,091	150,761,191	90,032,100	(189,004,367)
2011	636,967,389	700,985,350	1,337,952,739	37,250,280	84,536,461	65,715,482	25,825,808	(39,889,674)	(228,894,041)
2012	638,032,360	678,612,090	1,316,644,450	37,406,332	87,719,948	64,574,382	278,826,704	214,252,322	(14,641,719)
2013	886,637,394	655,137,559	1,541,774,953	38,954,110	91,346,894	75,778,928	90,420,647	14,641,719	0
2014	945,570,541	753,555,435	1,699,125,976	37,642,185	96,556,356	83,483,445	83,483,445	0	0
2015	992,031,914	834,278,107	1,826,310,021	37,606,152	102,227,716	89,699,962	(48,964,256)	(138,664,218)	(138,664,218)
2016	906,395,662	765,491,752	1,671,887,414	40,513,871	105,785,118	81,962,590	195,443,874	113,481,284	(25,182,934)
2017	1,065,100,339	737,048,253	1,802,148,592	44,620,372	110,204,885	88,443,679	113,626,613	25,182,934	0
2018	1,141,801,711	837,853,199	1,979,654,910	35,507,355	112,650,447	97,023,168	97,023,168	0	0
2019	1,190,921,923	904,475,594	2,095,397,517	36,295,936	119,088,301	102,668,650	78,653,411	(24,015,239)	(24,015,239)
2020	1,217,244,806	873,385,413	2,090,630,219						

In accordance with Policy #713, negative returns are allocated to the Base/PRAA accounts proportionately based on the relative size of each account as of the prior September 30th.

Section IV - Valuation Assets

Historical Asset Values and Estimated Investment Returns

Plan Year Beginning	Market Value (Base Account)	Actuarial Value (Base Account)	Benefit Payments ¹	Admin. Expenses	Contributions ²	Market Value Return	Actuarial Value Return
2005	\$ 642,566,368	\$ 671,425,128	\$ 36,192,503	\$ 1,415,621	\$ 8,711,649	10.51%	9.26%
2006	679,660,947	703,389,182	40,053,990	1,151,970	13,353,621	10.11%	9.25%
2007	719,097,961	739,323,050	44,988,716	1,467,945	12,569,135	-14.31%	-0.53%
2008	584,699,201	701,639,041	48,158,657	1,503,255	13,973,973	-5.32%	-6.33%
2009	518,870,559	622,644,671	53,004,372	1,438,004	21,778,015	30.00%	21.43%
2010	636,967,389	719,908,405	60,688,558	1,474,843	37,250,280	4.14%	6.39%
2011	637,880,076	740,168,390	62,513,400	1,367,017	37,406,332	44.06%	28.30%
2012	886,642,307	919,393,763	64,728,514	1,491,611	38,954,110	9.88%	7.98%
2013	945,571,129	964,408,155	68,587,881	1,372,155	37,642,185	8.48%	8.06%
2014	992,031,914	1,008,559,574	73,029,199	1,590,078	37,606,152	-5.04%	5.51%
2015	905,996,890	1,026,053,299	75,833,310	1,508,309	40,513,871	22.02%	13.08%
2016	1,064,613,016	1,121,043,318	79,978,320	1,704,527	44,620,372	10.86%	7.89%
2017	1,141,181,713	1,170,938,834	81,777,257	1,641,400	35,507,355	8.68%	7.98%
2018	1,190,293,579	1,214,601,267	84,742,597	3,255,523	36,295,936	6.75%	7.71%
2019	1,217,244,810	1,305,479,692					



Note: Market and Actuarial Asset Values in 2004 - 2006 have been adjusted for FYE 9/30/2014 13th Check.

¹ Including contribution refunds and DROP payments.

² Including contribution receivable for October 1, 2007 & 2008 plan years, reflecting reversal of receivable in 2008.

Section IV - Valuation Assets
History of Premium Tax Refunds

Received During Fiscal Year	Amount	Increase from Previous Year
1998	\$ 3,634,366	
1999	3,610,199	-0.7%
2000	3,691,781	2.3%
2001	3,746,066	1.5%
2002	4,412,734	17.8%
2003	4,730,035	7.2%
2004	5,296,818	12.0%
2005	5,603,183	5.8%
2006	6,124,850	9.3%
2007	6,686,519	9.2%
2008	6,894,687	3.1%
2009	6,394,195	-7.3%
2010	6,255,071	-2.2%
2011	5,952,176	-4.8%
2012	6,083,651	2.2%
2013	6,191,857	1.8%
2014	6,392,430	3.2%
2015	6,484,726	1.4%
2016	6,483,330	0.0%
2017	6,442,998	-0.6%
2018	6,760,704	4.9%
2019	7,008,388	3.7%

Section IV - Valuation Assets

Excess State Money Reserve

Year	Actual State Contribution	Applicable "Frozen" Amount	Excess State Monies Reserve
2000	\$ 3,691,781	\$ 3,685,212	\$ 6,569
2001	3,746,066	3,685,212	60,854
2002	4,412,734	3,685,212	727,522
2003	4,730,035	3,965,135	764,900
2004	5,296,818	13,304,741	0
2005	5,603,183	13,304,741	0
2006	6,124,850	13,304,741	0
2007	6,686,519	13,304,741	0
2008	6,894,687	13,304,741	0
2009	6,394,195	13,304,741	0
2010	6,255,071	13,304,741	0
2011	5,952,176	13,304,741	0
2012	6,083,651	13,304,741	0
2013	6,191,857	13,304,741	0
2014	6,392,430	13,304,741	0
2015	6,484,726	13,304,741	0
2016	6,483,330	13,304,741	0
2017	6,442,998	13,304,741	0
2018	6,760,704	13,565,066	0
2019	7,008,388	13,565,066	0
			\$ 1,559,845
			\$ 1,559,845
			0
			\$ 1,559,845
			(1,559,845)
			0
			\$ 0

Section V - Fund Allocations
Market Value by Investment Type
(Base, DROP, PRAA, 13th Check, and Staff Pension Plan)

Valuation Date	October 1, 2019	October 1, 2018
Cash and Cash Equivalents (2.3%)	\$ 49,586,416	\$ 45,263,261
Government Securities (4.6%)	97,926,663	103,347,640
Corporate Bonds (16.5%)	354,516,915	328,583,746
Stocks (74.1%)	1,589,913,420	1,641,804,061
Partnerships (2.4%)	52,083,555	48,810,440
Capital Assets (0.1%)	1,525,614	542,577
Total	\$ 2,145,552,583	\$ 2,168,351,725
Receivables ¹	4,969,404	5,712,673
Payables	(7,853,521)	(6,075,553)
Total (Position Restricted for Pensions)	\$ 2,142,668,466	\$ 2,167,988,845

(Percentages shown as of October 1, 2019)

¹ Includes \$0 as of October 1, 2019 and \$628,344 as of October 1, 2018 for service buybacks in process.

Section V - Fund Allocations
Reconciliation of Market Value
(Base, DROP, PRAA, 13th Check, and Staff Pension Plan)

Fiscal Year Ending	September 30, 2019	September 30, 2018
Beginning of the Year	\$ 2,167,988,845	\$ 2,046,905,802
Contribution Receivable	<u>(628,344)</u>	<u>(619,998)</u>
Beginning of the Year Excluding Contribution Receivable	\$ 2,167,360,501	\$ 2,046,285,804
Contributions:		
Member (including service buybacks)	\$ 13,105,547	\$ 12,878,408
City	16,182,001	15,868,243
State	<u>7,008,388</u>	<u>6,760,704</u>
Total Contributions:	\$ 36,295,936	\$ 35,507,355
Investment Income:		
Net Increase in Fair Value of Investments	\$ 38,590,911	\$ 181,716,415
Interest & Dividends	46,889,497	41,510,828
Less Investment Expense ¹	<u>(5,225,569)</u>	<u>(5,242,076)</u>
Net Investment Income	\$ 80,254,839	\$ 217,985,167
Distributions to Members:		
Benefit Payments	\$ (72,754,043)	\$ (69,284,901)
Lump Sum DROP Distributions	(15,755,236)	(13,826,810)
COLA Payments from PRAA	(30,693,217)	(28,892,253)
13th Check Benefit Payments	(19,680,207)	(18,428,857)
Refunds of Member Contributions	<u>(98,492)</u>	<u>(276,471)</u>
Total Distributions	\$ (138,981,195)	\$ (130,709,292)
Administrative Expenses	(2,261,615)	(1,708,533)
End of Year	\$ 2,142,668,466	\$ 2,167,360,501
Contributions Receivable	<u>0</u>	<u>628,344</u>
End of Year Including Contribution Receivable	\$ 2,142,668,466	\$ 2,167,988,845
Estimated Return	3.79%	10.91%

¹Investment related expenses include investment advisory, custodial and performance monitoring fees.

Section V - Fund Allocations
Reconciliation of Market Value (Base Account)

Fiscal Year Ending	September 30, 2019	September 30, 2018
Beginning of the Year Including Receivables	\$ 1,190,921,923	\$ 1,141,801,711
Contribution Receivable	<u>(628,344)</u>	<u>(619,998)</u>
Beginning of the Year Excluding Receivables	\$ 1,190,293,579	\$ 1,141,181,713
 Contributions:		
Member (including service buybacks)	\$ 13,105,547	\$ 12,878,408
City	16,182,001	15,868,243
State	<u>7,008,388</u>	<u>6,760,704</u>
Total Contributions	\$ 36,295,936	\$ 35,507,355
 Investment Income:		
Investment Income Allocation	\$ 83,878,980	\$ 102,265,244
Investment Expenses ¹	<u>(5,225,569)</u>	<u>(5,242,076)</u>
Net Investment Income	\$ 78,653,411	\$ 97,023,168
 Distributions to Members:		
Base Benefits	\$ (72,754,043)	\$ (69,284,901)
Benefit Payments to DROP Accounts	(11,890,062)	(12,215,885)
Refunds of Member Contributions	<u>(98,492)</u>	<u>(276,471)</u>
Total Distributions	\$ (84,742,597)	\$ (81,777,257)
Administrative Expenses	<u>\$ (3,255,523)</u>	<u>\$ (1,641,400)</u>
End of Year	\$ 1,217,244,806	\$ 1,190,293,579
Contributions Receivable	<u>0</u>	<u>628,344</u>
End of the Year Including Receivables	\$ 1,217,244,806	\$ 1,190,921,923
Estimated Return	6.75%	8.68%

¹Investment related expenses include investment advisory, custodial and performance monitoring fees.

Section V - Fund Allocations
Reconciliation of Market Value (DROP Accounts)

Fiscal Year Ending	<u>September 30, 2019</u>	<u>September 30, 2018</u>
Beginning of the Year	\$ 51,573,704	\$ 47,423,463
Adjustment	(4)	0
Beginning of the Year	<u>\$ 51,573,700</u>	<u>\$ 47,423,463</u>
Contributions:		
Base Benefits	\$ 11,890,062	\$ 12,215,885
COLA Benefits	396,964	339,537
13th Check Benefits	1,235,760	1,328,640
Total Contributions	<u>\$ 13,522,786</u>	<u>\$ 13,884,062</u>
Investment Income Allocation	\$ 1,601,428	\$ 4,160,122
Distributions to Members	\$ (15,755,236)	\$ (13,826,810)
Administrative Expenses	\$ (66,226)	\$ (67,133)
End of Year	\$ 50,876,452	\$ 51,573,704
Estimated Return	3.18%	8.77%

Section V - Fund Allocations
Reconciliation of Market Value (PRAA Account)

Fiscal Year Ending	<u>September 30, 2019</u>	<u>September 30, 2018</u>
Beginning of the Year	\$ 904,475,594	\$ 837,853,199
Investment Income Allocation	\$ 0	\$ 95,854,185
Distributions to Members:		
COLA Benefits	\$ (30,693,217)	\$ (28,892,253)
COLA Payments to DROP Accounts	(396,964)	(339,537)
Total Distributions	<u>\$ (31,090,181)</u>	<u>\$ (29,231,790)</u>
End of Year	\$ 873,385,413	\$ 904,475,594
Estimated Return	0.00%	11.64%

Section V - Fund Allocations
Reconciliation of Market Value (13th Check Account)

Fiscal Year Ending	<u>September 30, 2019</u>	<u>September 30, 2018</u>
Beginning of the Year	\$ 21,017,624	\$ 19,827,429
Investment Income Allocation	\$ 0	\$ 20,947,692
Distributions to Members:		
13th Check Benefits	\$ (19,680,207)	\$ (18,428,857)
13th Check Payments to DROP Accounts	(1,235,760)	(1,328,640)
Total Distributions	<u>\$ (20,915,967)</u>	<u>\$ (19,757,497)</u>
End of Year	\$ 101,657	\$ 21,017,624

Section V - Fund Allocations
Reconciliation of Market Value (Staff Pension Plan)

Fiscal Year Ending	<u>September 30, 2019</u>	<u>September 30, 2018</u>
Beginning of the Year	\$ 0	\$ 0
Initial Asset Transfer	\$ 914,447	\$ 0
Contributions:		
Member	\$ 21,382	\$ 0
Employer	87,538	0
Total Contributions	<u>\$ 108,920</u>	<u>\$ 0</u>
Investment Income Allocation	\$ 36,767	\$ 0
Benefits Paid	\$ 0	\$ 0
End of Year	\$ 1,060,134	\$ 0
Estimated Return	3.79%	

Section VI - Summary of Member Data

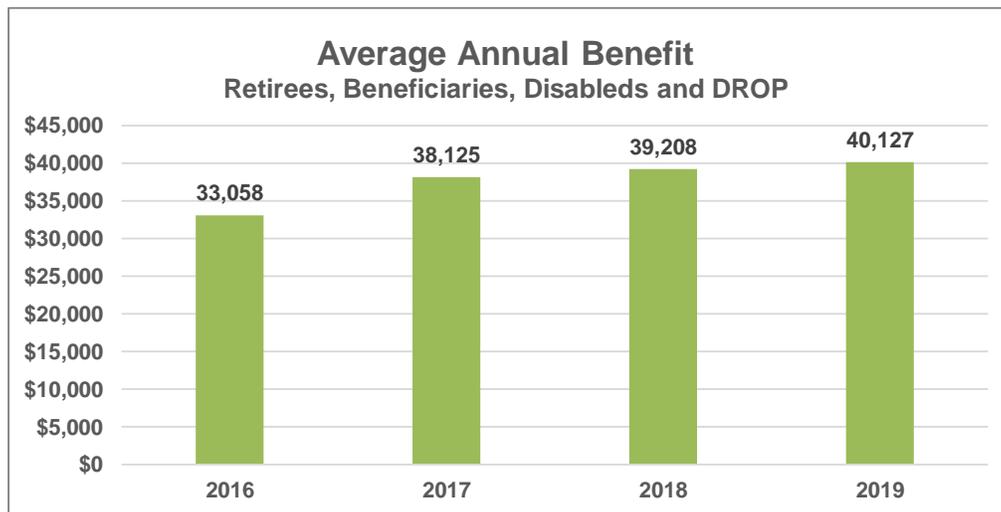
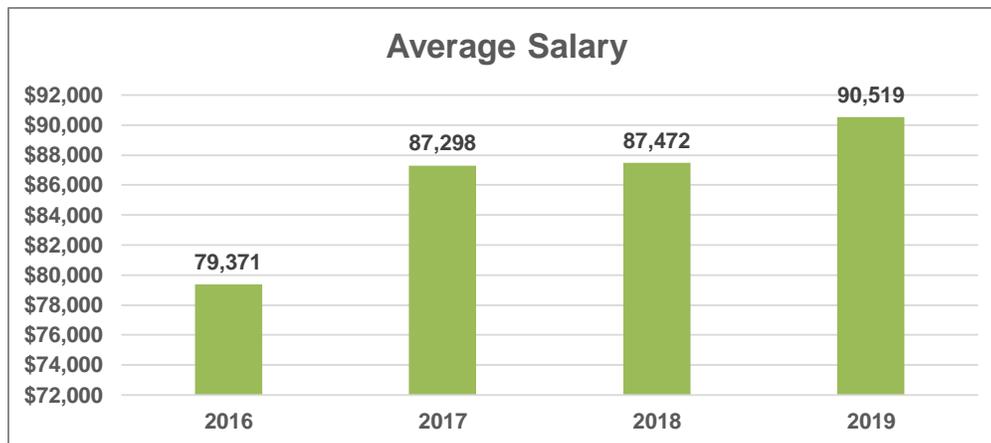
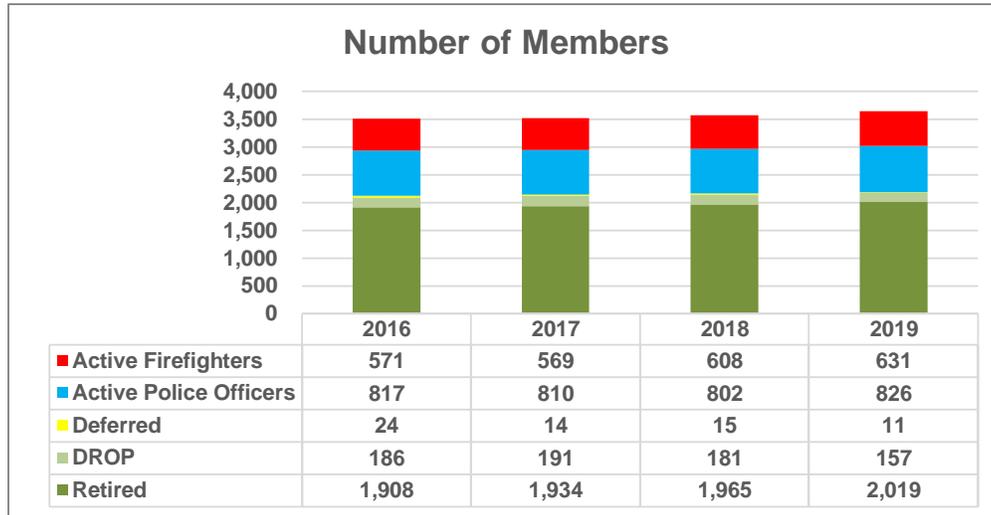
Statistical Data

Valuation Date	<u>October 1, 2016</u>	<u>October 1, 2017</u>	<u>October 1, 2018</u>	<u>October 1, 2019</u>
<u>Actives</u>				
Number of Firefighters	571	569	608	631
Number of Police Officers	817	810	802	826
Total Actives	1,388	1,379	1,410	1,457
Average Current Age	38.0	38.2	38.2	38.2
Average Age at Employment	28.4	28.4	28.4	28.3
Average Past Service	9.6	9.8	9.8	9.9
Average Annual Salary	\$ 79,371	\$ 87,298	\$ 87,472	\$ 90,519
<u>Service Retirees</u>				
Number of Firefighters	536	540	537	546
Number of Police Officers	749	761	804	846
Total Service Retirees	1,285	1,301	1,341	1,392
Average Current Age		64.3	64.6	64.8
Average Annual Benefit ¹	\$ 44,479	\$ 42,831	\$ 44,092	\$ 45,251
<u>DROP Retirees</u>				
Number of Firefighters	49	54	53	46
Number of Police Officers	137	137	128	111
Total DROP Retirees	186	191	181	157
Average Current Age		51.5	51.9	51.8
Average Annual Benefit		\$ 65,744	\$ 66,961	\$ 69,931
<u>Beneficiaries</u>				
Number of Firefighters	159	164	160	160
Number of Police Officers	147	158	151	155
Total Beneficiaries	309	322	311	315
Average Current Age		73.9	74.4	75.1
Average Annual Benefit	\$ 13,261	\$ 14,432	\$ 14,906	\$ 15,202
<u>Disability Retirees</u>				
Number of Firefighters	145	145	142	142
Number of Police Officers	169	169	171	170
Total Disability Retirees	314	311	313	312
Average Current Age		65.7	66.1	66.3
Average Annual Benefit	\$ 25,380	\$ 26,006	\$ 26,381	\$ 27,436
<u>Terminated Vested</u>				
Number of Firefighters	8	4	6	5
Number of Police Officers	16	10	9	6
Total Terminated Vested	24	14	15	11
Average Current Age		41.9	43.2	43.3
Average Annual Benefit	\$ 19,081	\$ 29,472	\$ 35,035	\$ 26,960

¹ 10/1/2014 through 10/1/2016 Retiree Average Annual Benefits include benefits attributable to DROP participants.

Section VI - Summary of Member Data

Statistical Data (continued)



Section VI - Summary of Member Data
Age and Service Distribution

Age	Credited Service											Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+		
15-19													0
20-24	20	15	3	3									41
25-29	36	40	27	29	19	25							176
30-34	24	29	17	31	23	145	44						313
35-39	9	13	10	12	10	101	112	26					293
40-44	3		4	5	6	47	92	119	12				288
45-49			1	4		28	49	91	46				219
50-54				1		7	26	35	24	1	1		95
55-59			1			1	6	11	6			4	29
60-64							1	2					3
65+													0
Total	92	97	63	85	58	354	330	284	88	1	5	1,457	

Section VI - Summary of Member Data

Valuation Participant Reconciliation

1. Active lives		
a. Number in prior valuation		1,410
b. Terminations		
i. Vested (partial or full) with deferred benefits		(1)
ii. Non-vested or full lump sum distribution received		(13)
c. Deaths		
i. Beneficiary receiving benefits		0
ii. No future benefits payable		0
d. Disabled		(7)
e. Retired		(8)
f. DROP		(33)
g. Continuing participants		1,348
h. New entrants/Rehires		109
i. Number in current valuation		1,457

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

	Retired	DROP	Beneficiary	Disabled	Deferred	Total
a. Number prior valuation	1,341	181	311	313	15	2,161
Retired	68	(57)			(3)	8
DROP		33				33
Vested Deferred					1	1
Death, With Survivor	(10)		17	(6)		1
Death, No Survivor	(7)		(12)	(2)		(21)
Disabled				7		7
Refund of Contributions						
Rehires					(2)	(2)
Expired Annuities			(1)			(1)
Data Corrections						
b. Number current valuation	1,392	157	315	312	11	2,187

Section VII – Discussion of Risks

In reviewing this report, it should be noted that there are risks that may not be inherently apparent to the reader that should be carefully considered. Below is a summary of the key risks factors that should be considered.

Identification of Risks

1. Investment risk: The liabilities and corresponding funded status presented in this report assume a long-term return expectation of 8.50% in each future year, net of investment expenses. Due to the nature of investments, long-term expectations are not a guarantee and actual average long-term returns may be above or below 8.50% per year. It should be noted that the liabilities and the corresponding funded status presented in this report would vary to the extent the long-term rate of return varies from current expectations. Furthermore, short-term volatility in actual returns is expected and will result in year-over-year fluctuation in financial metrics.
2. Demographic risk: The results in this report assume demographic characteristics of the plan will follow a pattern consistent with assumptions disclosed for termination of employment, incidence of disabilities, salary increases, timing of retirement, and duration of payments throughout retirement. Actuarial assumptions are applied to large groups of individuals to reasonably estimate plan liabilities and are not intended to be applied on an individual basis. As such, demographic changes may differ significantly from those assumed and result in varying liabilities and funded status.
3. Contribution risk: Risks associated with items 1 and 2 above will inherently create varying liabilities and assets resulting in volatility in contribution requirements. Actuarial losses on assets and liabilities will lead to higher contribution amounts, while actuarial gains on assets and liabilities will lead to lower contribution amounts. It should be noted that investment risk is generally a greater risk to most plans than demographic risk. Prolonged periods of investment performance below the assumed rate of return will result in a decrease in funded status (i.e. increases unfunded liabilities) and an increase in contributions required (both City and member contributions) in future years.

It should be noted that plans with higher funding percentages (assets as a percentage of liabilities) have less risk of insolvency due to annual variances in investment performance and demographics. The Plan is funded at a high level with a funding percentage of 94.5% (versus 96.0% in the previous year).

Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, plans with a large amount of retired liability do not have as long of a time horizon to

Section VII – Discussion of Risks

recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature plans with a substantial inactive liability. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

Approximately 71% of the Actuarial Accrued Liability is associate with those receiving payments. This means that the Plan is highly mature and losses due to lower than expected investment returns or demographic factors will need to be made up for over a time horizon that is acceptable to a plan of this maturity. The Board has adopted a 15 year time horizon for amortizing actuarial gains and losses. Additionally, the Plan has a negative net cash flow of approximately \$56.7 million (4.5% of plan assets). It takes larger percentage increases in contributions and/or large future asset gains for plans with a negative net cash flow to recover from investment losses than it does for plans with a positive net cash flow.

Summary Comments

It is important to note that the we have identified the risks above as the most significant risks based on the characteristics of the plan and the nature of the actuarial valuation, however, it is not an exhaustive list of potential risks that could be considered. The City of Tampa Pension Fund for Firefighters and Police Officers is part of a larger fund that provides the benefits under the terms of the Plan as well as cost of living adjustments and 13th checks that are paid through investment returns in excess of a specified level. This structure creates a unique set of risks, some of which were identified in the summary section of this report as a supplement to this discussion. Due to the complex nature of the Plan, the Board has historically requested advanced modelling of the fund (including stochastic analysis) in 5-year cycles. The latest report was provided in December of 2019. Identification of additional risks, and/or analysis can be helpful and can be provided upon request of the Board.

Section VII - Discussion of Risks
Plan Maturity Measures and Other Risk Metrics

Valuation Date	<u>October 1, 2016</u>	<u>October 1, 2017</u>	<u>October 1, 2018</u>	<u>October 1, 2019</u>
<u>Support Ratio</u>				
Total Actives	1,388	1,379	1,410	1,457
Total Inactives	2,118	2,139	2,161	2,187
Actives / Inactives	65.5%	64.5%	65.2%	66.6%
<u>Asset Volatility Ratio</u>				
Market Value of Assets (MVA)	1,103,569,405	1,189,225,174	1,242,495,627	1,268,121,262
Total Annual Payroll	110,166,665	120,384,623	123,335,506	131,885,510
MVA / Total Annual Payroll	1,001.7%	987.9%	1,007.4%	961.5%
<u>Accrued Liability (AL) Percentage</u>				
Inactive Accrued Liability	869,901,726	914,378,875	950,750,659	979,123,598
Total Accrued Liability (EAN)	1,215,525,125	1,269,133,103	1,318,531,419	1,381,066,375
Inactive AL / Total AL	71.6%	72.0%	72.1%	70.9%
<u>Funded Percentage</u>				
Actuarial Value of Assets (AVA)	1,159,999,707	1,218,362,297	1,266,174,971	1,305,479,692
Total Accrued Liability (EAN)	1,215,525,125	1,269,133,103	1,318,531,419	1,381,066,375
AVA / Total AL	95.4%	96.0%	96.0%	94.5%
<u>Net Cash Flow Ratio</u>				
Net Cash Flow ¹	(58,885,669)	(35,291,573)	(50,612,339)	(56,663,011)
Market Value of Assets (MVA)	1,103,569,405	1,189,225,174	1,242,495,627	1,268,121,262
Ratio	-5.3%	-3.0%	-4.1%	-4.5%

¹ Contributions (excluding service buybacks) minus benefit payments for the Base and DROP accounts and administrative expenses.

Section VIII – Actuarial Assumptions and Methods

The actuarial assumptions and methods are based on an experience study conducted in January of 2019. The investment rate of return was reviewed in December of 2019 using a stochastic forecast technique. The Board has a policy of reviewing actuarial assumptions once every five years.

Mortality Rates

Healthy Active Lives:

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

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

20% of all deaths are assumed to be in the line of duty.

Healthy Inactive Lives:

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

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

Disabled Lives:

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

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

The assumed rates of mortality were mandated by Chapter 2015-157, Laws of Florida. This law mandates the use of the assumption used in either of the two most recent valuations of the Florida Retirement System (FRS). The above rates are those outlined in the July 1, 2017 FRS actuarial valuation report for special risk employees. We feel this assumption sufficiently accommodates future mortality improvements.

Interest Rate

8.50% per year, compounded annually, net of investment related expenses.

Payroll Increase Rate

4.0% per year for projecting aggregate payroll to the following fiscal year.

Administrative Expenses

Administrative expenses are assumed to be 1.4% of payroll.

Section VIII – Actuarial Assumptions and Methods

Marital Assumptions

85% of active members are assumed to be married with males 4 years older than females. Surviving spouses of retirees are assumed not to remarry as benefits cease upon remarriage under the normal form.

State Contributions

State premium tax revenue is assumed to be the same as the most recent distribution.

Funding Method

Entry Age Normal Actuarial Cost Method.

Actuarial Asset Method

Each year, the prior Actuarial Value of Assets (AVA) is projected forward at the assumed interest rate assumption and reflecting actual contributions and benefit payments. One-fifth of the difference between the projected actuarial value and market value is added to the projected actuarial value. The resulting AVA cannot be greater than 120% of the market value or less than 80% of the market value. It is possible that over time this technique will produce an insignificant bias above or below Market Value.

Amortization Periods

Changes in unfunded liability are amortized on a level dollar basis over the following periods:

Plan Changes	30 years
Assumption/Method Changes	30 years
Gains or Losses	15 years

Termination Rates

Sample rates of termination are shown below.

Service	Firefighters	Police Officers
0	4.0%	12.5%
1	1.5%	3.5%
2 – 5	1.5%	2.0%
6 – 9	1.0%	1.0%
10+	0.0%	0.0%

Section VIII – Actuarial Assumptions and Methods

Retirement Rates

Rates of retirement are shown below.

At Least 20 years of service:

Service	Firefighters	Service	Police Officers
20	30%	20	45%
21-22	20%	21	25%
23	20%	22	27.5%
24-25	60%	23	40%
26-29	40%	24-26	57.5%
30+	100%	27+	100%

Less than 20 years of service:

Age	Firefighters	Police Officers
46-59	4.0%	7.0%
60	100%	100%

Disability Rates

Sample rates of disability are shown below.

Age	Firefighters	Police Officers
25	0.11%	0.11%
30	0.28%	0.18%
35	0.63%	0.66%
40	1.26%	0.96%
45	2.05%	0.96%
50	2.84%	0.96%
55	3.15%	0.96%

It is assumed that 95% of disablements are service related.

Salary Increases

Sample rates of salary increases are shown below.

Less Than 8 Years of Service:

Age	Firefighters	Police Officer
20	12.0%	8.0%
25	11.0%	8.0%
30	10.0%	8.0%
35	9.5%	8.0%
40	9.5%	8.0%
45+	9.0%	7.0%

At Least 8 Years of Service:

Age	Firefighters	Police Officer
25	7.5%	8.0%
30	7.5%	6.0%
35	6.5%	4.75%
40	6.5%	4.0%
45+	5.0%	4.0%

Section IX - Summary of Plan Provisions

Plan Effective Date

Established by Chapter 21590, Laws of Florida, Special Act of 1941. Most recent amendments reflected are adopted under Chapters 2000-485, 2001-288, 2002-369, 2004-427, 2007-304, 2011-240, 2012-235, and 2018-180. Laws of Florida, and Local Ordinance 2001-133 and 2003-22.

Eligibility

Full-time City Firefighters or Police Officers are eligible for membership after submitting to a pre-employment physical, providing select medical and employment information, and meeting the requirements of the City's Civil Service Board except for the probationary period.

Credited Service

A Member will be credited with a year of service for each year of employment as a City Firefighter or Police Officer, whether continuous or interrupted, for which Member contributions are made.

Military Service

Service in the armed forces of up to five years, or as required by the Uniformed Services Employee and Re-Employment Rights Act may be counted as years of Credited Service.

Service While Disabled

A Member who is awarded a disability pension after becoming disabled in the line of duty and returns to active service prior to eligibility for service retirement may receive Credited Service for the period of disability. To receive credit for service during the disability, the Member must make contributions for the period of disability based on his Earnings when the disability began within 18 months after returning to active service. The member must remain employed for two years after returning to employment.

Salary

Base salary or wages, including regular longevity bonuses and overtime up to 300 hours per year.

Average Monthly Earnings (AME)

The average of the Member's Earnings during the highest three years during the final ten years of service.

Final Earnings

A Member's Final Earnings is the Member's Earnings during the last year of active employment prior to termination.

Section IX - Summary of Plan Provisions

Member Contributions

Member contributions are determined as a percentage of the Full Scale Contribution Rate (FSCR) on the basis of the annual actuarial valuation of the Base Plan. The FSCR and the Member contribution rates for the year beginning October 1, 2020 is as follows:

Fiscal Year Earnings	FSCR	Base 58.69% of FSCR
First \$4,000	6%	3.5214%
Next \$1,000	7%	4.1083%
Next \$1,000	8%	4.6952%
Next \$1,000	9%	5.2821%
Next \$1,000	10%	5.8690%
Next \$1,000	11%	6.4559%
Next \$1,000	12%	7.0428%
Next \$2,500	15%	8.8035%
Excess Over \$12,500	25%	14.6725%

Member contributions for the Older Workers will be reduced by the Social Security OASDI Contributions, which they must pay.

If the City's contribution exceeds 40% of Member pay, the Member contributions above will be increased by the ratio of the City's contribution to the 40% of Member pay.

Members who elect the Deferred Retirement Option Program (DROP) do not contribute.

Members who terminate prior to vesting will be eligible for a refund of employee contributions without interest.

City Contributions

The City's contribution to the Base Plan will be determined as the amount required, in addition to Member contributions, contributions by the State of Florida, and other sources of revenue, to pay the actuarially determined normal cost of the Fund, exclusive of post-retirement cost of living adjustments, pursuant to the funding requirements of Chapters 112, 175, and 185 of the Florida Statutes. There are no contributions from the City to the 13th Check Program.

The City's required contributions are paid quarterly and are equal to 134% of the Members' contributions paid during that quarter. This equates to a ratio of 1:1.34 of employee to employer contributions.

State Contributions

State premium tax revenue under Chapter 175/185 received annually is used to offset required contributions. The City of Tampa and the IAFF Local 754 and Tampa PBA agree to mutual consent regarding the use of the state premium tax funds.

Section IX - Summary of Plan Provisions

Normal Retirement

- Date:** Earlier of completion of 20 years of service or age 46 with ten or more years of service.
- Benefit:** 3.15% of AME times years of Credited Service, subject to a maximum of 100% of AME. This benefit is effective October 1, 2004 and is applicable only to plan Members actively employed as Firefighters or Police Officers in the City of Tampa on or after October 1, 2003.

Vesting

- Schedule:** 100% after 10 years of Credited Service.
- Benefit:** If the Member separates with 10 or more years of service, the annual deferred vested benefit payable monthly at age 46 is an annual amount of 3.15% of AME times Credited Service. This benefit is effective October 1, 2004 and is applicable only to plan Members who were actively employed as Firefighters or Police Officers in the City of Tampa on or after October 1, 2003. Alternatively, the Member may elect refund of employee contribution without interest.

Deferred Retirement Option Plan

- Eligibility:** A Member who has earned at least 20 years of service but no more than 30 years of service is eligible to elect to participate in DROP. An election to participate in DROP is irrevocable.
- Participation:** Not to exceed the earlier of 60 months or the completion of 30 years of service with the City.
- Rate of Return:** DROP benefits accumulate with interest based on an election of the Member at either 1) the Plan's net investment return or 2) a low risk, variable rate option as determined by the Board of Trustees. A Member may change this option once per year during the month of October.
- Distribution:** Lump sum and/or rollover to qualified retirement plan(s) at termination of employment.

Disability – Service Incurred

- Eligibility:** Permanent incapacity to perform regular and continuous duty. Permanent incapacity must be caused by and attributable to the performance of the employee's duties as a member of the Fire or Police Department.
- Benefit:** Monthly income payable while so disabled equal to 65% of the Member's monthly salary in effect at the date of disability plus one-twelfth of any other pensionable earnings received within one year prior to the date of disability.

Section IX - Summary of Plan Provisions

Disability – Non-Service Incurred

- Eligibility:** Permanent incapacity to perform regular and continuous duty after completion of 10 years of Service. Permanent incapacity not caused or attributable to the performance of the employee's duties as a member of the Fire or Police Department.
- Benefit:** Monthly income payable while so disabled equal to 2% of AME times years of Credited Service with a maximum benefit of 50% of AME and a minimum benefit of 25% of AME.

A Member who is receiving a non-service incurred disability, may elect to receive longevity benefits equal to 3.15% of AME times years of Credited Service upon attainment of age 46. This benefit is effective October 1, 2004 and is applicable only to Non-Service Incurred Disabled Members actively employed as Firefighters or Police Officers in the City of Tampa on or after October 1, 2003. Election must be in writing at least 30 days prior to attainment of age 46.

Death Benefits – Post-Retirement

Benefits payable to beneficiary in accordance with option selected at retirement.

Death Benefits – Pre-Retirement & Non-Service Incurred

- Eligibility:** Death after completing 10 years of service resulting from causes unrelated to duties as a member of the Fire or Police Department.
- Benefit:** The benefits payable to the surviving spouse and children at the time the member would have turned age 46 under the Normal Form of Payment.

Death Benefits – Pre-Retirement & Service Incurred

- Eligibility:** Death while in, or due to causes from, the performance of duties as a member of the Fire or Police Department.
- Benefit:** The benefit payable monthly to the surviving spouse until death is equal to an annual amount of 100% of Final Earnings reduced by benefits paid to children.

Benefit payable monthly to each surviving child is equal to an annual amount of 15% of Final Earnings. The total payment to children shall not exceed 30% of the Final Earnings. Payments made to surviving children will terminate at the earliest of death, marriage, or reaching age 18 (age 23 for full-time students). Payments no longer paid to surviving children shall continue to be paid to the surviving spouse. If the surviving spouse dies leaving eligible surviving children, each child's share shall increase from 15% to 30% - maximum total payout may not exceed 60% of Final Earnings. In the absence of an eligible surviving spouse or children, the designated beneficiary shall be entitled to the benefit otherwise payable to the Member at normal retirement age for 10 years certain.

Section IX - Summary of Plan Provisions

Normal Form of Payment

The benefit begins at retirement and continues for the Member's life but guaranteed for the first 120 months. Upon the Member's death, if there is a spouse who has been married to the Member during some period of the Member's employment and at retirement, that spouse will receive a benefit equal to 65% of the Member's benefit, commencing with the Member's death and payable for the rest of the spouse's life or until remarriage. The Member's benefit is guaranteed for the first 120 months. Each surviving unmarried minor child will receive an annual benefit equal to 7.5% of the Final Earnings, up to 15% in the aggregate. These payments will continue until the child reaches age 18 or becomes married.

Optional Forms of Payment

Actuarial Equivalence: Interest rate: 8.5%
Member Mortality Table: RP-2000 combined healthy with blue collar adjustment for males with projection using scale BB
Beneficiary Mortality Table: RP-2000 combined healthy for females with projection using scale BB

Form of Payment: Option 2 - Single Life Annuity
Option 3a - 100% Joint and Survivor Annuity
Option 3b - 75% Joint and Survivor Annuity
Option 3c - 66 2/3% Joint and Survivor Annuity
Option 3d - 50% Joint and Survivor Annuity
Options 3b, 3c, and 3d reduce upon 1st Death

Cost of Living Adjustment

Commencing on January 1 after the initial October 1 of a Member's retirement, benefits will be increased in step with the cost of living to the extent that such increases can be funded from the Postretirement Adjustment Account (PRAA). The PRAA is funded by investment returns in excess of 5% on the Fund (exclusive of returns allocated to the DROP and 13th Check accounts). While the basic retirement benefits payable to members and beneficiaries are paid from the Base Fund, cost-of-living adjustments are paid from the PRAA.

13th Check Program

Effective October 1, 2007, the 13th Check Program will be funded by investment returns in excess of 10% (limited to 1%) on the Base plan plus the Postretirement Adjustment Account market value of assets at each fiscal year ending September 30. No individual accounts are maintained. The 13th Check Program incorporates no liabilities beyond those attributable to its segregated assets. There are no contributions to the 13th Check Program. Future 13th Check benefits shall be determined according to rules adopted by the Board of Trustees, applicable state laws, and the payment of which are on a sound actuarial basis.

Defined Contribution Plan Component

A defined contribution plan is a retirement plan in which a certain amount of money is set aside each year for the benefit of each member. Effective October 1, 2017, prospectively, the Plan established a defined contribution component as required by Florida Statute, but it is currently unfunded and will remain so as long as the City of Tampa and IAFF Local 754 and Tampa PBA agree to maintain mutual consent regarding use of the state premium tax funds.

Section X - Glossary

Total Annual Payroll is the projected annual rate of pay for the fiscal year beginning on the valuation date of all covered Members.

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

Normal (Current Year's) Cost is determined for each participant as the present value of future benefits, determined as of the Member's entry age, amortized as a level percentage of compensation over the anticipated number of years of participation, determined as of the entry age.

Individual Entry Age Normal Actuarial Cost Method (Level Percent of Compensation) is the method used to determine required contributions under the Plan. The use of this method involves the systematic funding of the Normal Cost (described above) and the Unfunded Accrued (Past Service) Liability. The actuarial accrued liability for active participants is the difference between the present value of future benefits and the present value of future Normal Costs. The actuarial accrued liability for inactive participants is the present value of future benefits.

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

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