



Freiman Little Actuaries, LLC
4105 Savannahs Trail
Merritt Island, FL 32953

Phone: (321) 453-6542
Fax: (321) 453-6998

Deerfield Beach Municipal Firefighters' Pension Trust Fund

Actuarial Valuation as of October 1, 2017



February 27, 2018



February 27, 2018

Board of Trustees
Deerfield Beach Municipal Firefighters' Pension Trust Fund
Deerfield Beach, Florida

RE: Actuarial Valuation as of October 1, 2017

Dear Board Members:

We are pleased to present the actuarial valuation as of October 1, 2017 for the Deerfield Beach Municipal Firefighters' Pension Trust Fund (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, 2018 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,

A handwritten signature in black ink, appearing to read 'Chad M. Little'.

Chad M. Little, ASA, EA
Partner, Consulting Actuary
Enrollment Number 17-6619

A handwritten signature in black ink, appearing to read 'Paula C. Freiman'.

Paula C. Freiman, ASA, EA
Partner, Consulting Actuary
Enrollment Number 17-5796

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Section

1

Board Summary

This report presents the results of the October 1, 2017 actuarial valuation of the Deerfield Beach Municipal Firefighters' Pension Trust Fund (the Plan).

Summary of Principal Valuation Results

A summary of the key valuation findings as of October 1, 2017 are compared with the results of the prior valuation below.

Fiscal Year Ending	September 30, 2017	September 30, 2018
Expected State Funding	\$618,479	\$603,646
Expected City Contributions	<u>5,043,729</u>	<u>5,307,928</u>
Employer Minimum Funding Requirement	\$5,662,208	\$5,911,574

Valuation Date	October 1, 2016	October 1, 2017
Accrued Liability (AL)	\$143,439,566	\$147,956,266
Actuarial Value of Assets	\$112,343,193	\$115,842,104
Unfunded Accrued Liability (UAL)	\$31,096,373	\$32,114,162
Funded Percentage	78.32%	78.29%

Valuation Date	October 1, 2016	October 1, 2017
Assumed Rate of Investment Return	7.5%	7.5%
Salary Increase Assumption	5% to 11%	5% to 11%
Funding Method	Entry Age	Entry Age

Summary of Significant Events

Determination 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 City and BSO. 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 decreased by 3, the covered payroll used in the valuation increased by 1.63%. The following provides a summary of the actual to the expected pay increases for continuing active members, by individual, for the 12 month periods ending on the date specified.

Year Ending September 30,	Actual	Expected
2017	6%	6%
2016	4%	6%
2015	6%	7%
2014	5%	7%
2013	3%	9%
2012	7%	9%
2011	6%	9%
2010	8%	9%
2009	8%	9%
2008	2%	9%

Although average pay increases were 6% during the year as compared to an expected 6%, half of the active members had a pay increase larger than expected and half had pay increases less than expected. The pay increases more than expected had a larger effect producing an actuarial loss that was partially offset by the actuarial gain associated with the death of one retiree during the year. Note that the number of terminations has been low or non-existent since the Plan was closed to new entrants. We recommend an experience review be performed. The last review was performed as of October 1, 2004.

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

Assets

While the return on the Market Value of Assets was 9.5%, the return on the Actuarial Value of Assets was 6.4% in comparison to the 7.5% assumed rate of return. This produced an investment loss on an actuarial value of assets basis. 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 End 9/30	Market Value	Actuarial Value	Assumed Return
2017	9.5%	6.4%	7.500%
2016	8.0%	7.2%	7.625%
2015	(3.1%)	6.5%	7.625%
2014	9.4%	8.7%	7.625%
2013	11.1%	6.5%	7.625%
2012	15.3%	0.8%	7.625%
2011	(1.1%)	0.1%	7.625%
2010	6.9%	1.5%	7.625%
2009	(1.2%)	2.5%	7.625%
2008	(12.8%)	5.7%	7.625%
Average	3.9%	4.6%	7.612%

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

Plan Provisions

There were no changes in Plan provisions during the year.

Assumptions and Methods

The net assumed rate of investment return is 7.5% for this October 1, 2017 actuarial valuation of the Plan as directed by the Board of Trustees. The 7.5% assumed return is a prescribed assumption as defined by Actuarial Standard of Practice No. 27 (ASOP 27), as it is set by the Board. The prescribed assumption significantly conflicts with our judgment regarding what would constitute a reasonable assumption for the purpose of the measurement as discussed in ASOP 27. We recommend lowering the net assumed return.

As the group of active participants approaches retirement the Board of Trustees should continue to review the investment allocations and consider lowering the net assumed rate of investment return further as we expect a change to reflect less risk in the asset allocation.

In the prior valuation, the mortality table was that used for special risk employees in the valuation of the Florida Retirement System (FRS) as of July 1, 2015, as required by state statute. The mortality table has been revised to that used for special risk employees in the valuation of FRS as of July 1, 2016 and 2017, as required by state statute. While healthy post-retirement mortality and disabled mortality rates were unchanged, healthy pre-retirement mortality was revised.

State Contributions

The "Expected City Contribution" shown on page 1 assumes that the premium tax money received from the State will be in the same amount received in the prior year. Should the amount received in the fiscal year ending September 30, 2018 be less than expected, 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

	October 1, 2016		October 1, 2017	
Equity Securities	\$39,551,471	37 %	\$50,660,101	45 %
Fixed Income (Corp./Gov't. Bonds)	32,652,009	30 %	33,119,861	29 %
Real Estate Investments	11,320,151	11 %	11,940,141	11 %
Hedge Funds	10,243,509	10 %	6,234,327	5 %
MLPs	3,272,968	3 %	4,770,674	4 %
Cash & Cash Equivalents	2,948,813	3 %	3,237,330	3 %
Net Receivables/Payables	3,529,535	3 %	(105,693)	0 %
Self-Directed DROP	<u>3,671,180</u>	<u>3 %</u>	<u>3,743,479</u>	<u>3 %</u>
Fair Market Value of Assets	<u>\$107,189,636</u>	100 %	<u>\$113,600,220</u>	100 %

Reconciliation of Market Value of Assets

Year Ending September 30,	2016	2017
1. Market Value Beginning of Year	\$99,661,364	\$107,189,636
2. Contributions		
a. City	\$5,060,592	\$5,058,562
b. State	667,147	603,646
c. Member	<u>883,740</u>	<u>898,299</u>
d. Total Contributions	\$6,611,479	\$6,560,507
3. Investment earnings		
a. Unrealized Gains and Losses	\$5,656,298	\$5,612,422
b. Realized Gains and Losses	729,433	2,071,382
c. Interest and Dividends	2,165,156	2,818,897
d. Other Income	0	37,189
e. Investment Expenses	<u>(623,909)</u>	<u>(526,935)</u>
f. Net Investment Income	\$7,926,978	\$10,012,955
4. Deductions		
a. Retirement Benefits	\$(6,356,992)	\$(7,036,520)
b. Share Account Distribution	(78,663)	(159,818)
c. Refunds	0	(6,856)
d. DROP Account Distribution	(359,791)	(2,782,149)
e. Administrative Expenses	<u>(214,739)</u>	<u>(177,535)</u>
f. Total	\$(7,010,185)	\$(10,162,878)
5. Net Increase (Decrease)	\$7,528,272	\$6,410,584
6. Market Value End of Year	<u>\$107,189,636</u>	<u>\$113,600,220</u>

Reconciliation of DROP Account Balances

Year Ending September 30,	2016	2017
1. Beginning Balance	\$12,608,002.49	\$14,375,035.07
2. Additions	\$1,291,806.10	\$690,537.68
3. Interest	\$835,017.45	\$939,394.31
4. Distributions	\$359,790.97	\$2,782,149.48
5. Ending Balance	\$14,375,035.07	\$13,222,817.58

Note: DROP account balances are included in the reconciliation of the market value of Plan assets shown on the prior page.

Development of Historical Gain or Loss on Market Value of Assets

	2017	2016
1. Market Value of Assets - Beginning of Year	\$107,189,636	\$99,661,364
2. Contributions	6,560,507	6,611,479
3. Benefit Payments + Administrative Expenses	(10,162,878)	(7,010,185)
4. Interest	<u>7,912,833</u>	<u>7,598,755</u>
5. Expected Value of Assets at End of Year	\$111,500,098	\$106,861,413
6. Market Value of Assets - End of Year	\$113,600,220	\$107,189,636
7. Gain (Loss) for Plan Year = (6) - (5)	\$2,100,122	\$328,223
	2015	2014
1. Market Value of Assets - Beginning of Year	\$103,894,584	\$95,798,355
2. Contributions	6,658,386	6,725,573
3. Benefit Payments + Administrative Expenses	(7,703,470)	(7,560,487)
4. Interest	<u>7,894,728</u>	<u>7,360,640</u>
5. Expected Value of Assets at End of Year	\$110,744,228	\$102,324,081
6. Market Value of Assets - End of Year	\$99,661,364	\$103,894,584
7. Gain (Loss) for Plan Year = (6) - (5)	\$(11,082,864)	\$1,570,503

Development of Actuarial Value of Assets

1.	Market Value of Assets as of 9/30/2017			\$	113,600,220
2.	Phase-In Gains (Losses) Over Five Year Period				
		Original Gain (Loss)	Percent Unrecognized		Unrecognized Gain (Loss)
a.	Year Ending 9/30/2017	\$ 2,100,122	80%	\$	1,680,098
b.	Year Ending 9/30/2016	328,223	60%		196,934
c.	Year Ending 9/30/2015	(11,082,864)	40%		(4,433,146)
d.	Year Ending 9/30/2014	1,570,503	20%		<u>314,101</u>
e.	Total			\$	(2,242,013)
3.	Cumulative Balance of State Monies for Benefit Improvement			\$	129
4.	Preliminary Actuarial Value of Assets as of 9/30/2017 = 1. - 2.e. - 3.			\$	115,842,104
5.	Corridor Around Market Value				
a.	Minimum = 80% of Market Value of Assets			\$	90,880,176
b.	Maximum = 120% of Market Value of Assets			\$	136,320,264
c.	Corridor Adjustment to Preliminary Actuarial Value			\$	0
6.	Actuarial Value of Assets as of 9/30/2017 (4. + 5.c.)			\$	115,842,104

Historical Asset Values

Year Ending 9/30	Market Value	Actuarial Value
2017	\$113,600,220	\$115,842,104
2016	107,189,636	112,343,193
2015	99,661,364	105,207,723
2014	103,894,584	99,807,840
2013	95,798,355	92,608,974
2012	85,969,494	86,701,434
2011	75,109,266	86,605,981
2010	76,415,091	86,997,197
2009	72,425,351	86,680,011
2008	72,652,519	83,960,958

10-Year Average of Historical Rates of Investment Return

Year End 9/30	Market Value	Actuarial Value	Assumed Return
2017	9.5%	6.4%	7.500%
2016	8.0%	7.2%	7.625%
2015	(3.1%)	6.5%	7.625%
2014	9.4%	8.7%	7.625%
2013	11.1%	6.5%	7.625%
2012	15.3%	0.8%	7.625%
2011	(1.1%)	0.1%	7.625%
2010	6.9%	1.5%	7.625%
2009	(1.2%)	2.5%	7.625%
2008	(12.8%)	5.7%	7.625%
Average	3.9%	4.6%	7.612%

Historical Contribution Amounts (as a Dollar Amount)

Year Ending 9/30	Recognized State Funding	City Contributions	Actual City Plus State Contributions
2017	\$603,646	\$5,058,562	\$5,662,208
2016	667,025	5,060,592	5,727,617
2015	725,299	5,064,382	5,789,681
2014	791,034	5,051,768	5,842,802
2013	803,172	5,105,188	5,908,360
2012	823,567	4,130,730	4,954,297
2011	820,216	2,501,215	3,321,431
2010	835,023	2,240,989	3,076,012
2009	890,684	1,860,792	2,751,476
2008	957,389	1,648,569	2,605,958

Note: The recognized state funding shown above includes premium tax dollars up to \$618,479 toward minimum funding plus any premium tax dollars used toward share allocations.

Derivation of State Contribution Funding Reserves

Year Ending 9/30				Recurring Cost Benefit	Recurring Cost Benefit	Use Benefit Improvements (Share Account Allocations)	Recognized State Funding	Balance Available Upon Benefit Improvement
	Regular	Supplemental	Total	Improvements	Improvements			
2017	\$591,003	\$12,643	\$603,646	\$0	\$618,479	\$0	\$603,646	\$129
2016	602,937	64,210	667,147	0	618,479	48,546	667,025	129
2015	577,551	147,648	725,199	0	618,479	106,820	725,299	7
2014	600,473	190,540	791,013	0	618,479	172,555	791,034	107
2013	640,735	142,149	782,884	0	618,479	184,693	803,172	128
2012	823,518	20,326	843,844	0	618,479	205,088	823,567	20,416
2011	820,253	0	820,253	0	618,479	201,737	820,216	139
2010	835,016	0	835,016	0	618,479	216,544	835,023	102
2009	763,718	127,026	890,744	0	618,479	272,205	890,684	109
2008	802,571	6,122	808,693	0	618,479	338,910	957,389	49
2007	767,224	0	767,224	0	618,479	0	618,479	148,745
2006	561,509	0	561,509	0	618,479	0	561,509	0
2005	482,526	0	482,526	0	618,479	0	482,526	0
2004	456,783	0	456,783	0	618,479	0	456,783	0
2003	433,349	0	433,349	0	618,479	0	585,796	0
2002	346,039	0	346,039	355,978	618,479	0	346,039	0
2001	301,242	0	301,242	0	262,501	0	262,501	152,447
2000	319,774	0	319,774	13,964	262,501	0	262,501	113,706
1999	304,970	0	304,970	0	248,537	0	248,537	56,433
1998	248,537	0	248,537	0	248,537	0	248,537	0



Historical Payment Amounts

Year Ending 9/30	Retirement Benefits	Refunds	Administrative Expenses	Total
2017	\$9,978,487	\$6,856	\$177,535	\$10,162,878
2016	6,795,466	0	214,739	7,010,185
2015	7,418,254	47,544	237,672	7,703,470
2014	7,328,455	0	232,032	7,560,487
2013	6,203,989	69,581	300,973	6,574,543
2012	6,282,382	0	268,862	6,551,244
2011	4,646,600	21,064	253,223	4,920,887
2010	4,817,243	4,343	284,552	5,106,138
2009	2,808,889	28,018	332,191	3,169,098
2008	2,869,511	92,294	156,342	3,118,147

Historical Share Allocations

Year Ending 9/30	State Contribution Over 618,479	Available Funds	Eligible Members	Individual Share Allocation	Total Share Allocations	Forfeitures
2017	0	129	201	0	0	
2016	48,668	49,821	202	246	49,692	
2015	106,720	117,472	205	573	117,465	1,146
2014	172,534	173,559	206	842	173,452	10,644
2013	184,731	185,807	207	897	185,679	897
2012	205,039	205,178	208	986	205,088	986
2011	201,774	202,948	201	1,009	202,809	
2010	216,537	216,646	202	1,072	216,544	1,072
2009	272,265	275,725	198	1,392	275,616	
2008	190,214	191,139	194	985	191,090	3,411
2007		148,745	191	778	148,598	778

Present Value of Benefits

Valuation Date October 1,	2016	2017
1. Active Members		
a. Service Retirement	\$51,963,915	\$55,528,713
b. Deferred Benefits	4,957,433	4,849,410
c. Survivor Benefits	509,043	215,001
d. Disability Benefits	<u>1,007,229</u>	<u>980,756</u>
e. Total for Active Members	\$58,437,620	\$61,573,880
2. Vested Terminated Members	\$0	\$0
3. Members in Payment Status		
a. Monthly Retirement Benefits	\$82,409,208	\$84,080,644
b. Current DROP Balance	14,375,035	13,222,818
c. Beneficiaries	1,160,247	1,125,148
d. Disability Retirement	<u>2,086,127</u>	<u>2,065,080</u>
e. Total in Payment Status	\$100,030,617	\$100,493,690
4. Share Account Balances		
a. Active Members	\$920,928	\$975,224
b. Members Currently in DROP	180,588	132,695
c. Members in Payment Status	<u>72,510</u>	<u>13,269</u>
d. Total Share Account Balances	\$1,174,026	\$1,121,188
5. All Members	<u>\$159,642,263</u>	<u>\$163,188,758</u>

Accrued Liability

Valuation Date October 1,	2016	2017
1. Active Members		
a. Service Retirement	\$38,910,745	\$43,129,271
b. Deferred Benefits	2,611,636	2,652,146
c. Survivor Benefits	304,878	132,541
d. Disability Benefits	<u>407,664</u>	<u>427,430</u>
e. Total for Active Members	\$42,234,923	\$46,341,388
2. Vested Terminated Members	\$0	\$0
3. Members in Payment Status		
a. Monthly Retirement Benefits	\$82,409,208	\$84,080,644
b. Current DROP Balance	14,375,035	13,222,818
c. Beneficiaries	1,160,247	1,125,148
d. Disability Retirement	<u>2,086,127</u>	<u>2,065,080</u>
e. Total for Members in Payment Status	\$100,030,617	\$100,493,690
4. Share Account Balances		
a. Active Members	\$920,928	\$975,224
b. Members Currently in DROP	180,588	132,695
c. Members in Payment Status	<u>72,510</u>	<u>13,269</u>
d. Total Share Account Balances	\$1,174,026	\$1,121,188
5. All Members	<u>\$143,439,566</u>	<u>\$147,956,266</u>

Normal Cost

Valuation Date October 1,	2016	2017
1. Preliminary Normal Cost		
a. Service Retirement	\$2,244,061	\$2,317,889
b. Deferred Benefits	402,982	408,559
c. Survivor Benefits	35,457	15,448
d. Disability Benefits	<u>103,585</u>	<u>103,849</u>
e. Preliminary Normal Cost	\$2,786,085	\$2,845,745
f. Preliminary Normal Cost as a % of Pay	28.7%	28.8%
2. Total Normal Cost		
a. Preliminary Normal Cost	\$2,786,085	\$2,845,745
b. Administrative Expense	<u>214,739</u>	<u>177,535</u>
c. Total Normal Cost	\$3,000,824	\$3,023,280
d. Total Normal Cost as a % of Pay	30.9%	30.6%
3. Actual Employer Normal Cost		
a. Preliminary Normal Cost	\$2,786,085	
b. Actual Administrative Expense	177,535	
c. Actual Employee Contributions	<u>(898,299)</u>	
d. Employer Normal Cost	\$2,065,321	
4. Valuation Payroll	\$9,714,148	\$9,872,134

Unfunded Accrued Liability

Derivation of Unfunded Accrued Liability (UAL)

Unfunded Accrued Liability as of October 1,	2017
1. Actuarial Accrued Liability	\$147,956,266
2. Actuarial Value of Assets	<u>(115,842,104)</u>
3. Unfunded Accrued Liability	\$32,114,162

Determination of Expected Unfunded Accrued Liability

1. Unfunded Accrued Liability for Prior Year	\$31,096,373
2. Employer Normal Cost (Including Administrative Expenses)	2,065,321
3. Interest on UAL and NC	2,487,127
4. Contributions	
a. City	\$(5,058,562)
b. Recognized State of Florida Contributions	<u>(603,646)</u>
c. Total	\$(5,662,208)
5. Interest on Contributions for Time on Deposit	(221,032)
6. Change in Plan, Methods or Assumptions	<u>104,413</u>
7. Expected Unfunded Accrued Liability	\$29,869,994

Calculation of (Gain) or Loss

1. Actual Unfunded Accrued Liability	\$32,114,162
2. Expected Unfunded Accrued Liability	<u>29,869,994</u>
3. Total (Gain) or Loss	\$2,244,168
4. Breakdown of (Gain) or Loss	
a. Investment Experience	\$1,198,067
b. Demographic Experience	<u>1,046,101</u>
c. Total (Gain) or Loss	\$2,244,168

Amortization of Unfunded Liability

The Unfunded Actuarial Accrued Liability is being amortized as a level dollar amount. Changes in the Unfunded Actuarial Accrued Liability due to plan changes, assumption changes, method changes, or gains and losses are all amortized over a period of 15 years.

Amortization Bases

Effective October 1,	Source	Balance	Years Remain	Amortization Payment
2016	Fresh Start	29,765,581	14	3,261,681
2017	Mandated Mortality Change	104,413	15	11,003
2017	Experience (Gain)/Loss	<u>2,244,168</u>	15	<u>236,498</u>
	Total	32,114,162		3,509,182

Projected Unfunded Accrued Liability and Amortization Payments

Plan Year Beginning October 1,	UAL Outstanding Bases	Amortization Payment
2017	\$32,114,162	\$3,509,182
2018	30,750,352	3,509,183
2019	29,284,257	3,509,183
2020	27,708,205	3,509,183
2021	26,013,948	3,509,183
2022	24,192,623	3,509,183
2023	22,234,698	3,509,183
2024	20,129,928	3,509,183
2025	17,867,301	3,509,183
2026	15,434,977	3,509,183
2027	12,820,229	3,509,183
2028	10,009,374	3,509,183
2029	6,987,705	3,509,183
2030	3,739,412	3,509,186
2031	247,492	247,492

Actions Taken to Reduce Unfunded Accrued Liability

The required contributions calculated each year include a payment for the amortization of the unfunded accrued liability. This payment is designed to reduce the unfunded accrued liability in an orderly fashion over the next 15 years.

Cumulative Actuarial Experience (for Variable Benefit Determination)

Valuation Date	Actuarial Gain (Loss) Total	Gain Used for Variable Benefit	Variable Benefit Granted	Cumulative Actuarial Experience
10/1/1979	92,476	5,517	4.0%	86,959
10/1/1980	10,007	8,536	4.0%	88,430
10/1/1981	(1,095)	0	0.0%	87,335
10/1/1982	(171,763)	0	0.0%	(84,428)
10/1/1983	436,967	8,088	4.0%	344,451
10/1/1984	(537,204)	0	0.0%	(192,753)
10/1/1985	1,330,535	54,254	4.0%	1,083,528
10/1/1986	1,346,574	55,436	4.0%	2,374,666
10/1/1987	256,745	61,295	4.0%	2,570,116
10/1/1988	(949,158)	0	0.0%	1,620,958
10/1/1989	1,648,108	77,266	4.0%	3,191,800
10/1/1990	(1,307,591)	0	0.0%	1,884,209
10/1/1991	1,498,270	114,106	4.0%	3,268,373
10/1/1992	(1,175,149)	0	0.0%	2,093,224
10/1/1993	1,054,865	0	0.0%	3,148,089
10/1/1994	61,555	0	0.0%	3,209,644
10/1/1995	1,256,280	196,663	4.0%	4,269,261
10/1/1996	1,646,817	242,272	4.0%	5,673,806
10/1/1997	2,253,047	286,389	4.0%	7,640,464
10/1/1998	865,890	314,208	4.0%	8,192,146
10/1/1999	(5,803)	0	0.0%	8,186,343
10/1/2000	739,211	336,087	4.0%	8,589,467
10/1/2001	(10,466,741)	0	0.0%	(1,877,274)
10/1/2002	(5,619,214)	0	0.0%	(7,496,488)
10/1/2003	(799,969)	0	0.0%	(8,296,457)
10/1/2004	(4,443,626)	0	0.0%	(12,740,083)
10/1/2005	(3,376,482)	0	0.0%	(16,116,565)
10/1/2006	267,777	0	0.0%	(15,848,788)
10/1/2007	3,252,734	0	0.0%	(12,596,054)
10/1/2008	907,703	0	0.0%	(11,688,351)
10/1/2009	(3,855,896)	0	0.0%	(15,544,247)
10/1/2010	(5,648,520)	0	0.0%	(21,192,767)
10/1/2011	(6,064,957)	0	0.0%	(27,257,724)
10/1/2012	(5,729,463)	0	0.0%	(32,987,187)
10/1/2013	(7,552)	0	0.0%	(32,994,739)
10/1/2014	69,471	0	0.0%	(32,925,268)
10/1/2015	275,760	0	0.0%	(32,649,508)
10/1/2016	(404,548)	0	0.0%	(33,054,056)
10/1/2017	(2,244,168)	0	0.0%	(35,298,224)

Note: Information in the above table prior to October 1, 2006 is as shown in the report of the prior actuary. Because a cumulative loss exists as of October 1, 2017 no Variable Benefit is payable.



Minimum Funding Requirements

Valuation as of October 1, Funding For Fiscal Year Ending September 30,	2016 2017	2017 2018
1. Total Normal Cost	\$3,000,824	\$3,023,280
2. Amortization of UAL	<u>3,277,044</u>	<u>3,509,182</u>
3. Minimum Required Contribution BOY	\$6,277,868	\$6,532,462
4. Interest Assuming Periodic Payment	<u>258,613</u>	<u>267,604</u>
5. Total Minimum Required Contribution	\$6,536,481	\$6,800,066

Contributions as a Dollar Amount

1. Expected Employee Contributions	\$874,273	\$888,492
2. Expected State Funding	618,479	603,646
3. Expected City Contributions	<u>5,043,729</u>	<u>5,307,928</u>
4. Total Minimum Required Contribution	\$6,536,481	\$6,800,066

Contributions as a Percent of Payroll*

1. Valuation Payroll	\$9,714,148	\$9,872,134
2. Expected Employee Contributions	9.00%	9.00%
3. Expected State Funding	6.37%	6.11%
4. Expected City Contributions	<u>51.92%</u>	<u>53.77%</u>
5. Total Minimum Required Contribution	67.29%	68.88%

*Contributions as a percent of payroll are provided for reporting purposes only. With a closed plan, the payroll levels continue to decrease over time creating percent of payroll results which increase even if the dollar contributions remain the same.

Reconciliations

Reconciliation of Funded Status

	Unfunded Accrued Liability	Funded Percentage	Change in Unfunded Accrued Liability	Change in Funded Percentage
As of Prior Valuation	\$31,096,373	78.32 %		
Changes in Funded Percentage due to:				
Normal Operation of Plan	29,765,581	79.72 %	\$(1,330,792)	1.40 %
Investment Experience	30,963,648	78.91 %	1,198,067	(0.81)%
Demographic Experience	32,009,749	78.35 %	1,046,101	(0.56)%
Mandated Mortality Change	32,114,162	78.29 %	<u>104,413</u>	<u>(0.06)%</u>
Total Changes			\$1,017,789	(0.03)%
As of Current Valuation	\$32,114,162	78.29 %		

Reconciliation of City Minimum Funding Requirement

	Dollar Amount
As of Prior Valuation	\$5,043,729
Changes in Contribution due to:	
Normal Operation of Plan	\$(60,571)
Change in Expected State Contribution	14,277
Change in Expenses	(38,600)
Investment Experience	130,991
Demographic Experience	187,529
Required Mortality Change	<u>30,573</u>
Total Changes	\$264,199
As of Current Valuation	\$5,307,928

Section
3

Accounting Information

Information Required by GASB 67/68

Supplemental reports provide 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.

Valuation as of October 1,	2016	2017
1. Actuarial present value of accumulated plan benefits		
a. Participants currently receiving benefits	\$100,283,715	\$100,639,654
b. Other participants	<u>29,701,739</u>	<u>33,385,603</u>
c. Total vested plan benefits	\$129,985,454	\$134,025,257
d. Total non-vested plan benefits	<u>2,027,171</u>	<u>2,243,261</u>
e. Total accumulated plan benefits	\$132,012,625	\$136,268,518
2. Change in accumulated plan benefits		
a. Accumulated plan benefits beginning of year		\$132,012,625
b. Increase (decrease) during year attributable to:		
i. Plan amendment		\$0
ii. Change in assumptions		55,588
iii. Benefits paid		(9,985,343)
iv. Increase for interest and probability of payment due to decrease in discount period and benefits accrued		<u>14,185,648</u>
v. Net increase (decrease)		\$4,255,893
c. Accumulated plan benefits end of year		\$136,268,518

Other Disclosures Required by the State of Florida

Valuation as of October 1,	2016	2017
Other Disclosures (where applicable)		
Present value of active member:		
Future salaries (attained age)	\$56,566,096	\$52,950,833
Future contributions (attained age)	\$5,090,949	\$4,765,575
Current contribution balance for active members*	\$7,613,116	\$8,009,199

*Note: Non-vested terminations receive a refund of contributions without interest.

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 mortality as used in the July 1, 2016 and 2017 actuarial valuations for special risk members of FRS.
- (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 (5.50%)	Actual Valuation Current Discount Rate (7.50%)	2% Increase (9.50%)
Total pension liability	\$183,550,709	\$147,956,266	\$123,595,465
Plan fiduciary net position	<u>(113,600,220)</u>	<u>(113,600,220)</u>	<u>(113,600,220)</u>
Net pension liability	<u>\$69,950,489</u>	<u>\$34,356,046</u>	<u>\$9,995,245</u>
 Plan fiduciary net position as a percentage of the total pension liability	 61.89%	 76.78%	 91.91%
 Years of benefit payments:			
Expected for current members:	98	98	98
Paid for with current assets:	12.48	14.91	19.76
 City Plus State Contribution Requirement, Plus Expected Employee Contributions			
Dollar Amount	\$11,427,773	\$6,800,066	\$3,296,207
Percent of Payroll	115.75%	68.88%	33.38%

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,	2017	2016	2015	2014	2013
Assumed rate of return	7.500%	7.625%	7.625%	7.625%	7.625%
Actual rate of return	9.5%	8.0%	(3.1%)	9.4%	11.1%
Percentages of assets in:					
Cash	3%	3%	2%	2%	4%
Equity	45%	37%	42%	42%	45%
Bond	29%	30%	27%	27%	24%
Alternative	23%	30%	29%	29%	27%
Total	100%	100%	100%	100%	100%

Section
4Supplementary
Information

Summary of Participant Data

Member Statistics

Fiscal Year Beginning	October 1, 2016	October 1, 2017
<u>Active Participants</u>		
Number	84	81
Average Age	37.0	37.7
Average Service	12.4	13.1
Percent Male	91.7%	91.4%
Average Annual Pay	\$ 117,172	\$ 123,500
Total Covered Payroll	\$ 9,842,479	\$10,003,540
Valuation Payroll	\$ 9,714,148	\$ 9,872,134
Annual Report	\$ 9,412,235	\$ 9,659,471
<u>Terminated Vested Participants</u>		
Number	0	0
Average Age	0.0	0.0
Percent Male	0%	0%
Average Monthly Benefit	\$ 0	\$ 0
<u>DROP Participants</u>		
Number	15	10
Average Age	50.6	49.8
Percent Male	86.7%	80.0%
Average Monthly Benefit	\$ 5,103	\$ 4,820

Member Statistics (Continued)

Fiscal Year Beginning	October 1, 2016	October 1, 2017
<u>Service Retirements</u>		
Number	91	98
Average Age	59.5	59.6
Percent Male	98.9%	99.0%
Average Monthly Benefit	\$ 5,809 (1)	\$ 5,815 (2)
<u>Beneficiaries</u>		
Number	4	4
Average Age	79.4	80.4
Percent Male	0.0%	0.0%
Average Monthly Benefit	\$ 3,173	\$ 3,173
<u>Disabled</u>		
Number	8	8
Average Age	59.4	60.4
Percent Male	75.0%	75.0%
Average Monthly Benefit	\$ 2,031	\$ 2,031
<u>Total in Payment Status</u>		
Number	103	110
Average Age	60.2	60.4
Percent Male	93.2%	93.6%
Average Monthly Benefit	\$ 5,413	\$ 5,444

Notes:

- (1) As of October 1, 2016, an average monthly benefit of \$5,591 is payable to retirees after every Social Security level income option annuity is at the reduced level.
- (2) As of October 1, 2017, an average monthly benefit of \$5,638 is payable to retirees after every Social Security level income option annuity is at the reduced level.

Number of Active Members by Age and Service as of October 1, 2017

Age	Service						Total
	<1	<5	<10	<15	<20	<25	
<25							0
<30			7				7
<35			6	12	1		19
<40			3	22	11		36
<45				6	10		16
<50				1	1		2
<55					1		1
<60							0
Total	0	0	16	41	24	0	81

Active Valuation Pay by Age and Service as of October 1, 2017

Age	Service						Total
	<1	<5	<10	<15	<20	<25	
<25							
<30			116,678				116,678
<35			117,725	119,562	88,080		117,325
<40			108,172	116,454	139,598		122,836
<45				130,874	134,191		132,947
<50				139,875	137,106		138,491
<55					131,406		131,406
<60							
Total			115,476	120,045	134,753		123,500

Reconciliation of Plan Participants

	Active	TV	DROP	Retire	Survivor	Disabled	Totals
As of October 1, 2013	102	0	19	74	4	7	206
Active							
To DROP Participant	(1)		1				0
To Retiree	(7)			7			0
To Disability Retiree	(1)					1	0
To Nonvested Termination	(1)						(1)
DROP Participant							
To Retiree			(3)	3			0
As of October 1, 2014	92	0	17	84	4	8	205
Active							
To Service Retiree	(1)			1			0
To DROP Participant	(4)		4				0
Service Retiree							
To Death With No Survivor				(1)			(1)
To Death With Survivor				(2)	2		0
DROP Participant							
To DROP Retiree			(3)	3			0
Survivor							
To Death					(1)		(1)
As of October 1, 2015	87	0	18	85	5	8	203
Active							
To Service Retiree	(1)			1			0
To DROP Participant	(2)		2				0
DROP Participant							
To DROP Retiree			(5)	5			0
Survivor							
To Death					(1)		(1)
As of October 1, 2016	84	0	15	91	4	8	202
Active							
To Service Retiree	(2)			2			0
To DROP Participant	(1)		1				0
DROP Participant							
To DROP Retiree			(6)	6			0
Retiree							
To Death				(1)			(1)
As of October 1, 2017	81	0	10	98	4	8	201

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: March 22, 1977. The last amendment to the Plan was Ordinance 2016/016 adopted effective September 6, 2016.

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: Full-time firefighters become Members immediately upon hire.

Actuarial Equivalence: Per Ordinance 2016/016 adopted effective September 6, 2016, optional forms of benefit are determined using a 7.625% interest rate and the RP-2000 Combined Mortality Table projected to 2013 using male improvement scale AA for members and the female RP-2000 Combined Mortality projected to 2013 using female improvement scale AA for beneficiaries. Prior to this change Actuarial Equivalence was determined using the interest rate and mortality used in the actuarial funding valuation of the Plan where in the event of a change in valuation funding assumptions, the factors used to determine optional forms of benefit are changed effective the October 1 subsequent to the October 1 in which the valuation funding assumptions were changed.

Credited Service: Total number of years, and fractional parts of years, while Employee Contributions were made. Employee Contributions with interest may be repaid within 90 days of rehire to reinstate prior service. Accumulated leave time over 350 hours of annual leave and 520 hours of sick leave, is includable as part of Credited Service, if no payment is received for such time directly by the Member. Time spent in the military service while on leave of absence is included if the Member returns as a firefighter within 1 year of release from military service.

Per Ordinance 2016/016 adopted effective September 6, 2016, qualified military service is not only as provided in IRC Section 414(u) but also in accordance with the Uniformed Services Employment and Reemployment Rights Act of 1994 and the Heroes Earnings Assistance and Relief Tax Act of 2008.

A Member with an honorable discharge from prior military service may purchase up to four years of such prior military service to be used in the determination of the amount of benefits payable, but not towards eligibility for such benefits. Prior military service may be purchased at any time, but may not be credited until a Member has attained 16 years of Credited Service without inclusion of the prior military service purchase. Members who separate from service prior to attaining 16 years are refunded the amount paid for purchase without interest. Additionally, prior firefighter service for which no current or future retirement benefit is payable may be purchased according to the same rules applicable to the purchase of prior military service. The total aggregate number of prior military service years and prior service as a firefighter that may be purchased is four.

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

Salary: Total cash remuneration paid to a firefighter for services rendered. Ordinance 2016/016 adopted effective September 6, 2016 amended the definition of Salary to indicate all overtime in excess of 300 hours are excluded and that all accrued unused sick or annual leave is excluded for purposes of determining Plan benefits. We understand that Salary should have included only up to 300 hours of overtime for service earned under collective bargaining agreements entered into on or after July 1, 2011. The Plan attorney indicated that the 300 hour limit on overtime should be applied as of the February 10, 2014 date the collective bargaining agreement was signed at BSO. For this reason the 300 hour limit was first applied, retroactively, to fiscal 2014. In addition, we understand no change has been made with respect to the inclusion of an equivalent payment for up to 350 hours accrued unused annual leave and up to 520 hours accrued unused sick leave in the determination of average final compensation used in the computation of the benefit payable under the Plan where accrued hours over these levels may be used to increase service used in the computation of the benefit payable.

Employee Contributions: 9.0% of Salary. A Member who terminates non-vested is entitled to refund of accumulated Employee Contributions without interest.

Vested Members who terminate employment prior to being eligible to receive an annuity may leave their accumulated contributions in the fund, and upon as early as age 47 begin commencement of the reduced Accrued Benefit, as defined under Early Retirement.

Average Final Compensation (AFC): Average of Salary for the three highest years of Credited Service. Effective December 2002, AFC is determined by inclusion of the three highest nonconsecutive and non-overlapping years of Salary consisting of 79 pay periods total.

All or a portion of accumulated leave, up to 350 hours of annual leave and 520 hours of sick leave, is includable as part of compensation during the highest three years of contributing service. Any firefighter who did not have 25 years of Credited Service as of December 31, 1994 may elect to receive actual payment for the annual leave or sick leave hours accumulated. If such an election is made, the annual leave or sick leave for which payment is received does not go toward the Credited Service or the Average Final Compensation determination, and no Employee Contributions are deducted for such payment.

Normal Retirement Date: First day of the month coincident with or next following the earlier of (1) completion of 20 years of Credited Service without regard to age, or (2) attainment of age 52 and completion of 10 years of Credited Service.

Normal Retirement Benefit: The Accrued Benefit.

Accrued Benefit: The Accrued Benefit is computed according to the following formula, limited to no more than 90% of Average Final Compensation:

$3.0\% \times \text{Average Final Compensation} \times \text{Credited Service up to 10}$

Plus

$3.25\% \times \text{Average Final Compensation} \times \text{Credited Service Over 10}$

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

Early Retirement Date: The first day of any month prior to the Normal Retirement Date after attainment of age 47 or the completion of 10 years of Credited Service.

Early Retirement Benefit: The Accrued Benefit reduced by 1% per year by which the commencement of benefits precedes the Normal Retirement Date.

Disability Benefit: The benefit payable to any Member who becomes totally and permanently disabled not in the line of duty after having earned 10 years of Credited Service prior to the Normal Retirement



Date is the greater of (1) the Accrued Benefit and (2) 25% of Average Final Compensation as of the disability retirement date, payable as a 10 year certain and continuous annuity commencing the first day of the month after the board of trustees determines such entitlement. Any portion due for a partial month is paid together with the first payment.

Members are not required to meet the 10 years of Credited Service requirement for Disability Benefits payable in the event of total and permanently disability in the line of duty. The line of duty Disability Benefit is the greater of (1) the Accrued Benefit and (2) 42% of Average Final Compensation as of the disability retirement date, payable as a 10 year certain and continuous annuity commencing the first day of the month next following the date of disability.

Disability Benefit payments cease at the earlier of (1) the payment due preceding recovery prior to Normal Retirement Date, (2) the payment due preceding the date of death or the 120th monthly payment, whichever is later, for death without recovery, or (3) the payment due preceding the Normal Retirement Date while still disabled. The Credited Service of a Member who recovers from disability and reenters the service of the City as a firefighter will be deemed to have been continuous, but the period beginning with the first month for which Disability Benefits were payable and ending with the date of reentry to service is not counted as Credited Service.

Death Benefits: The beneficiary of a Member who dies after completion of 10 years Credited Service is paid the Accrued Benefit commencing on the first day of the month following the date of death. This benefit is payable as a 10 year certain annuity, or on an actuarially equivalent basis.

Members who terminate non-vested due to death are entitled to a return of Employee Contributions with interest.

Optional Forms of Benefit: The Accrued Benefit described above is payable in the form of a 10 year certain and continuous annuity. Members may optionally choose an actuarially equivalent (1) joint and survivor option (with 50%, 75% or 100% continuance), (2) a period certain and life option with 5, 10 or 15 years certain, (3) a single life annuity, (4) a joint and last survivor option with (50%, 66 2/3%, 75%, or 100% continuance), or (5) such other amount and form of payment will best meet the circumstances of the Member.

Deferred Retirement Option Plan (DROP): Members are eligible to enter the DROP at the earlier of age 47 with at least 10 years of service and their Normal Retirement Date. 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. Per Ordinance 2016/016 adopted effective September 6, 2016, two options are offered for the investment of DROP money: a self-directed option and a general trust fund option. The ordinance defines the specific allowable self-directed investments and the computation of the crediting rate under the general trust fund option. The Accrued Benefit is credited or debited according to the Member's self-directed investment option or using the net fund return (or a combination thereof).

The maximum DROP participation duration is determined based on Credited Service at DROP entry, as follows:

Credited Service	Maximum DROP Years
<28	5
<29	4
<30	3
30	2
>30	0

Election to participate in the DROP is forfeited if not exercised within the first 30 years of Credited Service.

Upon termination of employment, firefighters in the DROP receive the balance in the DROP account either as a lump sum, installment or annuity payments.

Variable Benefit: A uniform percentage increase no more than 4% in any one calendar year is granted to retirees and beneficiaries, where the cost of this benefit increase is financed solely from the investment return on fund assets greater than the investment return assumed for purposes of the actuarial valuation of the fund, limited by the total experience gained under the Plan as compared to all actuarial assumptions.

Share Account: Effective June 17, 2008, Ordinance No. 2008-017 was adopted establishing a Share Plan where revenues received from the State of Florida under Chapter 175 in excess of \$618,479 (the adjusted base amount) that are not specifically allocated to a different benefit enacted after that date are divided equally amongst Plan participants (excluding vested terminations) as of the first of the year for which the revenues were received.

Transfer of Fire Services to BSO: Effective October 1, 2011 the City transferred fire services to the Broward County Sheriff's Office (BSO) with the following effect on how the Plan operates:

- Members actively employed on October 1, 2011 chose whether to continue benefit accruals under this Plan or whether they instead chose to begin benefit accruals under the Florida Retirement System (FRS). All members of the fund opted to continue as members of this Plan. Active members continue to accrue benefits under the Plan in the way they would have had the transfer of services not occurred. Pensionable pay is that being paid by BSO effective October 1, 2011.
- Members in the Deferred Retirement Option Program (DROP) at the time of the transfer of services began to accrue services under FRS immediately. DROP members may choose to allow their monthly benefit to continue to be credited to their DROP account or to alternatively retire for purposes of the Plan and begin receipt of monthly benefits and their DROP balance.
- Members retired at the time of the transfer of services continue to be paid their monthly benefits and DROP balance, if any, in exactly the way benefits would have been paid had the transfer of services not occurred.

There are no future new entrants to the Plan effective October 1, 2011.

Description of Assumptions and Methods

Assumed Investment Return (Net of Expenses): 7.5% per year

Salary Increase – Individual: 11.0% per year up to 8 years, 5% each year thereafter. Salary in year of retirement is increased 30%.

Administrative Expenses: Prior year’s actual administrative expense added to 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 that used for special risk employees in the valuation of the Florida Retirement System (FRS) as of July 1, 2015, as required by state statute. The mortality table has been revised to that used for special risk employees in the valuation of FRS as of July 1, 2016 and 2017, as required by state statute. While healthy post-retirement mortality and disabled mortality rates were unchanged, healthy pre-retirement was revised. The mortality rates are as follows:

Healthy mortality (Pre-retirement):

- Males: 10% RP-00 Combined Healthy White Collar +
90% RP-00 Combined Healthy Blue Collar
- Females: 100% RP-00 Combined Healthy White Collar
- Both male and female rates fully generational using Scale BB

Healthy mortality (Post-retirement):

- 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: Members are assumed to retire at a rate of 100% upon retirement eligibility.

Termination: Unisex rates, as follows:

Age	Rate	Age	Rate	Age	Rate	Age	Rate
<=19	0.000	31	0.044	38	0.037	45	0.030
20-25	0.050	32	0.043	39	0.036	46	0.029
26	0.049	33	0.042	40	0.035	47	0.028
27	0.048	34	0.041	41	0.034	>=48	0.000
28	0.047	35	0.040	42	0.033		
29	0.046	36	0.039	43	0.032		
30	0.045	37	0.038	44	0.031		



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	0.0000	34	0.0022	43	0.0039	52	0.0120
16-21	0.0014	35	0.0023	44	0.0044	53	0.0131
22-25	0.0015	36	0.0024	45	0.0051	54	0.0143
26-27	0.0016	37	0.0025	46	0.0059	55	0.0155
28-29	0.0017	38	0.0026	47	0.0070	56	0.0168
30	0.0018	39	0.0028	48	0.0079	57	0.0181
31	0.0019	40	0.0030	49	0.0090	58	0.0195
32	0.0020	41	0.0032	50	0.0100	59	0.0209
33	0.0021	42	0.0035	51	0.0110	>=60	0.0000

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 five-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.