# City of Delray Beach General Employees' Retirement Plan

ACTUARIAL VALUATION REPORT AS OF OCTOBER 1, 2017

ANNUAL EMPLOYER CONTRIBUTION FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2019





June 6, 2018

Board of Trustees City of Delray Beach General Employees' Retirement Plan Delray Beach, Florida

Re: City of Delray Beach General Employees' Retirement Plan Actuarial Valuation as of October 1, 2017
Actuarial Disclosures

**Dear Board Members:** 

The results of the October 1, 2017 Annual Actuarial Valuation of the City of Delray Beach General Employees' Retirement Plan are presented in this report.

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The purpose of the valuation is to measure the System's funding progress, to determine the employer contribution rate for the fiscal year ending September 30, 2019, and to determine the actuarial information for GASB Statement No. 67 for the fiscal year ending September 30, 2017. This report also includes estimated GASB Statement No. 67 information for the fiscal year ending September 30, 2018. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The findings in this report are based on data or other information through September 30, 2017. 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. The scope of an actuarial valuation does not include an analysis of the potential range of such measurements.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

**Board of Trustees** June 6, 2018 Page ii

The valuation was based upon information furnished by the Plan Administrator and City concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the Plan Administrator and City.

In addition, this report was prepared using certain assumptions approved by the Board and prescribed by the Florida Statutes as described in the section of this report entitled Actuarial Assumptions and Methods. The investment return assumption was prescribed by the Board and the assumed mortality rates detailed in the Actuarial Assumptions and Methods section were prescribed by the Florida Statutes Chapter 112.63.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Retirement System as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

Jeffrey Amrose and Trisha Amrose are members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

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. In my opinion, the techniques and assumptions used are reasonable, meet the requirements and intent of Part VII, Chapter 112, Florida Statutes, and are based on generally accepted actuarial principles and practices. 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.

Gabriel, Roeder, Smith & Company will be pleased to review this valuation report with the Board of Trustees and to answer any questions pertaining to the valuation.

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY

Enrolled Actuary No. 17-6599

Senior Consultant & Actuary

Trisha Amrose, MAAA

Enrolled Actuary No. 17-8010

**Consultant & Actuary** 



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# **SECTION A**

**DISCUSSION OF VALUATION RESULTS** 

#### **DISCUSSION OF VALUATION RESULTS**

#### **Comparison of Required Employer Contributions**

The required employer contribution developed in this year's valuation is compared below to last year's results:

	Base	FYE 9/30/2019 d on 10/1/2017 Valuation	Base	FYE 9/30/2018 d on 10/1/2016 Valuation	(	Increase (Decrease)
Required Employer Contribution						
If Paid on October 1 Date of Payment Dollar Amount As % of Covered Payroll	\$	10/1/2018 2,360,582 13.07 %	\$	10/1/2017 2,114,120 13.68 %	\$	246,462 (0.61) %
If Paid on December 31 Date of Payment		12/31/2018		12/31/2017		
Dollar Amount As % of Covered Payroll	\$	2,402,252 13.30 %	\$		\$	250,814 (0.63) %

This Report reflects an employer contribution of \$2,114,120 paid in October, 2017 for the fiscal year ending September 30, 2018. The required contribution was \$2,114,120 as determined in the October 1, 2016 Actuarial Valuation Report.

#### **Revisions in Benefits**

There were no revisions in benefits since the previous valuation.

#### **Revisions in Actuarial Assumptions or Methods**

There were no revisions in actuarial assumptions or methods since the previous valuation.

#### **Actuarial Experience**

There has been a net actuarial gain of \$450,190 for the year, which means that actual experience was more favorable than expected. The gain is primarily due to a recognized return on the actuarial value of assets of 8.8% compared to the assumed rate of 7.25%. The investment return was 12.8% based on the market value of assets. The gain was partially offset by losses from higher than expected salary increases (8.4% compared to the assumed rate of 5.7%). The net gain caused the required employer contribution to decrease by 0.22% of covered payroll.

#### **Funded Ratio**

The funded ratio, one measure of the Plan's financial health, is equal to the actuarial value of assets divided by the actuarial accrued (past service) liability. The funded ratio is 97.3% this year compared to 96.8% last year.



#### **Analysis of Change in Employer Contributions**

The components of change in the required contribution as a percent of payroll are as follows:

Contribution rate last year*	13.93 %
Changes in Assumptions	0.00
Experience gain/loss	(0.22)
Change in Normal Cost rate	(0.03)
Amortization payment on UAAL	(0.31)
Change in administrative expense	(0.07)
Contribution rate this year*	13.30

<sup>\*</sup> Assuming the contribution is paid on December 31.

#### **Variability of Future Contribution Rates**

The Actuarial Cost Method used to determine the contribution rate is intended to produce contribution rates which are generally level as a percent of payroll. Even so, when experience differs from the assumptions, as it often does, the employer's contribution rate can vary significantly from year-to-year. Over time, if the year-to-year gains and losses offset each other, the contribution rate would be expected to return to the current level, but this does not always happen.

The Market Value of Assets exceeds the Actuarial Value of Assets by \$6,775,971 as of the valuation date (see Section C). This difference will be recognized in the Actuarial Value of Assets over the next several years. In turn, the computed employer contribution rate will gradually decrease by approximately 1.6% of covered payroll unless there are offsetting losses.

Additionally, an amortization charge or credit base will be fully paid off in the next three valuations. As this occurs the total amortization payments will increase or decrease absent any other gain or loss or assumption change. Next year, one amortization charge base will expire which will cause the required employer contribution for the fiscal year ending September 30, 2020 to decrease by approximately \$155,000 absent any other changes. In two years, an amortization credit base will expire which will cause the required employer contribution for the fiscal year ending September 30, 2021 to increase by approximately \$390,000. In three years, one amortization charge base will expire which will cause the required employer contribution for the fiscal year ending September 30, 2022 to decrease by approximately \$135,000 absent any other changes.

#### **Relationship to Market Value**

If Market Value had been the basis for the valuation, the City contribution rate would have been 11.73% (assuming a contribution payment date of December 31, 2018) and the funded ratio would have been 102.8%. In the absence of other gains and losses, the City contribution rate should decrease to that level over the next several years.

#### Conclusion

The remainder of this Report includes detailed actuarial valuation results, information relating to the pension fund, financial accounting information, miscellaneous employee data and a summary of plan provisions.



# **SECTION B**

**VALUATION RESULTS** 

PARTICIPANT DATA					
	October 1, 2017 October 1, 2016				
ACTIVE MEMBERS					
Number Covered Annual Payroll Average Annual Payroll Average Age Average Past Service	\$ \$	357 18,060,007 50,588 47.9 9.9	\$ \$	321 15,449,062 48,128 48.0 11.2	
Average Age at Hire		38.0		36.8	
RETIREES, BENEFICIARIES & DROP	1		ı		
Number Annual Benefits Average Annual Benefit Average Age	\$ \$	332 6,888,357 20,748 69.2	\$ \$	318 6,630,671 20,851 69.1	
DISABILITY RETIREES					
Number Annual Benefits Average Annual Benefit Average Age	\$	3 46,412 15,471 59.4	\$	3 46,412 15,471 58.4	
TERMINATED VESTED MEMBERS					
Number Annual Benefits Average Annual Benefit Average Age	\$ \$	79 1,240,966 15,708 50.3	\$ \$	73 1,013,908 13,889 50.0	



## **ACTUARIALLY DETERMINED EMPLOYER CONTRIBUTION (ADEC)**

A. Valuation Date	October 1, 2017 October 1, 20	
B. ADEC to Be Paid During Fiscal Year Ending	9/30/2019	9/30/2018
C. Assumed Date of Employer Contrib.	12/31/2018	12/31/2017
D. Annual Payment to Amortize Unfunded Actuarial Liability	\$ 260,094	\$ 296,931
E. Employer Normal Cost	1,940,915	1,674,276
F. ADEC if Paid on the Valuation Date: D + E	2,201,009	1,971,207
G. ADEC if Paid on the First Day of the Next Fiscal Year	2,360,582	2,114,120
H. ADEC if Paid on December 31	2,402,252	2,151,438
I. ADEC as % of Covered Payroll*	13.30 %	13.93 %
J. Assumed Rate of Increase in Covered Payroll to Contribution Year	0.00 %	0.00 %
K. Covered Payroll for Contribution Year	18,060,007	15,449,062
L. ADEC for Contribution Year*	2,402,252	2,151,438
M. ADEC as % of Covered Payroll in Contribution Year: L ÷ K*	13.30 %	13.93 %

<sup>\*</sup>Assuming the contribution is paid on the date in Item C.



ACTUARIAL VALUE OF BENEFITS AND ASSETS					
A.	Valu	uation Date	October 1, 2017	October 1, 2016	
В.		uarial Present Value of All Projected efits for Active Members a. Service Retirement Benefits b. Vesting Benefits c. Disability Benefits d. Preretirement Death Benefits e. Return of Member Contributions f. Total	\$ 55,996,552 1,914,340 1,695,563 2,413,048 113,634 62,133,137	\$ 51,879,979 1,823,834 1,553,087 2,068,710 70,760 57,396,370	
	2.	Inactive Members a. Service Retirees & Beneficiaries b. Disability Retirees c. Terminated Vested Members d. Total	73,749,701 449,640 7,475,931 81,675,272	71,595,407 454,841 6,105,015 78,155,263	
	3.	Total for All Members	143,808,409	135,551,633	
C.		uarial Accrued (Past Service) ility (Entry Age Normal)	123,572,640	118,536,284	
D.		uarial Value of Accumulated Plan efits per FASB No. 35	110,937,038	106,797,102	
E.	1.	Assets Market Value Actuarial Value	127,065,505 120,289,534	116,809,013 114,758,424	
F.	Unf	unded Actuarial Accrued Liability	3,283,106	3,777,860	
G.		uarial Present Value of Projected ered Payroll	153,036,614	127,610,278	
Н.		uarial Present Value of Projected mber Contributions	5,011,297	4,352,992	



	CALCULATION OF EMPLOYER NORMAL COST					
A.	Valuation Date	October 1, 2017	October 1, 2016			
В.	Normal Cost for					
	<ol> <li>Service Retirement Benefits</li> <li>Vesting Benefits</li> <li>Disability Benefits</li> <li>Preretirement Death Benefits</li> <li>Return of Member Contributions</li> <li>Total for Future Benefits</li> <li>Assumed Amount for Administrative Expenses</li> <li>Total Normal Cost</li> </ol>	\$ 1,990,084 190,748 112,029 155,658 44,706 2,493,225 79,944 2,573,169	\$ 1,722,973 177,871 96,465 124,376 39,232 2,160,917 78,021 2,238,938			
C.	Expected Member Contribution	632,254	564,662			
D.	Employer Normal Cost: B8-C	1,940,915	1,674,276			
E.	Employer Normal Cost as a % of Covered Payroll	10.75%	10.84%			



#### LIQUIDATION OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY

UAAL Amortization Period and Payments						
Original UAAL				Current UAAL		
Years	Source	Amortization Period (Years)	Amount	Years Remaining	Amount	Payment
10/1/2009	Initial Unfunded	25	\$ 5,602,731	17	\$ 4,472,240	\$ 434,530
10/1/2009	Plan Amendment	10	(2,846,704)	2	(700,242)	(362,369)
10/1/2010	Experience Loss	25	394,904	18	324,541	30,627
10/1/2011	Experience Loss	25	1,799,033	19	1,536,672	141,237
10/1/2011	Assumption Change	25	(2,114,885)	19	(1,806,461)	(166,034)
10/1/2012	Experience Loss	25	539,648	20	477,728	42,866
10/1/2012	Plan Amendment	25	11,000	20	9,738	874
10/1/2013	Experience Gain	25	(1,043,610)	21	(341,106)	(29,945)
10/1/2013	Plan Amendment	5	650,399	1	143,286	143,286
10/1/2014	Experience Gain	25	(769,762)	22	(724,095)	(62,308)
10/1/2015	Experience Gain	25	(1,180,685)	23	(1,143,363)	(96,604)
10/1/2015	Plan Amendment	5	554,774	3	355,835	127,004
10/1/2016	Experience Gain	25	(1,268,865)	24	(1,249,513)	(103,819)
10/1/2016	Assumption Change	25	2,414,868	24	2,378,036	197,584
10/1/2017	Experience Gain	25	(450,190)	25	(450,190)	(36,835)
			\$ 2,292,656		\$ 3,283,106	\$ 260,094

The UAAL is being liquidated as a level dollar amount over the number of years remaining in the amortization period. The expected amortization schedule is as follows:

Amortization Schedule				
Year	Expected UAAL			
2017 2018 2019 2020 2021 2022 2027 2032 2037	\$ 3,283,106 3,242,148 3,351,928 3,081,025 2,926,694 2,761,173 1,735,195 279,317 (243,199)			
2042	-			



#### **ACTUARIAL GAINS AND LOSSES**

The assumptions used to anticipate mortality, employment turnover, investment income, expenses, salary increases, and other factors have been based on long range trends and expectations. Actual experience can vary from these expectations. The variance is measured by the gain and loss for the period involved. If significant long term experience reveals consistent deviation from what has been expected and that deviation is expected to continue, the assumptions should be modified. The net actuarial gain (loss) for the past year is computed as follows:

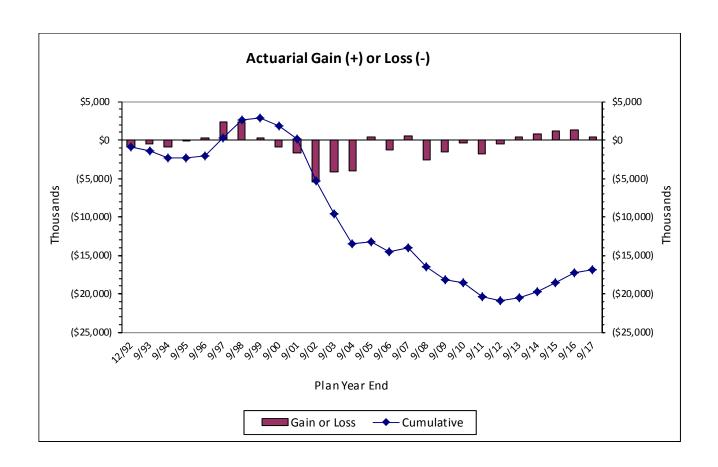
1. Last Year's UAAL	\$	3,777,860
2. Last Year's Employer Normal Cost		1,674,276
3. Last Year's Contributions		2,114,120
<ul><li>4. Interest at the Assumed Rate on:</li><li>a. 1 and 2 for one year</li><li>b. 3 from dates paid</li><li>c. a - b</li></ul>	-	395,280 0 395,280
5. This Year's Expected UAAL Prior to Revision: 1+2-3+4c		3,733,296
<ol><li>Change in UAAL Due to Plan Amendments and/or Changes in Actuarial Assumptions</li></ol>		0
<ol> <li>This Year's Expected UAAL (after changes):</li> <li>5+6</li> </ol>		3,733,296
8. This Year's Actual UAAL (after changes)		3,283,106
9. Net Actuarial Gain/(Loss): 7 - 8		450,190
10. Gain/(Loss) Due to Investment		1,693,993
11. Gain/(Loss) Due to Other Sources		(1,243,803)



Net actuarial gains in previous years have been as follows:

Year Ended	Gain (Loss)
12/31/92	\$ (939,614)
9/30/93	(492,398)
9/30/94	(937,094)
9/30/95	(32,368)
9/30/96	260,299
9/30/97	2,354,556
9/30/98	2,333,750
9/30/99	246,466
9/30/00	(955,923)
9/30/01	(1,750,230)
9/30/02	(5,428,126)
9/30/03	(4,212,406)
9/30/04	(3,989,929)
9/30/05	351,084
9/30/06	(1,334,136)
9/30/07	563,904
9/30/08	(2,574,633)
9/30/09	(1,599,294)
9/30/10	(394,904)
9/30/11	(1,799,033)
9/30/12	(539,648)
9/30/13	373,386
9/30/14	769,762
9/30/15	1,180,685
9/30/16	1,268,865
9/30/17	450,190







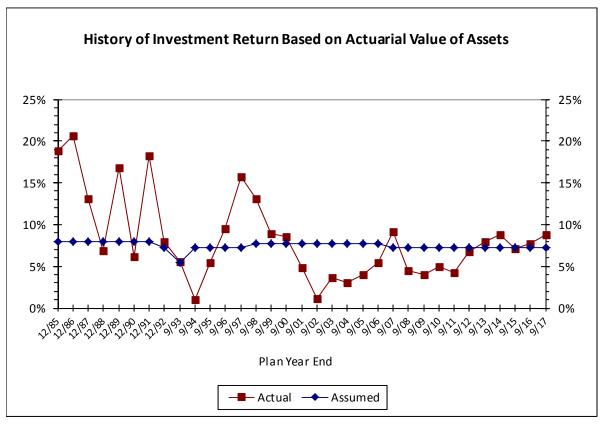
The fund earnings and salary increase assumptions have considerable impact on the cost of the Plan so it is important that they are in line with the actual experience. The following table shows the actual fund earnings and salary increase rates compared to the assumed rates for the last few years.

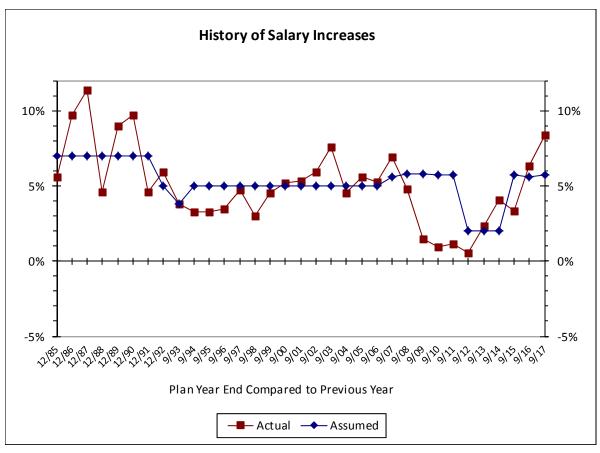
	Investme	nt Return	Salary II	ncreases
Year Ending	Actual	Assumed	Actual	Assumed
12/31/1985	18.8 %	8.0 %	5.6 %	7.0 %
12/31/1986	20.6	8.0	9.7	7.0
12/31/1987	13.1	8.0	11.4	7.0
12/31/1988	6.9	8.0	4.6	7.0
12/31/1989	16.8	8.0	9.0	7.0
12/31/1990	6.2	8.0	9.7	7.0
12/31/1991	18.2	8.0	4.6	7.0
12/31/1992	7.9	7.25	5.9	5.0
9/30/1993 (9 mos.)	5.6	5.4	3.8	3.8
9/30/1994	1.0	7.25	3.3	5.0
9/30/1995	5.5	7.25	3.3	5.0
9/30/1996	9.5	7.25	3.5	5.0
9/30/1997	15.7	7.25	4.7	5.0
9/30/1998	13.1	7.75	3.0	5.0
9/30/1999	8.9	7.75	4.5	5.0
9/30/2000	8.6	7.75	5.2	5.0
9/30/2001	4.9	7.75	5.3	5.0
9/30/2002	1.1	7.75	5.9	5.0
9/30/2003	3.6	7.75	7.6	5.0
9/30/2004	3.1	7.75	4.5	5.0
9/30/2005	4.0	7.75	5.6	5.0
9/30/2006	5.5	7.75	5.3	5.0
9/30/2007	9.1	7.25	6.9	5.6
9/30/2008	4.5	7.25	4.8	5.8
9/30/2009	4.0	7.25	1.5	5.8
9/30/2010	5.0	7.25	0.9	5.7
9/30/2011	4.3	7.25	1.1	5.7
9/30/2012	6.7	7.25	0.5	2.0
9/30/2013	8.0	7.25	2.3	2.0
9/30/2014	8.8	7.25	4.0	2.0
9/30/2015	7.1	7.25	3.4	5.7
9/30/2016	7.7	7.25	6.3	5.6
9/30/2017	8.8	7.25	8.4	5.7
Averages	8.2 %		5.0 %	

Note: Figures prior to 1990 were determined by the Wyatt Company.

The actual investment return rates shown above are based on the actuarial value of assets. The actual salary increase rates shown above are the increases received by those active members who were included in the actuarial valuations both at the beginning and the end of each year.









# Actual (A) Compared to Expected (E) Decrements Among Active Employees

Year Ended	Ad Du	nber ded ring ear E	Servi DR Retire A	OP	Disab Retire A	•	De A	ath E	Te Vested A	erminat Other		tals E	Active Members End of Year
0/20/2002	1.0	20		45	0	4	_				12	45	
9/30/2002	46	20	8	15	0	1	0	1	6	6	12	15	379
9/30/2003	34	29	9	15	1	1	0	1	10	9	19	16	384
9/30/2004	41	28	9	13	2	1	0	1	8	9	17	15	397
9/30/2005	30	38	8	13	1	1	1	1	13	15	28	15	389
9/30/2006	44	40	13	15	0	1	1	1	13	13	26	15	393
9/30/2007	45	36	20 *	13	0	1	1	1	6	9	15	21	402
9/30/2008	40	27	13	11	0	1	0	1	8	6	14	22	415
9/30/2009	24	15	7	11	0	1	0	1	3	5	8	23	424
9/30/2010	21	28	11	13	1	1	0	1	4	12	16	22	417
9/30/2011	13	41	26	14	0	1	1	1	10	4	14	20	389
9/30/2012	17	34	17	13	0	1	2	1	10	5	15	17	372
9/30/2013	26	39	16 *	12	0	1	2	1	7	14	21	16	359
9/30/2014	17	34	15	12	0	1	0	1	9	10	19	16	342
9/30/2015	35	48	20 *		0	1	1	1	19	8	27	14	329
9/30/2016	37	45	16	13	0	1	1	1	16	12	28	16	321
3,30,2010	,	73	10	13		1	•	*		12	20	10	]
9/30/2017	75	39	13	11	0	1	1	1	13	12	25	16	357
9/30/2018				13		1		1				22	
16 Yr Totals **	545	541	221	206	5	16	11	16	155	149	304	279	

<sup>\*</sup> Reflects Early Retirement Incentive Program during the Plan Year.



<sup>\*\*</sup> Totals are through current Plan Year only.

1/1/90   283   88   \$ 7,217,876   \$ 18,735,866   \$ (935,024)   \$ 742,838   10.3 *	RECENT HISTORY OF VALUATION RESULTS								
Date         Members         Members         Payroll         Actuarial Value of Assets         UAAL         Amount         % of Payrol           1/1/90         283         88         \$ 7,217,876         \$ 18,735,866         \$ (935,024)         \$ 742,838         10.3 %           1/1/91         309         90         8,119,144         19,989,224         (4,673,532)         1,136,638         14.0           1/1/93         337         101         8,653,137         23,834,584         0         425,248         4.9           1/1/93         337         101         9,402,160         25,545,873         0         590,537         6.3           10/1/93         350         103         9,976,616         29,169,341         0         698,784         7.0           10/1/95         343         112         10,123,923         31,138,947         0         707,347         7.0           10/1/96         352         121         10,483,367         33,939,706         0         705,909         6.7           10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/99         351         145         11,221,039         51,167,747		Number of						Employer Nor	mal Cost
1/1/90   283   88   \$ 7,217,876   \$ 18,735,866   \$ (935,024)   \$ 742,838   10.3 *	Valuation	Active	Inactive	Covered Annual					
1/1/91         309         90         8,119,144         19,989,234         (4,673,532)         1,136,638         14.0           1/1/92         324         101         8,653,137         23,834,584         0         425,248         4.9           1/1/93         337         101         9,402,160         25,545,873         0         590,537         6.3           10/1/93         350         103         9,976,616         29,169,341         0         698,784         7.0           10/1/94         350         108         10,140,270         29,541,506         0         703,611         6.9           10/1/95         343         112         10,123,923         31,138,947         0         707,347         7.0           10/1/96         352         121         10,483,367         33,939,706         0         705,909         6.7           10/1/97         354         132         10,838,339         39,004,018         0         0            10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/09         351         145         11,221,039         51,167,747         0         0         76,657	Date	Members	Members	Payroll	Actuarial Value of Assets		UAAL	Amount	% of Payroll
1/1/92         324         101         8,653,137         23,834,584         0         425,248         4.9           1/1/93         337         101         9,402,160         25,545,873         0         590,537         6.3           10/1/93         350         103         9,976,616         29,169,341         0         698,784         7.0           10/1/94         350         108         10,140,270         29,541,506         0         703,611         6.9           10/1/95         343         112         10,123,923         31,138,947         0         707,347         7.0           10/1/96         352         121         10,483,367         33,939,706         0         705,909         6.7           10/1/97         354         132         10,838,339         39,004,018         0         0            10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/09         351         145         11,221,039         51,167,747         0         0            10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7 <td>1/1/90</td> <td>283</td> <td>88</td> <td>\$ 7,217,876</td> <td>\$ 18,735,866</td> <td>\$</td> <td>(935,024)</td> <td>\$ 742,838</td> <td>10.3 %</td>	1/1/90	283	88	\$ 7,217,876	\$ 18,735,866	\$	(935,024)	\$ 742,838	10.3 %
1/1/93         337         101         9,402,160         25,545,873         0         590,537         6.3           10/1/93         350         103         9,976,616         29,169,341         0         698,784         7.0           10/1/94         350         108         10,140,270         29,541,506         0         703,611         6.9           10/1/95         343         112         10,123,923         31,138,947         0         707,347         7.0           10/1/96         352         121         10,483,367         33,939,706         0         705,909         6.7           10/1/97         354         132         10,838,339         39,004,018         0         0            10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/99         351         145         11,221,039         51,167,747         0         0            10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7           10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5 </td <td>1/1/91</td> <td>309</td> <td>90</td> <td>8,119,144</td> <td>19,989,234</td> <td></td> <td>(4,673,532)</td> <td>1,136,638</td> <td>14.0</td>	1/1/91	309	90	8,119,144	19,989,234		(4,673,532)	1,136,638	14.0
10/1/93         350         103         9,976,616         29,169,341         0         698,784         7.0           10/1/94         350         108         10,140,270         29,541,506         0         703,611         6.9           10/1/95         343         112         10,123,923         31,138,947         0         707,347         7.0           10/1/96         352         121         10,483,367         33,939,706         0         705,909         6.7           10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/99         351         145         11,221,039         51,167,747         0         0            10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7           10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5           10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9 </td <td>1/1/92</td> <td>324</td> <td>101</td> <td>8,653,137</td> <td>23,834,584</td> <td></td> <td>0</td> <td>425,248</td> <td>4.9</td>	1/1/92	324	101	8,653,137	23,834,584		0	425,248	4.9
10/1/94         350         108         10,140,270         29,541,506         0         703,611         6.9           10/1/95         343         112         10,123,923         31,138,947         0         707,347         7.0           10/1/96         352         121         10,483,367         33,939,706         0         705,909         6.7           10/1/97         354         132         10,838,339         39,004,018         0         0            10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/99         351         145         11,221,039         51,167,747         0         0            10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7           10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5           10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9 <td>1/1/93</td> <td>337</td> <td>101</td> <td>9,402,160</td> <td>25,545,873</td> <td></td> <td>0</td> <td>590,537</td> <td>6.3</td>	1/1/93	337	101	9,402,160	25,545,873		0	590,537	6.3
10/1/95         343         112         10,123,923         31,138,947         0         707,347         7.0           10/1/96         352         121         10,483,367         33,939,706         0         705,909         6.7           10/1/97         354         132         10,838,339         39,004,018         0         0	10/1/93	350	103	9,976,616	29,169,341		0	698,784	7.0
10/1/96         352         121         10,483,367         33,939,706         0         705,909         6.7           10/1/97         354         132         10,838,339         39,004,018         0         0            10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/99         351         145         11,221,039         51,167,747         0         0            10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7           10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5           10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9           10/1/04         397         197         15,844,035         58,552,571         0         1,832,201         11.6           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3<	10/1/94	350	108	10,140,270	29,541,506		0	703,611	6.9
10/1/97         354         132         10,838,339         39,004,018         0         0            10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/99         351         145         11,221,039         51,167,747         0         0            10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7           10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5           10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12	10/1/95	343	112	10,123,923	31,138,947		0	707,347	7.0
10/1/98         350         137         10,830,498         47,654,038         0         0            10/1/99         351         145         11,221,039         51,167,747         0         0            10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7           10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5           10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9           10/1/04         397         197         15,844,035         58,552,571         0         1,832,201         11.6           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/07         399         252         17,817,350         77,436,230         0         2,088,750         12.4           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258	10/1/96	352	121	10,483,367	33,939,706		0	705,909	6.7
10/1/99         351         145         11,221,039         51,167,747         0         0            10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7           10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5           10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9           10/1/04         397         197         15,844,035         58,552,571         0         1,832,201         11.6           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258 </td <td>10/1/97</td> <td>354</td> <td>132</td> <td>10,838,339</td> <td>39,004,018</td> <td></td> <td>0</td> <td>0</td> <td></td>	10/1/97	354	132	10,838,339	39,004,018		0	0	
10/1/00         352         158         11,683,131         54,085,492         0         76,657         0.7           10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5           10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9           10/1/04         397         197         15,844,035         58,552,571         0         1,832,201         11.6           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/10         417         272         18,988,947         87,826,931         3,269,096	10/1/98	350	137	10,830,498	47,654,038		0	0	
10/1/01         353         167         12,166,399         55,160,299         0         299,443         2.5           10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9           10/1/04         397         197         15,844,035         58,552,571         0         1,832,201         11.6           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/09         424         267         19,359,146         84,476,640         2,756,027         2,073,422         10.7           10/1/10         417         272         18,988,947         87,826,931         3,269,096	10/1/99	351	145	11,221,039	51,167,747		0	0	
10/1/02         379         173         13,369,199         54,452,798         0         638,906         4.8           10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9           10/1/04         397         197         15,844,035         58,552,571         0         1,832,201         11.6           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/09         424         267         19,359,146         84,476,640         2,756,027         2,073,422         10.7           10/1/10         417         272         18,988,947         87,826,931         3,269,096         2,059,007         10.8           10/1/12         372         311         16,937,526         94,643,819 <t< td=""><td>10/1/00</td><td>352</td><td>158</td><td>11,683,131</td><td>54,085,492</td><td></td><td>0</td><td>76,657</td><td>0.7</td></t<>	10/1/00	352	158	11,683,131	54,085,492		0	76,657	0.7
10/1/03         384         183         14,807,342         56,610,019         0         1,313,414         8.9           10/1/04         397         197         15,844,035         58,552,571         0         1,832,201         11.6           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/09         424         267         19,359,146         84,476,640         2,756,027         2,073,422         10.7           10/1/10         417         272         18,988,947         87,826,931         3,269,096         2,059,007         10.8           10/1/12         372         311         16,937,526         94,643,819         3,679,352         1,792,979         10.6           10/1/13         359         326         16,527,919         99,910,051	10/1/01	353	167	12,166,399	55,160,299		0	299,443	2.5
10/1/04         397         197         15,844,035         58,552,571         0         1,832,201         11.6           10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/09         424         267         19,359,146         84,476,640         2,756,027         2,073,422         10.7           10/1/10         417         272         18,988,947         87,826,931         3,269,096         2,059,007         10.8           10/1/11         389         292         17,817,131         90,513,860         3,032,918         1,869,059         10.5           10/1/12         372         311         16,937,526         94,643,819         3,679,352         1,792,979         10.6           10/1/13         359         326         16,527,919         99,910	10/1/02	379	173	13,369,199	54,452,798		0	638,906	4.8
10/1/05         389         215         16,203,652         61,455,670         0         1,829,172         11.3           10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/09         424         267         19,359,146         84,476,640         2,756,027         2,073,422         10.7           10/1/10         417         272         18,988,947         87,826,931         3,269,096         2,059,007         10.8           10/1/11         389         292         17,817,131         90,513,860         3,032,918         1,869,059         10.5           10/1/12         372         311         16,937,526         94,643,819         3,679,352         1,792,979         10.6           10/1/13         359         326         16,527,919         99,910,051         4,040,481         1,746,728         10.6           10/1/15         329         373         15,371,826 <t< td=""><td>10/1/03</td><td>384</td><td>183</td><td>14,807,342</td><td>56,610,019</td><td></td><td>0</td><td>1,313,414</td><td>8.9</td></t<>	10/1/03	384	183	14,807,342	56,610,019		0	1,313,414	8.9
10/1/06         393         232         16,839,131         70,326,850         0         2,088,750         12.4           10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/09         424         267         19,359,146         84,476,640         2,756,027         2,073,422         10.7           10/1/10         417         272         18,988,947         87,826,931         3,269,096         2,059,007         10.8           10/1/11         389         292         17,817,131         90,513,860         3,032,918         1,869,059         10.5           10/1/12         372         311         16,937,526         94,643,819         3,679,352         1,792,979         10.6           10/1/13         359         326         16,527,919         99,910,051         4,040,481         1,746,728         10.6           10/1/14         342         346         15,895,095         106,280,221         3,268,828         1,700,725         10.7           10/1/15         329         373         15,371,826	10/1/04	397	197	15,844,035	58,552,571		0	1,832,201	11.6
10/1/07         399         252         17,817,350         77,436,230         0         2,293,259         12.9           10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/09         424         267         19,359,146         84,476,640         2,756,027         2,073,422         10.7           10/1/10         417         272         18,988,947         87,826,931         3,269,096         2,059,007         10.8           10/1/11         389         292         17,817,131         90,513,860         3,032,918         1,869,059         10.5           10/1/12         372         311         16,937,526         94,643,819         3,679,352         1,792,979         10.6           10/1/13         359         326         16,527,919         99,910,051         4,040,481         1,746,728         10.6           10/1/14         342         346         15,895,095         106,280,221         3,268,828         1,700,725         10.7           10/1/15         329         373         15,371,826         110,517,353         2,657,108         1,632,887         10.6	10/1/05	389	215	16,203,652	61,455,670		0	1,829,172	11.3
10/1/08         415         261         18,990,051         80,987,834         0         2,745,258         14.5           10/1/09         424         267         19,359,146         84,476,640         2,756,027         2,073,422         10.7           10/1/10         417         272         18,988,947         87,826,931         3,269,096         2,059,007         10.8           10/1/11         389         292         17,817,131         90,513,860         3,032,918         1,869,059         10.5           10/1/12         372         311         16,937,526         94,643,819         3,679,352         1,792,979         10.6           10/1/13         359         326         16,527,919         99,910,051         4,040,481         1,746,728         10.6           10/1/14         342         346         15,895,095         106,280,221         3,268,828         1,700,725         10.7           10/1/15         329         373         15,371,826         110,517,353         2,657,108         1,632,887         10.6	10/1/06	393	232	16,839,131	70,326,850		0	2,088,750	12.4
10/1/09       424       267       19,359,146       84,476,640       2,756,027       2,073,422       10.7         10/1/10       417       272       18,988,947       87,826,931       3,269,096       2,059,007       10.8         10/1/11       389       292       17,817,131       90,513,860       3,032,918       1,869,059       10.5         10/1/12       372       311       16,937,526       94,643,819       3,679,352       1,792,979       10.6         10/1/13       359       326       16,527,919       99,910,051       4,040,481       1,746,728       10.6         10/1/14       342       346       15,895,095       106,280,221       3,268,828       1,700,725       10.7         10/1/15       329       373       15,371,826       110,517,353       2,657,108       1,632,887       10.6	10/1/07	399	252	17,817,350	77,436,230		0	2,293,259	12.9
10/1/10     417     272     18,988,947     87,826,931     3,269,096     2,059,007     10.8       10/1/11     389     292     17,817,131     90,513,860     3,032,918     1,869,059     10.5       10/1/12     372     311     16,937,526     94,643,819     3,679,352     1,792,979     10.6       10/1/13     359     326     16,527,919     99,910,051     4,040,481     1,746,728     10.6       10/1/14     342     346     15,895,095     106,280,221     3,268,828     1,700,725     10.7       10/1/15     329     373     15,371,826     110,517,353     2,657,108     1,632,887     10.6	10/1/08	415	261	18,990,051	80,987,834		0	2,745,258	14.5
10/1/11     389     292     17,817,131     90,513,860     3,032,918     1,869,059     10.5       10/1/12     372     311     16,937,526     94,643,819     3,679,352     1,792,979     10.6       10/1/13     359     326     16,527,919     99,910,051     4,040,481     1,746,728     10.6       10/1/14     342     346     15,895,095     106,280,221     3,268,828     1,700,725     10.7       10/1/15     329     373     15,371,826     110,517,353     2,657,108     1,632,887     10.6	10/1/09	424	267	19,359,146	84,476,640		2,756,027	2,073,422	10.7
10/1/12     372     311     16,937,526     94,643,819     3,679,352     1,792,979     10.6       10/1/13     359     326     16,527,919     99,910,051     4,040,481     1,746,728     10.6       10/1/14     342     346     15,895,095     106,280,221     3,268,828     1,700,725     10.7       10/1/15     329     373     15,371,826     110,517,353     2,657,108     1,632,887     10.6	10/1/10	417	272	18,988,947	87,826,931		3,269,096	2,059,007	10.8
10/1/12     372     311     16,937,526     94,643,819     3,679,352     1,792,979     10.6       10/1/13     359     326     16,527,919     99,910,051     4,040,481     1,746,728     10.6       10/1/14     342     346     15,895,095     106,280,221     3,268,828     1,700,725     10.7       10/1/15     329     373     15,371,826     110,517,353     2,657,108     1,632,887     10.6	10/1/11	389	292	17,817,131	90,513,860		3,032,918	1,869,059	10.5
10/1/13     359     326     16,527,919     99,910,051     4,040,481     1,746,728     10.6       10/1/14     342     346     15,895,095     106,280,221     3,268,828     1,700,725     10.7       10/1/15     329     373     15,371,826     110,517,353     2,657,108     1,632,887     10.6	10/1/12	372	311	16,937,526	94,643,819		3,679,352	1,792,979	10.6
10/1/15 329 373 15,371,826 110,517,353 2,657,108 1,632,887 10.6	10/1/13	359	326	16,527,919	99,910,051		4,040,481	1,746,728	10.6
10/1/15 329 373 15,371,826 110,517,353 2,657,108 1,632,887 10.6	10/1/14	342	346	15.895.095	106.280.221		3.268.828	1.700.725	10.7
	1			1					
10/1/16 321 394 15,449,062 114,758,424 3,777,860 1,674,276 10.8	10/1/16								
10/1/17 357 414 18,060,007 120,289,534 3,283,106 1,940,915 10.7				l ' '					



#### **RECENT HISTORY OF UAAL AND FUNDED RATIO**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) - Entry Age (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL As % of Covered Payroll (b - a) / c
10/1/1996	33,939,706	27,354,746	(6,584,960)	124.1	10,483,367	(62.8)
10/1/1997	39,004,018	27,946,800	(11,057,218)	139.6	10,838,339	(102.0)
10/1/1998	43,376,078	30,159,065	(13,217,013)	143.8	10,830,498	(122.0)
10/1/1999	51,167,747	36,138,126	(15,029,621)	141.6	11,221,039	(133.9)
10/1/2000	54,085,492	41,859,407	(12,226,085)	129.2	11,683,131	(104.6)
10/1/2001	55,160,299	44,423,811	(10,736,488)	124.2	12,166,399	(88.2)
10/1/2002	54,452,798	48,000,804	(6,451,994)	113.4	13,369,199	(48.3)
10/1/2003	56,610,019	53,583,420	(3,026,599)	105.6	14,807,342	(20.4)
10/1/2004	58,552,571	59,247,630	695,059	98.8	15,844,035	4.4
10/1/2005	61,455,670	62,126,597	670,927	98.9	16,203,652	4.1
10/1/2006	70,326,850	71,373,310	1,046,460	98.5	16,839,131	6.2
10/1/2007	77,436,230	78,839,518	1,403,288	98.2	17,817,350	7.9
10/1/2008	80,987,834	84,913,592	3,925,758	95.4	18,990,051	20.7
10/1/2009	84,476,640	87,232,667	2,756,027	96.8	19,359,146	14.2
10/1/2010	87,826,931	91,096,027	3,269,096	96.4	18,988,947	17.2
10/1/2011	90,513,860	93,546,778	3,032,918	96.8	17,817,131	17.0
10/1/2012	94,643,819	98,323,171	3,679,352	96.3	16,937,526	21.7
10/1/2013	99,910,051	103,950,532	4,040,481	96.1	16,527,919	24.4
10/1/2014	106,280,221	109,549,049	3,268,828	97.0	15,895,095	20.6
10/1/2015	110,517,353	113,174,461	2,657,108	97.7	15,371,826	17.3
10/1/2016 10/1/2017	114.758.424 120,289,534	118.536.284 123,572,640	3.777.860 3,283,106	96.8 97.3	15.449.062 18,060,007	24.5 18.2



#### RECENT HISTORY OF REQUIRED AND ACTUAL CONTRIBUTIONS

	End of Year To Which Valuation	Required Co	Actual	
Valuation	Applies	Amount	Amount % of Payroll	
Valuation	Аррпез	Amount	) Justinayion	Contributions
1/1/90	9/30/91	\$ 769,008	10.65 %	\$ 769,008
1/1/91	9/30/92	824,612	10.16	824,612
1/1/92	9/30/93	456,078	5.27	456,078
1/1/93	9/30/94	633,351	6.74	633,351
10/1/93	9/30/95	762,329	7.64	762,329
10/1/94	9/30/96	767,595	7.57	767,595
10/1/95	9/30/97	771,671	7.62	771,671
10/1/96	9/30/98	770,101	7.35	770,101
10/1/97	9/30/99	0		0
10/1/98	9/30/00	0		0
10/1/99	9/30/01	0		0
10/1/00	9/30/02	84,122	0.72	84,122
10/1/01	9/30/03	328,603	2.70	328,603
10/1/02	9/30/04	701,388	5.25	701,388
10/1/03	9/30/05	1,441,861	9.74	1,441,861
10/1/04	9/30/06	2,011,383	12.69	2,011,383
10/1/05	9/30/07	2,008,058	12.39	2,008,058
10/1/06 *	9/30/08	2,398,379	14.35	2,398,379
10/1/07	9/30/09	2,502,936	14.05	2,502,936
10/1/08	9/30/10	2,996,262	15.78	2,996,262
10/1/09 **	9/30/11	2,305,392	11.91	2,305,392
10/1/10	9/30/12	2,365,620	12.46	2,365,620
10/1/11	9/30/13	2,128,666	11.95	2,128,666
10/1/12 ***	9/30/14	2,093,769	12.36	2,093,769
10/1/13	9/30/15	2,168,192	13.12	2,168,192
10/1/14	9/30/16	2,046,827	12.88	2,046,827
10/1/15 ****	9/30/17	1,969,163	12.81	1,969,163
10/1/16	9/30/18	2,114,120	13.68	2,114,120
10/1/17	9/30/19	2,402,252	13.30	

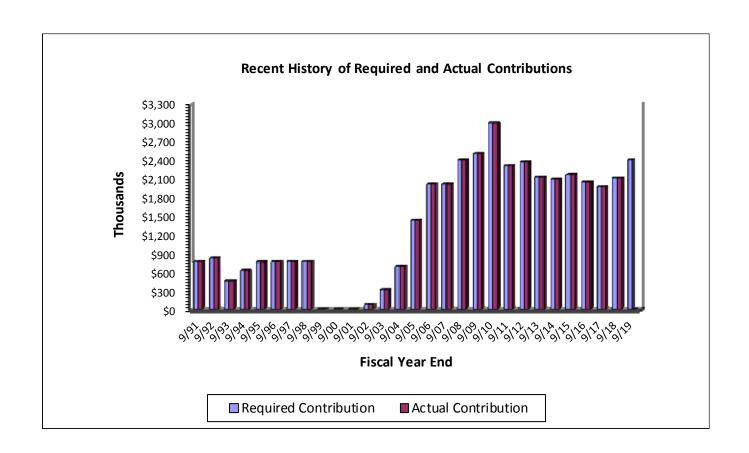
<sup>\*</sup> From October 19, 2007 Actuarial Impact Statement.

<sup>\*\*\*\*</sup> From May 6, 2016 Actuarial Impact Statement.



<sup>\*\*</sup> From October 4, 2010 Actuarial Impact Statement.

<sup>\*\*\*</sup> From September 13, 2013 Actuarial Impact Statement.





#### **ACTUARIAL ASSUMPTIONS AND COST METHOD**

#### **Valuation Methods**

**Actuarial Cost Method** - Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an **Individual Entry-Age Actuarial Cost Method** having the following characteristics:

- the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement;
- (ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Actuarial gains/(losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

**Financing of Unfunded Actuarial Accrued Liabilities** - Unfunded Actuarial Accrued Liabilities (full funding credit if assets exceed liabilities) were amortized by level (principal & interest combined) dollar contributions over a reasonable period of future years.

Actuarial Value of Assets - The Actuarial Value of Assets phase in the difference between the expected actuarial value and actual market value of assets at the rate of 20% per year. The Actuarial Value of Assets will be further adjusted to the extent necessary to fall within the corridor whose lower limit is 80% of the Market Value of plan assets and whose upper limit is 120% of the Market Value of plan assets. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than Market Value. During periods when investment performance is less than assumed rate, Actuarial Value of Assets will tend to be greater than Market Value.

#### **Valuation Assumptions**

**The actuarial assumptions used** in the valuation are shown in this Section.



#### **Economic Assumptions**

**The investment return rate** assumed in the valuations is 7.25% per year, compounded annually (net after investment expense).

The **Inflation Rate** assumed in this valuation was 2.50% per year. The Inflation Rate is defined to be the expected long-term rate of increases in the prices of goods and services.

The assumed **real rate of return** over inflation is defined to be the portion of total investment return that is more than the assumed inflation rate. Considering other economic assumptions, the 7.25% investment return rate translates to an assumed real rate of return over inflation of 4.75%.

**Pay increase assumptions** for individual active members are shown below. Part of the assumption for each age is for merit and/or seniority increase, and the other 3.00% recognizes wage inflation, including price inflation, productivity increases, and other macroeconomic forces.

**The rates of salary increase** used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

_	%	Increase in Sala	ary
Years of	Merit and	Base	
Service	Seniority	(Economic)	<b>Total Increase</b>
1	4.7%	2.5%	7.2%
2	4.7%	2.5%	7.2%
3	4.6%	2.5%	7.1%
4	4.5%	2.5%	7.0%
5	4.3%	2.5%	6.8%
6	4.1%	2.5%	6.6%
7	3.9%	2.5%	6.4%
8	3.7%	2.5%	6.2%
9	3.3%	2.5%	5.8%
10 - 14	3.1%	2.5%	5.6%
15 - 19	2.5%	2.5%	5.0%
20 and higher	1.9%	2.5%	4.4%



#### **Demographic Assumptions**

The mortality table for healthy lives is the RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years after 2000 using Scale BB. For males, the base mortality rates include a 50% blue collar adjustment and a 50% white collar adjustment. For females, the base mortality rates include a 100% white collar adjustment. These are the same rates currently in use for Regular Class members of the Florida Retirement System (FRS), as mandated by Florida Statues Chapter 112.63.

FRS Healthy Post-Retirement Mortality for Regular Class Members Probability of **Future Life** Sample **Attained Dying Next Year** Expectancy (years) Ages (in 2017) Men Women Men Women 50 0.55 % 0.23 % 34.66 38.31 55 0.60 0.32 30.03 33.29 60 0.76 0.47 25.36 28.39

0.74

1.24

2.09

3.51

20.84

16.59

12.73

9.40

12.73

9.40

23.65

19.19

15.11

11.49

15.11

11.49

1.15

1.78

2.97

5.03

2.97

5.03

65

70

75

80

75

80

FRS Healthy Pre-Retirement Mortality for Regular Class Members*							
Sample	Probabil	Probability of		<b>Future Life</b>			
Attained	Dying Nex	Dying Next Year		y (years)			
Ages (in 2017)	Men	Women	Men	Women			
50	0.21 %	0.15 %	35.58	38.66			
55	0.36	0.24	30.46	33.51			
60	0.61	0.39	25.53	28.49			
65	1.08	0.70	20.88	23.67			
70	1.78	1.24	16.59	19.19			

2.09

3.51

For disabled lives, the RP-2000 Mortality Table for Disabled Annuitants was used, with a two year set-forward for females and a four year set-back for males, with no provision being made for future mortality improvements. These are the same rates currently in use for Regular Class members of the Florida Retirement System (FRS), as mandated by Florida Statues Chapter 112.63.



<sup>\*10%</sup> of pre-retirement deaths are assumed to be service-connected.

#### **FRS Healthy Disabled Mortality for Regular Class Members**

Sample	Probability of		Future Life		
Attained	Dying Nex	xt Year	Expectanc	y (years)	
Ages (in 2017)	Men Women		Men	Women	
50	2.38 %	1.35 %	20.25	23.74	
55	3.03	1.87	17.78	20.46	
60	3.67	2.41	15.55	17.43	
65	4.35	3.13	13.44	14.58	
70	5.22	4.29	11.39	11.96	
75	6.58	5.95	9.43	9.65	
80	8.70	8.23	7.65	7.66	

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows:

<b>Number of Years</b>	
After First Eligibility	<b>Probability of Normal</b>
for Normal Retirement	Retirement
0	40 %
1	40
2	40
3	40
4	40
5	100

The rate of retirement is 5% for each year of eligibility for early retirement.

**Rates of disability** among active members (20% of future disability retirements are assumed to be service-connected):

Sample	% Becoming Disabled within Next Year				
Ages	Male Female				
25	0.17 %	0.34 %			
30	0.17	0.34			
35	0.18	0.36			
40	0.20	0.40			
45	0.23	0.46			
50	0.29	0.58			
55	0.39	0.78			
60	0.59	1.18			



**Rates of separation from active membership** were as shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample	Years of	% of Active Members
Ages	Service	Separating Within Next Year
ALL	0	16.0 %
	1	16.0
	2	12.0
	3	10.0
	4	8.0
20	5 & Over	8.0
25		8.0
30		7.4
35		6.5
40		5.4
45		3.8
50		3.0
55		2.7
60		0.0



#### **Miscellaneous and Technical Assumptions**

Administrative & Investment Expenses

The investment return assumption is intended to be the return before considering investment expenses. Annual administrative and investment expenses are assumed to be equal to the average of the expenses over the previous 2 years. Assumed administrative and investment expenses are added to the Normal Cost.

Benefit Service

Exact fractional service is used to determine the amount of benefit payable.

**Decrement Operation** 

Disability and mortality decrements operate during retirement eligibility.

**Decrement Timing** 

Decrements of all types are assumed to occur at the beginning of the year.

Eligibility Testing

Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

**Forfeitures** 

For vested separations from service, it is assumed that 0% of members separating will withdraw their contributions and forfeit an employer financed benefit. It was further assumed that the liability at termination is the greater of the vested deferred benefit (if any) or the member's accumulated contributions.

Incidence of Contributions

Employer contributions are assumed to be made in one payment at the end of December. Member contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.

**Marriage Assumption** 

100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.

Normal Form of Benefit

Life Annuity. For married participants within ten years of attaining age 60 or 30 years of service as of October 5, 2010, a monthly income payable for life of member; upon death of member, 100% of member's benefit payable to spouse for one year and 60% thereafter until death or remarriage of spouse. Other optional forms are also available.

**Pay Increase Timing** 

End of fiscal year. This is equivalent to assuming that reported pays

represent the rate of pay on the valuation date.

Service Credit Accruals

It is assumed that members accrue one year of service credit per year.



#### **GLOSSARY**

Actuarial Accrued Liability (AAL)

The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.

**Actuarial Assumptions** 

Assumptions about future plan experience that affect costs or liabilities, such as: mortality, withdrawal, disablement, and retirement; future increases in salary; future rates of investment earnings; future investment and administrative expenses; characteristics of members not specified in the data, such as marital status; characteristics of future members; future elections made by members; and other items.

**Actuarial Cost Method** 

A procedure for allocating the Actuarial Present Value of Future Benefits between the Actuarial Present Value of Future Normal Costs and the Actuarial Accrued Liability.

Actuarially Determined Employer Contribution (ADEC) The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADEC consists of the Employer Normal Cost and Amortization Payment.

**Actuarial Equivalent** 

Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV)

The amount of funds required to provide a payment or series of payments in the future. It is determined by discounting the future payments with an assumed interest rate and with the assumed probability each payment will be made.

Actuarial Present Value of Future Benefits (APVFB)

The Actuarial Present Value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

**Actuarial Valuation** 

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB No. 67.



#### **Actuarial Value of Assets**

The value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined employer contribution (ADEC).

#### **Amortization Method**

A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the rate at which total covered payroll of all active members is assumed to increase.

#### **Amortization Payment**

That portion of the plan contribution or ADEC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

#### **Amortization Period**

The period used in calculating the Amortization Payment.

#### **Closed Amortization Period**

A specific number of years that is reduced by one each year, and declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc.

#### **Employer Normal Cost**

The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.

# Equivalent Single Amortization Period

For plans that do not establish separate amortization bases (separate components of the UAAL), this is the same as the Amortization Period. For plans that do establish separate amortization bases, this is the period over which the UAAL would be amortized if all amortization bases were combined upon the current UAAL payment.

#### Experience Gain/Loss

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two actuarial valuations. To the extent that actual experience differs from that assumed, Unfunded Actuarial Accrued Liabilities emerge which may be larger or smaller than projected. Gains are due to favorable experience, e.g., the assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, losses are the result of unfavorable



experience, i.e., actual results that produce Unfunded Actuarial

Accrued Liabilities which are larger than projected.

**Funded Ratio** The ratio of the Actuarial Value of Assets to the Actuarial Accrued

Liability.

**GASB** Governmental Accounting Standards Board.

GASB No. 67 and GASB No. 68 These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for

the systems themselves.

Normal Cost The annual cost assigned, under the Actuarial Cost Method, to the

current plan year.

**Open Amortization Period** An open amortization period is one which is used to determine the

Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear,

but will become smaller each year, either as a dollar amount or in

relation to covered payroll.

Unfunded Actuarial Accrued

Liability

The difference between the Actuarial Accrued Liability and Actuarial

Value of Assets.

Valuation Date The date as of which the Actuarial Present Value of Future Benefits

are determined. The benefits expected to be paid in the future are

discounted to this date.





**PENSION FUND INFORMATION** 

#### **Statement of Plan Assets at Market Value**

	September 30				
ltem	2017	2016			
A. Cash and Cash Equivalents (Operating Cash)	\$ 1,449,759	\$ 1,455,025			
B. Receivables					
1. Member Contributions	\$ -	\$ -			
2. Employer Contributions	2,114,120	1,969,163			
3. Investment Income and Other Receivables	9,571,367	578,248			
4. Total Receivables	\$ 11,685,487	\$ 2,547,411			
C. Investments*					
1. Short Term Investments	\$ -	\$ -			
2. Domestic Equities	76,834,405	90,213,500			
3. International Equities	4,275,550	-			
4. Domestic and International Fixed Income	32,974,048	22,972,799			
5. Real Estate	-	-			
6. DROP Accounts (ICMA)	6,498,758	5,666,178			
7. Total Investments	\$ 120,582,761	\$118,852,477			
D. Liabilities					
1. Benefits Payable	\$ -	\$ -			
2. Accrued Expenses and Other Payables	(153,744)	(379,722)			
3. Total Liabilities	\$ (153,744)	\$ (379,722)			
E. Total Market Value of Assets Available for Benefits	\$ 133,564,263	\$122,475,191			
F. DROP Accounts	\$ (6,498,758)	\$ (5,666,178)			
G. Market Value Net of Reserves	\$ 127,065,505	\$116,809,013			
H. Allocation of Investments*					
1. Short Term Investments	0.0%	0.0%			
2. Domestic Equities	63.7%	75.9%			
3. International Equities	3.6%	0.0%			
4. Domestic and International Fixed Income	27.3%	19.3%			
5. Real Estate	0.0%	0.0%			
6. DROP Accounts (ICMA)	5.4%	4.8%			
7. Total Investments	100.0%	100.0%			

<sup>\*</sup> A detailed breakdown was not available.



#### **Reconciliation of Plan Assets**

			September 30					
		ltem		2017		2016		
A.	Market '	Value of Assets at Beginning of Year	\$	116,809,013	\$1	109,833,409		
В.	Revenu	es and Expenditures						
		tributions						
	a.	Employee Contributions*	\$	717,598	\$	618,705		
	b.	Employer Contributions		2,114,120		1,969,163		
	C.	Total	\$	2,831,718	\$	2,587,868		
	2. Inve	stment Income						
	a.	Interest, Dividends, and Other Income	\$	2,531,298	\$	2,167,398		
	b.	Net Realized/Unrealized Gains/(Losses)**		12,194,065		9,095,495		
	c.	Investment Expenses		(251,220)		(257,756)		
	d.	Net Investment Income	\$	14,474,143	\$	11,005,137		
	3. Ben	efits and Refunds						
	a.	Regular Monthly Benefits	\$	(6,903,465)	\$	(6,468,203)		
	b.	Refunds		(68,352)		(66,862)		
	c.	Lump Sum Benefits Paid		-		-		
	d.	Total	\$	(6,971,817)	\$	(6,535,065)		
	4. Adm	ninistrative and Miscellaneous Expenses	\$	(77,552)	\$	(82,336)		
	5. Tran	sfers	\$	-	\$	-		
C.	Market '	Value of Assets at End of Year	\$	127,065,505	\$1	116,809,013		



<sup>\*</sup> Includes buyback payments.

<sup>\*\*</sup> The breakdown of this amount between realized gains/(losses) and unrealized gains/(losses) was not provided.

#### **Actuarial Value of Assets**

The Actuarial Value of Assets is determined by recognizing 20% of the difference between market value of assets and expected actuarial asset value.

	September 30			
Item		2017	_	2016
Beginning of Year Assets     Market Value	\$	116,809,013	\$	109,833,409
2. Actuarial Value		114,758,424		110,517,353
B. End of Year Market Value of Assets		127,065,505		116,809,013
C. Net of Contributions Less Disbursements*		(4,217,651)		(4,029,533)
D. Actual Net Investment Earnings*		14,474,143		11,005,137
E. Expected Investment Earnings*		8,054,768		7,757,957
F. Expected Actuarial Value End of Year: A2+C+E		118,595,541		114,245,777
G. End of Year Market Value Less Expected Actuarial Value: B - F		8,469,964		2,563,236
H. 20% of Difference		1,693,993		512,647
<ul><li>I. End of Year Assets</li><li>1. Actuarial Value:</li><li>F + H</li><li>2. Final Actuarial Value</li></ul>		120,289,534		114,758,424
Within 80% to 120% of Market Value		120,289,534		114,758,424
J. Recognized Investment Earnings		9,748,761		8,270,604
K. Recognized Rate of Return		8.8%		7.7%

<sup>\*</sup> Net of investment expenses.



#### **Investment Rate of Return**

Year Ended	Market Value Basis*	Actuarial Value Basis
12/31/85	24.0 %	18.8 %
12/31/86	21.1	20.6
12/31/87	5.8	13.1
12/31/88	8.6	6.9
12/31/89	24.2	16.8
12/31/90	3.3	6.2
12/31/91	28.3	18.2
12/31/92	6.3	7.9
9/30/93 (9 months)	4.3	5.6
9/30/94	(2.9)	1.0
9/30/95	21.1	5.5
9/30/96	14.8	9.5
9/30/97	23.3	15.7
9/30/98	5.6	13.1
9/30/99	12.2	8.9
9/30/00	8.7	8.6
9/30/01	(1.0)	4.9
9/30/02	(5.1)	1.1
9/30/03	13.8	3.6
9/30/04	6.4	3.1
9/30/05	8.1	4.0
9/30/06	6.2	5.5
9/30/07	11.3	9.1
9/30/08	(12.4)	4.5
9/30/09	1.9	4.0
9/30/10	9.6	5.0
9/30/11	1.2	4.3
9/30/12	18.1	6.7
9/30/13	13.0	8.0
9/30/14	12.0	8.8
9/30/15	0.4	7.1
9/30/16	10.4	7.7
9/30/17	12.8	8.8
Average Returns:		
Last 5 Years	0.6.0/	0 1 0/
	9.6 %	8.1 %
Last 10 Years	6.3 %	6.5 %
All Years	9.3 %	8.2 %

<sup>\*</sup> Net of investment expenses after 2005.

The above rates are based on the retirement system's financial information reported to the actuary. They may differ from figures that the investment consultant reports, in part because of differences in the handling of administrative and investment expenses, and in part because of differences in the handling of cash flows.



#### **DROP Account Reconciliation**

Year								
Ending	Beginning		Invest	ment			Er	nding
9/30	Balance	Credits	Earn	ings	Dist	ributions	Ва	lance
2007	\$1,188,609	\$ 435,466	\$ 9	2,530	\$	264,147	\$1,4	452,458
2008	1,452,458	507,624	(3	3,856)		163,223	1,	763,003
2009	1,763,003	558,740	9	8,242		249,723	2,:	170,262
2010	2,170,262	674,648	10	5,540		901,876	2,0	048,574
2011	2,048,574	778,292	5	51,293		524,993	2,3	353,166
2012	2,353,166	945,467	16	59,156		331,627	3,3	136,162
2013	3,136,162	1,199,170	14	18,168		282,268	4,2	201,232
2014	4,201,232	1,259,921	15	54,600		879,338	4,	736,415
2015	4,736,415	1,445,136	$\epsilon$	66,143		909,785	5,3	337,909
2016	5,337,909	1,204,795	17	6,791		1,053,317	5,0	666,178
2017	5,666,178	1,307,136	25	4,780		729,336	6,4	498,758





FINANCIAL ACCOUNTING INFORMATION

	FASB NO. 35 INFORMATION									
Α.	Valuation Date	October 1, 2017	October 1, 2016							
В.	Actuarial Present Value of Accumulated Plan Benefits									
	1. Vested Benefits									
	<ul><li>a. Members Currently Receiving Payments</li><li>b. Terminated Vested Members</li><li>c. Other Members</li><li>d. Total</li></ul>	\$ 74,199,341 7,475,931 27,918,521 109,593,793	\$ 72,050,248 6,105,015 27,383,152 105,538,415							
	2. Non-Vested Benefits	1,343,245	1,258,687							
	3. Total Actuarial Present Value of Accumulated Plan Benefits: 1d + 2	110,937,038	106,797,102							
	4. Accumulated Contributions of Active Members	4,560,941	4,474,455							
C.	Changes in the Actuarial Present Value of Accumulated Plan Benefits									
	1. Total Value at Beginning of Year	106,797,102	101,742,232							
	2. Increase (Decrease) During the Period Attributable to:									
	a. Plan Amendment	0	0							
	<ul><li>b. Change in Actuarial Assumptions</li><li>c. Latest Member Data, Benefits Accumulated</li></ul>	0	2,234,019							
	and Decrease in the Discount Period	11,111,753	9,355,916							
	d. Benefits Paid	(6,971,817)	(6,535,065)							
	e. Net Increase	4,139,936	5,054,870							
	3. Total Value at End of Period	110,937,038	106,797,102							
D.	Market Value of Assets	127,065,505	116,809,013							
E.	Actuarial Assumptions - See page entitled Actuarial Assumptions and Methods									



## SCHEDULE OF CHANGES IN THE EMPLOYER'S NET PENSION LIABILITY AND RELATED RATIOS GASB Statement No. 67

Fiscal year ending September 30,		2018*	2017	2016	2015	2014
Total Pension Liability						
Service Cost	\$	2,493,225	\$ 2,119,345	\$ 2,192,881	\$ 2,203,313	\$ 2,249,595
Interest		8,774,045	8,375,249	8,161,233	7,791,771	7,502,443
Benefit Changes		-	-	522,720	-	-
Difference between actual &						
expected experience		1,447,272	(821,344)	(1,097,920)	1,375,784	-
Assumption Changes		-	2,634,532	-	_	-
Benefit Payments		(7,346,828)	(6,903,465)	(6,468,203)	(5,882,586)	(5,355,711)
Refunds		(43,396)	(68,352)	(66,862)	(111,160)	(80,592)
Net Change in Total Pension Liability		5,324,318	5,335,965	3,243,849	5,377,122	4,315,735
Total Pension Liability - Beginning		122,223,203	116,887,238	113,643,389	108,266,267	103,950,532
Total Pension Liability - Ending (a)	\$	127,547,521	\$ 122,223,203	\$ 116,887,238	\$ 113,643,389	\$ 108,266,267
Plan Fiduciary Net Position						
Contributions - Employer	\$	2,114,120	\$ 1,969,163	\$ 2,046,827	\$ 2,168,946	\$ 2,093,769
Contributions - Member		632,254	717,598	618,705	948,466	1,126,054
Net Investment Income		8,964,375	14,474,143	11,005,137	445,258	12,196,449
Benefit Payments		(7,346,828)	(6,903,465)	(6,468,203)	(5,882,586)	(5,355,711)
Refunds		(43,396)	(68,352)	(66,862)	(111,160)	(80,592)
Administrative Expense		(79,944)	(77,552)	(82,336)	(73,706)	(79,025)
Other		-	-	-	-	
Net Change in Plan Fiduciary Net Position		4,240,581	10,111,535	7,053,268	(2,504,782)	9,900,944
Plan Fiduciary Net Position - Beginning		124,951,385	114,839,850	107,786,582	110,291,364	100,390,420
Plan Fiduciary Net Position - Ending (b)	\$ :	129,191,966	\$ 124,951,385	\$ 114,839,850	\$ 107,786,582	\$ 110,291,364
Net Pension Liability - Ending (a) - (b)		(1,644,445)	(2,728,182)	2,047,388	5,856,807	(2,025,097)
Plan Fiduciary Net Position as a Percentage						
of Total Pension Liability		101.29 %	102.23 %	98.25 %	94.85 %	101.87 %
Covered Payroll	\$	18,060,007	\$ 15,449,062	\$ 15,371,826	\$ 15,895,095	\$ 16,527,919
Net Pension Liability as a Percentage						
of Covered Payroll		(9.11)%	(17.66)%	13.32 %	36.85 %	(12.25)%



<sup>\*</sup> These figures are estimates only. Actual figures will be provided after the end of the fiscal year.

### SCHEDULE OF THE EMPLOYER'S NET PENSION LIABILITY GASB Statement No. 67

	Total			Plan Net Position		Net Pension Liability
FY Ending	Pension	Plan Net	Net Pension	as a % of Total	Covered	as a % of
September 30,	Liability	Position	Liability	Pension Liability	Payroll	Covered Payroll
2014	\$ 108,266,267	\$110,291,364	\$ (2,025,097)	101.87%	\$ 16,527,919	(12.25)%
2015	113,643,389	107,786,582	5,856,807	94.85%	15,895,095	36.85%
2016	116,887,238	114,839,850	2,047,388	98.25%	15,371,826	13.32%
2017	122,223,203	124,951,385	(2,728,182)	102.23%	15,449,062	(17.66)%
2018*	127,547,521	129,191,966	(1,644,445)	101.29%	18,060,007	(9.11)%

<sup>\*</sup>These figures are estimates only. Actual figures will be provided after the end of the fiscal year.



### NOTES TO SCHEDULE OF THE EMPLOYER'S NET PENSION LIABILITY GASB Statement No. 67

Valuation Date: October 1, 2017

Measurement Date: September 30, 2018

#### Methods and Assumptions Used to Determine Net Pension Liability:

Actuarial Cost Method Entry Age Normal

Inflation 3.0%

Salary Increases 4.4% - 7.2% based on service, including inflation

Investment Rate of Return 7.25%

Retirement Age Experience-based table of rates

Mortality RP-2000 Combined Healthy Participant Mortality Table (for pre-

retirement mortality) and the RP-2000 Mortality Table for Annuitants (for postretirement mortality), with mortality improvements projected to all future years after 2000 using Scale BB. For males, the base mortality rates include a 50% blue collar adjustment and a 50% white collar adjustment. For females, the base mortality rates include a 100% white collar adjustment. These are the same rates currently in use for Regular Class members of the Florida Retirement System (FRS), as mandated by Florida Statutes

Chapter 112.63.

Other Information:

Notes See Discussion of Valuation Results from the October 1, 2017

Actuarial Valuation Report.



### SCHEDULE OF CONTRIBUTIONS GASB Statement No. 67

	Actuarially		Contribution	Actual Contribution	
FY Ending	Determined	Actual	Deficiency	Covered	as a % of
September 30,	Contribution	Contribution	(Excess)	Payroll	Covered Payroll
2014	\$ 2,093,769	\$ 2,093,769	\$ -	\$ 16,527,919	12.67%
2015	2,168,946	2,168,946	-	15,895,095	13.65%
2016	2,046,827	2,046,827	-	15,371,826	13.32%
2017	1,969,163	1,969,163	-	15,449,062	12.75%
2018*	2,114,120	2,114,120	-	18,060,007	11.71%

<sup>\*</sup> These figures are estimates only. Actual figures will be provided after the end of the fiscal year.



### NOTES TO SCHEDULE OF CONTRIBUTIONS GASB Statement No. 67

Valuation Date: October 1, 2016

Notes Actuarially determined contributions are calculated as of October 1,

which is two years prior to the end of the fiscal year in which

contributions are reported.

#### Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method Entry Age Normal
Amortization Method Level Dollar, Closed

Remaining Amortization Period 25 years

Asset Valuation Method 5-year smoothed market

Inflation 3.0%

Salary Increases 4.4% - 7.2% based on service, including inflation

Investment Rate of Return 7.25%

Retirement Age Experience-based table of rates

Mortality RP-2000 Combined Healthy Participant Mortality Table (for pre-

retirement mortality) and the RP-2000 Mortality Table for Annuitants (for postretirement mortality), with mortality improvements projected to all future years after 2000 using Scale BB. For males, the base mortality rates include a 50% blue collar adjustment and a 50% white collar adjustment. For females, the base mortality rates include a 100% white collar adjustment. These are the same rates currently in use for Regular Class members of the Florida Retirement System (FRS), as mandated by Florida Statutes

Chapter 112.63.

Other Information:

Notes See Discussion of Valuation Results from the October 1, 2016

Actuarial Valuation Report.



### SINGLE DISCOUNT RATE GASB Statement No. 67

A single discount rate of 7.25% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.25%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between the total actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments (7.25%) was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the plan's net pension liability, calculated using a single discount rate of 7.25%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

### Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption for September 30, 2017 Reporting Date

	Current Single Discount						
1% Decrease Rate Assumption 1% Increase							
6.25%			7.25%	8.25%			
\$	11,392,776	\$	(2,728,182) \$	(14,619,220)			

### Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption for September 30, 2018 Reporting Date\*

	Current Single Discount							
	1% Decrease		Rate Assumption	1% Increase				
6.25%			7.25%	8.25%				
\$	13,062,321	\$	(1,644,445) \$	(14,027,265)				

\* These figures are estimates only. Actual figures will be provided after the end of the fiscal year.





**MISCELLANEOUS INFORMATION** 

	RECONCILIATION OF MEMBER	SHIP DATA	
	TECONCILIATION OF WILIVIDER	-	From 10/01/15
		To 10/01/17	To 10/01/16
Α.	Active Members	10 10/01/17	10 10/01/10
		224	220
1.	Number Included in Last Valuation	321	329
2.	New Members Included in Current Valuation	75	37
3.	Non-Vested Employment Terminations	(12)	(12)
4.	Vested Employment Terminations	(13)	(16)
5.	Service Retirements	(4)	(4)
6.	Disability Retirements	0	0
7.	Deaths	(1)	(1)
8.	Transfer to Police & Fire	0	0
9.	DROP Retirements	(7)	(12)
10.	ERIP and Early Retirements	(2)	0
11.	Number Included in This Valuation	357	321
B.	Terminated Vested Members		
1.	Number Included in Last Valuation	73	64
2.	Additions from Active Members	13	16
3.	Lump Sum Payments/Refund of Contributions	(3)	(5)
4.	Payments Commenced	(4)	(2)
5.	Deaths	0	(1)
6.	Other - Data Correction	0_	1_
7.	Number Included in This Valuation	79	73
C. I	DROP Plan Members		
1.	Number Included in Last Valuation	46	50
2.	Additions from Active Members	7	12
3.	Retirements	(14)	(16)
4.	Deaths Resulting in No Further Payments	, o	0
5.	Other	0	0
6.	Number Included in This Valuation	39	46
D.	Service Retirees, Disability Retirees and Beneficiaries	•	
1.	Number Included in Last Valuation	275	259
2.	Additions from Active Members	6	4
3.	Additions from Terminated Vested Members	4	2
4.	Additions from DROP Plan	14	16
5.	Deaths Resulting in No Further Payments	(5)	(8)
6.	Deaths Resulting in New Survivor Benefits	(6)	(4)
7.	End of Certain Period - No Further Payments	O O	O O
8.	Other-Beneficiaries of active and inactive deaths	8	6
9.	Number Included in This Valuation	296	275



	ACTIVE PARTICIPANT SCATTER											
				,	Years of Se	rvice to Val	uation Date	)				
Age Group	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30 & Up	Totals
20-24 NO.	1	4	0	1	0	0	0	0	0	0	0	6
TOT PAY	31,304	120,369	0	28,059	0	0	0	0	0	0	0	179,732
AVG PAY	31,304	30,092	0	28,059	0	0	0	0	0	0	0	29,955
25-29 NO.	0	5	4	3	0	0	0	0	0	0	0	12
TOT PAY	0	217,006	138,951	112,174	0	0	0	0	0	0	0	468,131
AVG PAY	0	43,401	34,738	37,391	0	0	0	0	0	0	0	39,011
30-34 NO.	1	8	4	3	2	7	3	0	0	0	0	28
TOT PAY	36,982	333,187	129,293	127,480	95,368	340,039	143,467	0	0	0	0	1,205,816
AVG PAY	36,982	41,648	32,323	42,493	47,684	48,577	47,822	0	0	0	0	43,065
35-39 NO.	0	12	2	5	3	10	6	2	0	0	0	40
TOT PAY	0	518,397	77,875	222,643	155,147	479,434	271,080	69,119	0	0	0	1,793,695
AVG PAY	0	43,200	38,938	44,529	51,716	47,943	45,180	34,560	0	0	0	44,842
40-44 NO.	0	5	2	2	0	2	12	7	0	0	0	30
TOT PAY	0	319,862	74,755	57,972	0	83,325	672,198	336,643	0	0	0	1,544,755
AVG PAY	0	63,972	37,378	28,986	0	41,662	56,016	48,092	0	0	0	51,492
45-49 NO.	1	10	5	2	0	9	15	8	8	3	1	62
TOT PAY	41,704	602,432	433,555	82,347	0	401,772	719,450	424,736	482,396	202,681	59,238	3,450,311
AVG PAY	41,704	60,243	86,711	41,174	0	44,641	47,963	53,092	60,300	67,560	59,238	55,650
50-54 NO.	0	8	4	4	4	8	13	17	9	5	1	_
TOT PAY	0	325,878	302,240	282,339	122,315	398,677	710,666	840,009	509,933	283,716	58,718	
AVG PAY	0	40,735	75,560	70,585	30,579	49,835	54,667	49,412	56,659	56,743	58,718	52,527
55-59 NO.	1	10	1	3	3	6	14	8	10	7	0	
TOT PAY	39,270	439,479	44,470	181,917	187,719	284,566	650,601	377,500	563,441	496,620	0	-,,
AVG PAY	39,270	43,948	44,470	60,639	62,573	47,428	46,472	47,188	56,344	70,946	0	51,835
60-64 NO.	1	8	4	0	2	6	10	4	1	1	1	38
TOT PAY	36,982	401,128	165,465	0	91,395	393,057	525,262	221,333	43,576	101,462	80,808	2,060,468
AVG PAY	36,982	50,141	41,366	0	45,698	65,510	52,526	55,333	43,576	101,462	80,808	54,223
65 & Up NO.	0	2	0	0	0	1	1	1	0	0	0	5
TOT PAY	0	95,992	0	0	0	55,203	42,515	63,315	0	0	0	- /
AVG PAY	0	47,996	0	0	0	55,203	42,515	63,315	0	0	0	51,405
TOT NO.	5	72	26	23	14	49	74	47	28	16	3	357
TOT AMT		3,373,730	1,366,604	1,094,931					1,599,346		198,764	18,060,007
AVG AMT	37,248	46,857	52,562	47,606	46,567	49,716	50,476	49,631	57,120	67,780	66,255	



	INACTIVE PARTICIPANT DISTRIBUTION									
	Terminated Vested Disabled Retired Beneficiary Total									
Age	Number	Benefits		Benefits		Benefits		Benefits	Number	
Under 20	0	0	0	0	0	0	2	10,846	2	10,846
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	1	12,648	1	12,648
30 - 34	1	11,688	0	0	0	0	1	3,000	2	14,688
35 - 39	5	31,510	0	0	0	0	2	12,409	7	43,919
		0 = /0 = 0		-	-	_	_	,		10,0 =0
40 - 44	11	115,100	0	0	0	0	2	2,511	13	117,611
45 - 49	17	305,739	0	0	0	0	4	13,282	21	319,021
50 - 54	22	439,386	0	0	3	129,177	1	12,534	26	581,097
55 - 59	21	318,453	2	34,011	23	967,859	2	43,843	48	1,364,166
		,		,		•		•		, ,
60 - 64	2	19,090	1	12,401	61	1,651,723	6	84,168	70	1,767,382
65 - 69	0	0	0	0	83	1,875,343	5	60,039	88	1,935,382
70 - 74	0	0	0	0	39	862,787	5	40,441	44	903,228
75 - 79	0	0	0	0	31	511,663	9	74,831	40	586,494
80 - 84	0	0	0	0	21	224,583	2	18,722	23	243,305
85 - 89	0	0	0	0	16	179,684	5	28,385	21	208,069
90 - 94	0	0	0	0	3	25,156	3	23,946	6	49,102
95 - 99	0	0	0	0	1	11,183	0	0	1	11,183
100 & Over	0	0	0	0	1	7,594	0	0	1	7,594
Total	79	1,240,966	3	46,412	282	6,446,752	50	441,605	414	8,175,735
Average Age		50		59		70		65		65



### **SECTION F**

**SUMMARY OF PLAN PROVISIONS** 

# City of Delray Beach General Employees' Retirement Plan SUMMARY OF PLAN PROVISIONS

#### A. Ordinances

The Plan was established under the Code of Ordinances for the City of Delray Beach, Florida, Title 3, Chapter 35, Sections 35.085-35.110 and was most recently amended under Ordinance No. 30-15 passed and adopted on its second reading on November 17, 2015. The Plan is also governed by certain provisions of Part VII, Chapter 112, <u>Florida Statutes</u> (F.S.) and the Internal Revenue Code.

#### **B.** Effective Date

January 1, 1965; restated April 22, 1974

#### C. Plan Year

October 1 through September 30

#### D. Type of Plan

Qualified, governmental defined benefit retirement plan; for GASB purposes it is a single employer plan.

#### E. Eligibility Requirements

Full-time employees who are not police officers or firefighters are eligible upon completion of one year of service. City commissioners may not be included.

#### F. Credited Service

Service is measured as the period of continuous employment, expressed in years and tenths of a year, as a general employee from the employee's most recent date of hire to the date of termination. Credited service includes all periods of paid leave and all periods of unpaid leave up to a maximum of 30 days except as required by the Uniformed Services Employment and Reemployment Rights Act of 1994.

In the event that a member of this plan also has credited service with the City as a police officer or firefighter subsequent to membership in this plan, then such other credited service shall be used in determining vesting and eligibility for normal retirement. Such other credited service will not be considered in determining benefits under this system.



#### **G.** Compensation

Basic compensation paid to a participant for services rendered to the City excluding overtime, commissions, bonuses, expenses allowances and any other extraordinary compensation.

#### H. Final Monthly Compensation (FMC)

For members hired on or before October 5, 2010, the average of the highest 36 consecutive months of Compensation out of the last 120 months of Credited Service immediately preceding retirement or termination; the FMC will not be less than the 24-month average of Compensation as of October 5, 2010. For members hired after October 5, 2010, the average of the highest 60 consecutive months of Compensation out of the last 120 months of Credited Service immediately preceding retirement or termination. Payments for unused leave are not included.

#### I. Normal Retirement

Eligibility:

Members within ten years of attaining age 60 or 30 years of service as of October 5, 2010 may retire on the first day of the month coincident with or next following the earlier of:

- (1) age 60 with 10 years of Credited Service, or
- (2) 30 years of Credited Service regardless of age.

Other members hired on or before October 5, 2010 may retire on the first day of the month coincident with or next following the earlier of:

- (1) age 62 with 10 years of Credited Service, or
- (2) 30 years of Credited Service regardless of age.

Members hired after October 5, 2010 may retire on the first day of the month coincident with or next following attainment of age 65 with 10 years of Credited Service.

Benefit:

2.50% of FMC multiplied by Credited Service with a maximum benefit of 75% of FMC. For members with 10 or more years of Credited Service, the minimum monthly benefit is \$500.

Members may elect to receive a 3% multiplier for future service (and a maximum benefit of 90% of Average Monthly Earnings) by contributing an additional 3.45% of pay. These members may also choose to purchase the 3% multiplier for past service by contributing the full actuarial cost.

Normal Form of Benefit:

Life annuity. For married participants within ten years of attaining age 60 or 30 years of service as of October 5, 2010, a monthly income payable for life of member; upon death of member, 100% of member's benefit payable to spouse



for one year and 60% thereafter until death or remarriage of spouse. Other optional forms are also available.

COLA: None

#### J. Early Retirement

Eligibility: A member may elect to retire earlier than the Normal Retirement Eligibility upon

attainment of:

(1) age 55 with 15 years of Credited Service, or(2) 20 years of Credited Service regardless of age.

Benefit: The Normal Retirement Benefit is actuarially reduced by 5% for each year by

which the Early Retirement date precedes the Normal Retirement date.

**Normal Form** 

of Benefit: Life annuity. For married participants within ten years of attaining age 60 or 30

years of service as of October 5, 2010, a monthly income payable for life of member; upon death of member, 100% of member's benefit payable to spouse for one year and 60% thereafter until death or remarriage of spouse. Other

optional forms are also available.

COLA: None

#### K. Delayed Retirement

Same as Normal Retirement taking into account compensation earned and service credited until the date of actual retirement.

#### L. Service Connected Disability

Eligibility: Any member who incurs a total and permanent disability arising out of and in the

course of city employment is immediately eligible for a disability benefit.

Benefit: 60% of FMC in effect at date of disability, reduced by amounts payable from

Social Security, and in certain cases, by compensation earned from other sources.

Benefit begins 5 months after the date of disability and is payable until the earlier of:

- (a) death
- (b) recovery from disability
- (c) age 65 for those who became disabled prior to age 60 or 5 years after the date of disability for those who became disabled after age 60.



Normal Form: Life annuity

COLA: None

#### M. Non-Service Connected Disability

Eligibility: Any member who becomes totally and permanently disabled after completing 10

years of Credited Service is immediately eligible for a disability benefit.

Benefit: 2.0% of FMC in effect at date of disability multiplied by Credited Service with a

maximum benefit of 50% of FMC. Benefits will be reduced by amounts payable from Social Security, and in certain cases, by compensation earned from other

sources.

Benefit begins 5 months after the date of disability and is payable until the earlier

of:

(a) death

(b) recovery from disability

(c) age 65 for those who became disabled prior to age 60 or 5 years after the

date of disability for those who became disabled after age 60.

Normal Form: Life annuity

COLA: None

#### N. Death in the Line of Duty

Eligibility: Any member whose death arises out of and in the course of city employment is

immediately eligible for a survivor benefit.

Benefit: \$10,000 lump sum, plus a monthly income of 60% of FMC on the date of death

payable to the spouse until death or remarriage, or in the case of a non-spouse beneficiary, the actuarial equivalent of the member's lifetime benefit of 60% of FMC payable for life, <u>plus</u> a monthly income of 7 1/2% of the FMC payable to each unmarried child under age 18 (age 22 if full-time student), subject to an overall

limitation of 90% of FMC.

Normal Form

of Benefit: Lump sum in addition to monthly benefits payable until death or the remarriage

of a spouse. Children's benefits are payable until death, marriage or the

attainment of age 18 (age 22 if a full-time student).

COLA: None



#### O. Other Pre-Retirement Death

Eligibility: Members are eligible for survivor benefits after the completion of 1 or more years

of Credited Service.

Benefit: For those with less than 5 years of Credited Service, a \$5,000 lump sum is

payable to the spouse or designated beneficiary.

For those with 5 or more years of Credited Service, a \$10,000 lump sum, <u>plus</u> a monthly income paid to the spouse until death or remarriage equal to 65% of the member's Normal Retirement Benefit accrued on the date of death with a minimum equal to 20% of the member's FMC, or in the case of a non-spouse beneficiary, the actuarial equivalent of the member's lifetime benefit of 65% of the member's Normal Retirement Benefit paid for life, <u>plus</u> a monthly income of 7 1/2% of the FMC payable to each unmarried child under age 18 (age 22 if full-time

student), subject to an overall limitation of 50% of FMC.

**Normal Form** 

of Benefit: Lump sum in addition to monthly benefits payable until death or the remarriage

of a spouse. Children's benefits are payable until death, marriage or the

attainment of age 18 (age 22 if a full-time student).

COLA: None

#### P. Post Retirement Death

Benefit determined by the form of benefit elected upon retirement.

#### Q. Optional Forms

In lieu of electing the Normal Form of benefit, the optional forms of benefits available to retirees are the 10 Year Certain and Life option or the 50%, 66 2/3%, 75% or 100% Joint and Survivor options. Lump sums may be paid when the monthly benefit is less than \$50.

#### R. Vested Termination

Eligibility: A member has earned a non-forfeitable right to Plan benefits after the completion

of 5 years of Credited Service (See vesting table below).

Benefit: The benefit is the member's accrued Normal Retirement Benefit as of the date of

termination. Benefit begins at the Normal Retirement Date.

**Normal Form** 

of Benefit: Life annuity. For married participants within ten years of attaining age 60 or 30

years of service as of October 5, 2010, a monthly income payable for life of member; upon death of member, 100% of member's benefit payable to spouse for one year and 60% thereafter until death or remarriage of spouse. Other

optional forms are also available.



COLA: None

Vesting is determined in accordance with the following table.

YEARS OF	% OF NORMAL RETIREMENT				
CREDITED SERVICE	BENEFITS				
Less Than 5	None				
5	50%				
6	60				
7	70				
8	80				
9	90				
10 or more	100				

#### S. Non-vested Termination

Eligibility: All members terminating employment with less than 5 years of Credited Service

are eligible.

Benefit: Refund of the member's contributions.

#### T. Member Contributions

3.05%. Those members who elect to receive the 3% multiplier must contribute an additional 3.45%, for a total of 6.50%. Contributions cease upon attainment of 30 years of Credited Service.

#### **U.** Employer Contributions

The amount determined by the actuary needed to fund the plan properly according to State laws.

#### V. Cost of Living Increases

Not Applicable

#### W. 13<sup>th</sup> Check

Not Applicable

#### X. Deferred Retirement Option Plan

Eligibility: Members within ten years of attaining age 60 or 30 years of service as of October

5, 2010 who have met one of the following criteria are eligible for the DROP:

(1) age 60 with 10 years of Credited Service, or

(2) 30 years of Credited Service regardless of age.



Other members hired on or before October 5, 2010 who have met one of the following criteria are eligible for the DROP:

(1) age 62 with 10 years of Credited Service, or

(2) 30 years of Credited Service regardless of age.

Members hired after October 5, 2010 are eligible for the DROP upon attaining age 65 with 10 years of Credited Service.

Members who meet eligibility must submit a written election to participate in the DROP.

Benefit: The member's Credited Service and FMC are frozen upon entry into the DROP.

The monthly retirement benefit as described under Normal Retirement is

calculated based upon the frozen Credited Service and FMC.

Maximum

DROP Period: 60 months

Interest

Credited: The member's DROP account is credited at an interest rate equal to the actual

investment return earned by the pension plan or by the member's self directed

investments.

Normal Form

of Benefit: Lump Sum, or equal quarterly or annual installments spread over a period of time

designated by the retiree.

#### Y. Other Ancillary Benefits

There are no ancillary benefits-retirement type benefits not required by statutes but which might be deemed a City of Delray Beach General Employees' Retirement Plan liability if continued beyond the availability of funding by the current funding source.

#### Z. Changes from Previous Valuation

See Section A of the report under the Revisions in Benefits section.

