West Palm Beach Police Pension Fund

ANNUAL ACTUARIAL VALUATION AS OF SEPTEMBER 30, 2018





OUTLINE OF CONTENTS REPORT OF SEPTEMBER 30, 2018 ACTUARIAL VALUATION

Section	Page	
		Cover Letter
		Valuation Results, Comments, Conclusion, Recommendations and Statement b Enrolled Actuary, Actuarial Experience and Accrued Liabilities
А	1-3	Funding Objective and Contribution Rates
	4-5	Funding Progress Indicators
	6	Comments and Conclusion
	7-9	Risks Associated with Measuring the Accrued Liability and Actuarially Determine
		Contribution
	10	Experience Gain (Loss)
	11	Sources and Financing of UAAL
	12	Unfunded Actuarial Accrued Liability
	13	Historical Contributions Schedule
	14-15	Notes to Historical Contributions Schedule
	16	Actuarial Balance Sheet
		Summary of Benefit Provisions and Valuation Data Submitted by the Pension Func
В	1-3	Benefit Provisions
	4-6	Accounting & Asset Information
	7	Reconciliation of DROP and Share Plan Accounts
	8	Determination of Fixed Interest Crediting Rate for DROP and Share Plan Accounts
	9-11	Supplemental Pension Distribution
	12	Reconciliation of Membership
	13-16	Active, Retired, Beneficiary, and Vested Terminated Data
		Actuarial Cost Method, Actuarial Assumptions and Definitions of Technical Terms
С	1	Actuarial Cost Method
	2	Amortization of UAAL
	3-12	Actuarial Assumptions
	13-14	Definitions
		Disclosures Required by Governmental Accounting Standards Board Statement No. 67
D	1	Schedule of Changes in the Employer's Net Pension Liability and Related Ratios
	2	Schedule the Employer's Net Pension Liability
	3	Notes to Schedule the Employer's Net Pension Liability
	4	Schedule of Contributions
	5	Notes to Schedule of Contributions
	6	Single Discount Rate and Sensitivity Analysis
		Summary of Valuation Results in State Format

E 1-3 Valuation Summary



March 6, 2019

The Board of Trustees West Palm Beach Police Pension Fund West Palm Beach, Florida

Re: West Palm Beach Police Pension Fund Actuarial Valuation as of September 30, 2018

The results of the September 30, 2018 Annual Actuarial Valuation of the West Palm Beach Police Pension Fund are presented in this report.

This report was prepared at the request of the Board and is intended for use by the Pension Fund 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 purposes of the valuation are to measure the System's funding progress, to determine the employer contribution rate for the fiscal year ending September 30, 2020, and to determine the actuarial information for GASB Statement No. 67 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 contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section B of this report. This report includes risk metrics in Section A but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

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.

The findings in this report are based on data or other information through September 30, 2018. The valuation was based upon information furnished by the Plan Administrator concerning Pension Fund 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.

This report was prepared using certain assumptions approved by the Board as authorized under Florida Statutes 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 in accordance with Chapter 112.63, Florida Statutes. All actuarial assumptions used in this report are reasonable for purposes of this valuation.

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 Pension Fund 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 and Report with the Board of Trustees and to answer any questions pertaining to the valuation.

Respectfully submitted,

GABRIEL, ROEDER, SMITH AND COMPANY

Jeffrey S. Amrose, EA, MAAA Enrolled Actuary No. 17-6599

By \

Trisha Amrose, EA, MAAA Enrolled Actuary No. 17-8010



SECTION A

VALUATION RESULTS, COMMENTS, CONCLUSION, RECOMMENDATIONS, ACTUARIAL EXPERIENCE AND ACCRUED LIABILITIES The funding objective for the defined benefit provisions of the Pension Fund is to establish and receive contributions, expressed as percents of active member payroll, which will remain approximately level from year to year and will not have to be increased for future generations of citizens in the absence of benefit changes. This objective is stated in the Pension Fund special act and meets the requirements of Part VII, Chapter 112, Florida Statutes and Chapter 185 Florida Statutes.

CONTRIBUTION RATES

The defined benefit provisions of the Pension Fund are supported by member contributions, City contributions, Chapter 185 revenue (for fiscal years beginning October 1, 2011, October 1, 2012, and October 1, 2014), and investment income from Pension Fund assets.

The Share Accounts are supported by Chapter 185 receipts and investment income. No Share Plan allocations were made for fiscal years ending September 30, 2011, September 30, 2012, and September 30, 2014. Individual Share and DROP Accounts may accept accumulated leave paid out at termination up to the amount permitted by law.

Contributions which satisfy the funding objective are determined by the annual actuarial valuation and are sufficient to:

- (1) cover the actuarial costs allocated to the current year (normal cost) by the actuarial cost methods described in Section C; and
- (2) finance over a period of future years the actuarial costs not covered by present assets and anticipated future normal costs (unfunded actuarial accrued liability).

Contribution requirements for the plan year beginning October 1, 2019 are shown on page A-2. It is anticipated that the contribution will be paid to the Fund during the Plan and Fiscal year beginning October 1, 2019.



Defined Benefit Contributions for	Contri		s Expressed			Contributions Expressed as Percents of Payroll Including DROP				
For Fiscal Year Beginning	October 1, 2019			,	October 1, 2019					
	After Assumption Change		Before Assumption Change	_	October 1, 2018	After Assumption Change		Before Assumption Change	_	October 1, 2018
Normal Cost:										
Service pensions	20.02	%	19.40	%	19.35 %	18.56	%	17.99	%	16.93 %
Disability pensions	1.66		1.63		1.63	1.54		1.51		1.43
Survivor pensions										
Pre-retirement	0.38		0.36		0.36	0.35		0.33		0.31
Post-retirement	1.42		1.35		1.37	1.32		1.25		1.20
Termination benefits:										
Deferred service pensions	1.16		1.12		1.13	1.08		1.04		0.99
Refunds of member contributions	0.77		0.78		0.78	0.71		0.72		0.68
Total Normal Cost	25.41		24.64		24.62	23.56	_	22.84	-	21.54
Unfunded Actuarial Accrued Liability (UAAL):										
Retired members and beneficiaries	0.00		0.00		0.00	0.00		0.00		0.00
Active and vested terminated members	4.18		3.29		3.30	3.88		3.06		2.89
Total UAAL	4.18		3.29		3.30	3.88	-	3.06	-	2.89
Administrative Expenses										
(net of charges to Share and DROP accounts)	0.97		0.97		1.01	0.90		0.90		0.88
Total Calculated Contribution Requirement	30.56	%	28.90	%	28.93 %	28.34	%	26.80	%	25.31 %
Adjustments to Calculated Contribution Requirer	ment:									
Temporary full funding credit	0.00		0.00		0.00	0.00		0.00		0.00
FS112.64(5) compliance	1.83	_	1.40		1.42	1.72	_	1.32	_	1.24
Total adjustments	1.83		1.40		1.42	1.72	-	1.32	-	1.24
Total Adjusted Contribution Requirement:	32.39	%	30.30	%	30.35 %	30.06	%	28.12	%	26.55 %
Member portion	11.00	%	11.00	%	11.00 %	10.20	%	10.20	%	9.62 %
Chapter 185 portion	0.00	%	0.00	%	0.00 %	0.00	%	0.00	%	0.00 %
City portion	21.39	%(2)	19.30	%	19.35 %	19.86	%	17.92	%	16.93 %
Expected Covered Payroll for Contribution Year	25,417,395		25,417,395		23,405,258	27,409,503		27,409,503		26,749,739
City Contribution Requirement Paid Quarterly City Contribution Requirement Paid at	5,436,782		4,905,558		4,528,918	5,436,782		4,905,558		4,528,918
Beginning of Fiscal Year	5,240,652		4,725,848		4,363,006	5,240,652		4,725,848		4,363,006

CONTRIBUTIONS NEEDED TO FINANCE DEFINED BENEFITS OF THE PENSION FUND

Unfunded actuarial accrued liability is financed as a level percent of member payroll. Please refer to page A-11 for a schedule of financing periods.

FS 112.64 requires City contributions to be deposited not less frequently than quarterly. Member contributions, which are in addition to City contributions, must be deposited immediately after each pay period. Chapter 185 monies must be deposited within 5 days of receipt from the State.

Procedures for determining dollar contribution amounts are shown on page A-3.

(1) Please refer to page A-3 for an explanation.

(2) This amount is reduced to 20.62% of covered UnDROPed payroll if the contribution is made on October 1, 2019.



For any period of time, the percent-of-payroll contribution rate needs to be converted to dollar amounts. We recommend the following procedure.

Contribute \$5,436,782. This amount is derived from the City portion of the contribution rate on page A-2. The unDROPed payroll was increased by a factor of 1.068254 (1.045^{1.5}) to reflect projected payroll growth to the beginning of the fiscal year during which the contribution will be made.

The above contribution amount was calculated on the basis of contributions being made in a manner which is financially equivalent to making one-quarter of the contribution at the mid-point of each calendar quarter. If contributions are made on a later schedule, interest should be added at the rate of 0.61% (.0061) for each month of delay. If 100% of the City's contribution is made on an earlier schedule, the City's contribution requirement may be reduced. For an October 1, 2019 contribution date, the City's contribution requirement is \$5,240,652.

The actual employer contribution received during the fiscal year ending September 30, 2018 was \$3,556,968. This payment was made on October 1, 2017. The actuarially determined minimum required contribution, reflecting an October 1, 2017 payment date, was \$3,131,968. Based on this, the City over-contributed by \$425,000.



There is no single all-encompassing measure of a pension fund's funding progress and current funded status.

A traditional measure has been the relationship of the funding value of assets to unfunded actuarial accrued liability -- a measure that is influenced by the choice of actuarial cost method. This relationship is shown on page A-12.

We believe a better understanding of funding progress and status can be achieved using the following measures which are less dependent on the actuarial cost method.

Indicator (1) **Gains or losses realized in the operation of the pension fund**. Gains and losses are expected to cancel each other over a period of years but sizable year to year fluctuations are common. Further details on the derivation of the gain (loss) are shown on page A-10.

Indicator (2) **The ratio of valuation assets to the accrued liability**. The ratio is expected to increase but the trend may be interrupted by actuarial losses and benefit improvements.

Indicator (3) **The ratio of the unfunded accrued liability to member payroll**. The ratio is expected to decrease but the trend may be interrupted by actuarial losses and benefit improvements.



FUNDING PROGRESS INDICATORS - HISTORICAL SCHEDULE

(\$ AMOUNTS IN THOUSANDS)

	Indicator 1	Ir	ndicator 2			Indicator 3	
Valuation Date	Gain	Funding Value of		Funded Ratio	Unfunded	Member	Ratio to
September 30	(Loss)	Assets	AAL	Funded Ratio	AAL	Payroll#	Payroll
1995 (a)	7,969	65,446	68,466	95.6 %	3,020	8,942	33.8
1996	3,801	75,829	75,233	100.8	(596)	8,813	(6.8)
1997	11,915	97,029	84,212	115.2	(12,817)	9,255	(138.5)
1998 (a)	(2,055)	106,055	95,292	111.3	(10,763)	10,974	(98.1)
1999	1,317	117,800	106,614	110.5	(11,186)	11,753	(95.2)
2000	1,307	127,732	116,825	109.3	(10,907)	12,645	(86.3)
2001	(1,194)	130,913	121,161	108.0	(9,752)	14,174	(68.8)
2002	(20,340)	121,789	132,426	92.0	10,637	15,589	68.2
2003 (a)	(6,970)	126,420	145,824	86.7	19,403	17,355	111.8
2004 (a)	(8,290)	128,623	153,354	83.9	24,731	17,834	138.7
2005	(1,394)	139,646	165,387	84.4	25,740	17,853	144.2
2006	(1,345)	154,408	182,231	84.7	27,823	18,391	151.3
2007	18,832	187,332	200,536	93.4	13,204	19,543	67.6
2008	(8,914)	191,001	209,842	91.0	18,841	21,394	88.1
2009	(11,643)	193,614	224,471	86.3	30,858	21,264	145.1
2010	(6,545)	197,179	235,148	83.9	37,969	19,830	191.5
2011 (a)	(14,464)	193,879	254,617	76.1	60,737	19,142	317.3
2012 (a)	(3,649)	206,006	272,724	75.5	66,718	16,575	402.5
2013 (a)	3,186	225,469	289,949	77.8	64,479	16,819	383.4
2014 (a)	3,621	245,070	305,376	80.3	60,306	17,461	345.4
2015 (a)	2,094	313,182	322,692	97.1	9,510	19,210	49.5
2016 (a)	(622)	335,208	342,892	97.8	7,684	20,369	37.7
2017 (a)	(567)	352,552	366,391	96.2	13,839	21,910	63.2
2018 (b)	(118)	371,296	385,908	96.2	14,612	23,793	61.4
2018 (a)	(118)	371,296	390,387	95.1	19,091	23,793	80.2

(a) After changes in benefit provisions and/or actuarial assumptions and/or actuarial cost methods.

(b) Before changes in benefit provisions and/or actuarial assumptions and/or actuarial cost methods.

Excludes DROP participants.

AAL represents actuarial accrued liability



COMMENT A

The investment return assumption was lowered from 7.75% to 7.625% effective for the September 30, 2018 Actuarial Valuation. The assumed rate will continue to be lowered by 0.125% to 7.50% for the September 30, 2019 Actuarial Valuation.

This assumption change increased the Required Employer Contribution by \$531,224 or 2.09% of covered payroll.

COMMENT B

The activities of the Pension Fund and its members generated an experience loss of \$118,171 during the plan year ended September 30, 2018. Please refer to pages B-6, B-17, C-4, C-5, and C-6 for additional experience information.

Currently the actuarial value of assets, which is used to determine the contribution requirements and funded ratios for the Fund, is less than the market value by 3%, or \$13.2 million (see page B-6). This means that there are gains from prior periods as well as the current fiscal year that will be recognized in the 2019-2021 reports. These gains will put downward pressure on the contribution requirements and upward pressure on the funded ratios in those reports. If these gains were recognized on September 30, 2018, the City contribution would decrease by 4.75% of covered payroll to 16.64% of covered payroll (\$4,229,455 if made quarterly or \$4,076,879 if made on October 1, 2019) and the funded ratio would increase from 95.1% to 98.5%.

COMMENT C

Another potential area of variability has to do with the annual payment on the unfunded accrued liability (UAL). This payment is computed as a level percent of covered payroll under the assumption that covered payroll will rise by 4.5% per year. According to the Florida Statutes, this payroll growth assumption may not exceed the average growth over the last ten years which is 1.07%. Amortizing the UAL as a level percent of payroll using a 1.07% payroll growth assumption instead of a 4.5% payroll growth assumption caused the required contribution to increase by approximately \$465,000. The covered payroll would need to at least remain level next year so that 10-year average payroll growth does not decrease.

CONCLUSION

The remainder of the Report includes detailed actuarial valuation results, financial information, miscellaneous information and statistics, and a summary of plan provisions.



RISKS ASSOCIATED WITH MEASURING THE ACCRUED LIABILITY AND ACTUARIALLY DETERMINED CONTRIBUTION

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 due to changing conditions; 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 future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

- 1. Investment risk actual investment returns may differ from the expected returns;
- 2. Contribution risk actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
- 3. Salary and Payroll risk actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
- 4. Longevity risk members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
- 5. Other demographic risks members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The computed contribution rate shown on page 1 may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.



PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	<u>2018</u>	<u>2017</u>
Ratio of the market value of assets to payroll	15.81	16.13
Ratio of actuarial accrued liability to payroll	16.05	16.36
Ratio of actives to retirees and beneficiaries	1.1	1.0
Ratio of net cash flow to market value of assets	-2.77 %	-3.04 %

RATIO OF MARKET VALUE OF ASSETS TO PAYROLL

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A supermature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.



ADDITIONAL RISK ASSESSMENT

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.



Experience Gain (Loss) for Year Ended September 30, 2018 (Defined Benefit)

(1) UAAL at start of year	\$	13,838,615
(2) Normal cost for year (ER normal cost and expenses x unDROPed pay)		3,288,041
(3) Actual City and State Contribution		3,556,968
(4) Interest accrual [(1) + 1/2 x (2) - (3)] x .0775		924,239
 (5) Expected UAAL before changes (1) + (2) - (3) + (4) 		14,493,927
(6) Effect of assumption/method changes		4,479,077
(7) Effect of benefit changes		0
(8) Addition to supplemental pension distribution reserve		0
(9) Expected UAAL after changes(5) + (6) + (7) + (8)		18,973,004
(10) Actual UAAL at end of year		19,091,175
(11) Gain/(Loss) (9) - (10)	<u>\$</u>	(118,171)

UAAL represents unfunded actuarial accrued liability.



Sources and Financing of Unfunded Actuarial Accrued Liability

			Remaining	After C	hanges	Before C	Changes
Source of Unfunded	Initial	Current	Financing	Amortization	% of Payroll	Amortization	% of Payroll
Act. Accrued Liab.	Amount	Amount	Period	Payment	Contribution	Payment	Contribution
Combined unfunded actuarial acc	rued liability at O	ctober 1, 2011					
9/30/2011	60,737,449	426,887	7.7062 yrs.	69,886	0.29%	70,174	0.29%
Changes from experience deviation	ons (20 year initia	financing period)					
9/30/2012	3,649,317	1,022,846	14	109,851	0.45%	110,616	0.45%
9/30/2013	(3,185,651)	(984,501)	15	(101,355)	(0.42)%	(102,103)	(0.42)%
9/30/2014	(3,620,537)	(1,220,544)	16	(120,954)	(0.50)%	(121,894)	(0.50)%
9/30/2015	(2,093,970)	(760,912)	17	(72,845)	(0.30)%	(73,440)	(0.30)%
9/30/2016	621,595	609,999	18	56,593	0.23%	57,077	0.23%
9/30/2017	567,465	591,754	19	53,353	0.22%	53,828	0.22%
9/30/2018	118,171	118,171	20	10,379	0.04%	10,476	0.04%
Changes from actuarial assumption	on revisions (30 ye	ear initial financing p	eriod)				
9/30/2012	1,753,834	774,544	24	62,506	0.26%	63,167	0.26%
9/30/2013	1,880,736	850,967	25	67,505	0.28%	68,239	0.28%
9/30/2014	2,022,515	939,661	26	73,368	0.30%	74,188	0.31%
9/30/2015	2,066,046	983,201	27	75,650	0.31%	76,518	0.31%
9/30/2016	5,032,585	5,075,781	28	385,278	1.58%	389,803	1.60%
9/30/2017	3,897,386	4,085,261	29	306,214	1.26%	309,894	1.27%
9/30/2018	4,479,077	4,479,077	30	331,836	1.36%	N/A	N/A
Changes from amendments (30 ye	ear initial financin	g period)					
9/30/2017	2,002,454	2,098,983	29	157,331	0.65%	159,221	0.65%
		<u>\$ 19,091,175</u>		<u>\$ 1,464,596</u>	<u>6.01%</u>	<u>\$ 1,145,764</u>	<u>4.69%</u>



	9/30)/2018	9/30/2017
	After Assumption Change	Before Assumption Change	
 A. Actuarial present value of future benefits including Share Account balances of \$51,201,359 and \$48,430,228 and DROP Account balances of \$57,287,179 and \$54,956,709 	\$ 438,758,953	\$ 432,442,204	\$ 410,439,639
B. Actuarial present value of future normal costs	<u>48,371,934</u>	<u>46,534,262</u>	<u>44,049,102</u>
C. Actuarial accrued liability	390,387,019	385,907,942	366,390,537
D. Funding value of assets	<u>371,295,844</u>	<u>371,295,844</u>	<u>352,551,922</u>
E. Unfunded actuarial accrued liability	<u>\$ 19,091,175</u>	<u>\$ 14,612,098</u>	<u>\$ 13,838,615</u>



RECOMMENDED AND ACTUAL CONTRIBUTIONS FOR DEFINED BENEFITS HISTORICAL SCHEDULE

		City Dollar Co	Recommended City	
	Valuation Date			Percent of Payroll
Fiscal Year	9/30	Recommended	Actual *	Contribution Rates
82/83	1981	\$ 777,053	\$ 818,769	23.93 %
83/84 (a)	1982	865,930	944,636	22.86
84/85	1983	913,867	990,862	21.50
85/86 (a)	1984	961,431	1,113,735	21.52
86/87	1985	986,683	1,190,205	20.53
87/88 (a)	1986	1,210,379	1,585,161 (1)	20.74 #
88/89 (a)	1987	1,423,887	1,627,024	22.01 #
89/90	1988	1,723,519	1,937,986	23.28
90/91	1989	1,929,004	2,264,201	24.01
91/92	1990	2,127,589	1,658,885 @	24.80
92/93	1991	2,219,809	2,117,441 @	24.11
93/94	1992	2,257,412	2,235,881 @	23.42
94/95 (a)	1993	2,238,679	2,213,297 @	23.81
95/96 (a)	1994	2,446,700	2,446,256 @	25.91
96/97 (a)	1995	2,332,069	2,332,069	24.24
97/98	1996	2,230,247	1,747,540 @	23.52
98/99	1997	1,764,510	1,764,510	17.72
99/00 (a)	1998	1,462,965	1,483,807	12.39
00/01	1999	1,474,445	1,487,320	11.66
01/02	2000	1,699,292	1,699,815	12.49
02/03	2001	1,974,891	1,975,410	12.95
03/04	2002	3,498,786	3,498,068	20.86
04/05 (a)	2003	4,197,731	4,197,731	22.48
05/06 (a)	2004	3,799,257	3,799,257	19.80
06/07	2005	3,812,530	3,812,530	20.65
07/08	2006	4,056,590	4,056,590	21.49
08/09	2007	3,433,646	3,433,646	16.99
09/10	2008	4,057,571	4,057,571	17.63
10/11	2009	5,028,968	5,028,968	21.98
11/12 (a)	2010	4,796,575	4,796,576	27.15
12/13 (a)	2011	6,506,923	6,506,923	31.82
13/14 (a)	2012	8,941,538	8,941,538	50.50
14/15 (a)	2013	8,644,805	8,644,805	48.30
15/16 (a)	2014	9,726,454	9,726,454	52.14
16/17 (a)	2015	3,285,065	3,285,065	15.91
17/18 (a)	2016	3,131,968	3,556,968	14.39
18/19 (a)	2017	4,363,006		18.64
19/20 (b)	2018	4,725,848		18.59
19/20 (a)	2018	5,240,652		20.62

(b) Before changes in benefit provisions and/or actuarial assumptions and/or actuarial cost methods.

(a) After changes described in (b).

Recomputed to reflect 1988 Amendments to the Special Act.

(1) Including compliance issue City contribution receivable of \$267,441 from 87/88 fiscal year.

@ Excluding the difference between recommended and actual which was transferred from the reserve for prepaid contributions.

* The actual contributions were made throughout the fiscal year prior to October 1, 2006. Since then, the actual contributions are made at the beginning of the fiscal year, resulting in the adjustment from the corresponding recommended contributions.



9/30/1998 Valuation: Effective October 1, 1999, increase from 2.5% to 3.0% multiplier for service after March 31, 1987, increase from 6.45% to 7.0% member contributions, and increase the minimum from 7.0% to 8.25% investment return for the 13th check threshold.

<u>9/30/2001 Valuation</u>: First report to use a 4 year smoothed market value asset valuation method.

<u>9/30/2002 Valuation</u>: Removed Share Accounts from smoothed market value.

<u>9/30/2003 Valuation</u>: First report to include minimum 66 2/3% of pay for Duty Death in service. Investment expenses removed from Contribution requirement. Removed DROP Accounts from smoothed market value.

<u>9/30/2004 Valuation</u>: The member contribution rate for pensions will increase to 9% of salary effective January 1, 2005, to 10.0% of salary effective January 1, 2006, and to 11.0% of salary effective January 1, 2007. Overtime includable in Final Average Salary was prospectively limited to 400 hours per year.

<u>9/30/2010 Valuation</u>: The Chapter 185 revenue of \$996,459 received during calendar year 2011 will be used to offset the required contribution for the fiscal year beginning October 1, 2011.

9/30/2011 Valuation: The Chapter 185 revenue received during calendar year 2012 will be used to offset the required contribution for the fiscal year beginning October 1, 2012. The benefit multiplier for service accrued after September 30, 2011 was lowered from 3.00% to 2.68%. Effective January 1, 2013, the limit on the amount of overtime that is included in pensionable compensation is lowered from 400 hours to 300 hours. The investment return assumption was lowered from 8.25% to 8.00%, along with additional changes in actuarial assumptions as a result of the Ten Year Experience Study Report covering the period October 1, 2000 through September 30, 2010.

9/30/2012 Valuation: This valuation reflects the second year of phasing in the recognition of the mortality table change from the 1983 Group Annuity Mortality Table to the RP-2000 Combined Healthy Participant Mortality Table using Scale AA after 2000 to reflect future mortality improvements.

<u>9/30/2013 Valuation</u>: This valuation reflects the third year of phasing in the recognition of the mortality table change detailed above.

<u>9/30/2014 Valuation</u>: This valuation reflects the fourth year of phasing in the recognition of the mortality table change detailed above.

<u>9/30/2015 Valuation</u>: This valuation reflects the fifth and final year of phasing in the recognition of the mortality table change detailed above.



9/30/2016 Valuation: The investment return assumption was lowered from 8.00% to 7.875%. The mortality assumption was changed from the RP-2000 Combined Healthy Participant Mortality Table for males and females with mortality improvements projected to all future years after 2000 using Scale AA to the mortality assumption used by the Florida Retirement System (FRS) for Special Risk Class members in the actuarial valuation as of July 1, 2016.

<u>9/30/2017 Valuation</u>: The investment return assumption was lowered from 7.875% to 7.75%. The Special Act was amended by increasing the benefit multiplier from 2.68% to 3.00% for Credited Service earned on or after October 1, 2017.

<u>9/30/2018 Valuation</u>: The investment return assumption was lowered from 7.75% to 7.625%.



Present Resources And Expected Future Resources					
	After	Before			
	Assumption	Assumption			
	Change	Change			
A. Funding Value of Plan Assets					
Funding Value of Assets	\$ 262,807,306	\$ 262,807,306			
Share Accounts	51,201,359	51,201,359			
DROP Accounts	57,287,179	57,287,179			
Total Assets	371,295,844	371,295,844			
B. Actuarial Present Value of Expected Future Employer Contributions:					
1. For Normal Costs	27,331,762	25,656,472			
2. For UAAL	19,091,175	14,612,098			
3. Total	46,422,937	40,268,570			
C. Actuarial Present Value of Expected					
Future Member Contributions	21,040,172	20,877,789			
D. Total Present and Expected Future Resources	\$ 438,758,953	\$ 432,442,204			

Present Resources And Expected Future Resources

Actuarial Present Value of Expected Future Benefit Payments and Reserves

benefit Payments and	After Assumption Change	Before Assumption Change
A. To retirees and beneficiaries	\$ 173,113,869	\$ 170,834,302
B. To vested terminated members	2,308,493	2,264,849
 C. To present active members: 1. Allocated to service rendered prior to valuation date 2. Allocated to service likely to be rendered after valuation date 3. Total 	106,476,119 <u>48,371,934</u> 154,848,053	104,320,253 <u>46,534,262</u> 150,854,515
D. Total actuarial present value of expected future benefit payments	330,270,415	323,953,666
E. Reserve for Chapter 185 Share Accounts	51,201,359	51,201,359
F. Reserve for Supplemental Pension Distribution	0	0
G. Reserve for DROP balances	57,287,179	57,287,179
H. Reserve for Fixed Interest	0	0
 Total actuarial present value of expected future payments and reserves 	\$ 438,758,953	\$ 432,442,204



SECTION B

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA SUBMITTED BY THE PENSION FUND

Normal Retirement:

Eligibility - 25 or more years of continuous service; or, 55 years of age with 10 or more years of service; or, 50 years of age with 20 or more years of service.

Amount of Pension - 2.5% of final average salary times credited service earned through March 31, 1987; plus 3.0% of final average salary times credited service earned after March 31, 1987 through September 30, 2011; plus 2.68% of final average salary times credited service earned after September 30, 2011 through September 30, 2017; plus 3.00% of final average salary times credited service earned after September 30, 2017, for service up to 26 years; plus 1% of final average salary times credited service in excess of 26 years.

Type of Final Average Salary - Average of salary for 3 best years. Salary excludes lump sum payments for accumulated leave and contractual overtime. Other overtime is limited to 400 hours per year effective January 1, 2005. This limit is reduced to 300 hours starting January 1, 2013.

Post-Retirement Cost-of-Living Adjustments - Each January I following attainment of age 65, benefits will be adjusted by 3% of the base amount providing the cost of living, as measured by the Consumer Price Index, has increased at least 3%.

Early Retirement:

Eligibility - 50 years of age with 10 or more years of service.

Amount of Pension - Computed as normal retirement reduced 3% for each year retirement precedes normal retirement age.

Deferred Retirement:

Eligibility - 10 or more years of credited service.

Amount of Pension - Computed as normal or early retirement, based upon FAS and service credit at date of termination. Payment begins upon application on or after age 50.

Duty Disability Retirement:

Eligibility - Permanent disability preventing useful and efficient service as a police officer, which was acquired as a consequence of performing the duties of a police officer.

Amount of Pension - The amount of accrued normal retirement pension subject to the applicable following provisions. To the later of age 55 or 5 years after disability, minimum benefit is 2/3 of FAS. After expiration of the minimum benefit, computed as regular retirement but with additional service credit granted to the later of age 55 or 5 years after disability.



Non-Duty Disability:

Eligibility - Requires total and permanent disability and 5 or more years of service.

Amount of Pension - If disability retirement occurs after normal retirement eligibility, the amount of pension is the accrued normal retirement pension. Otherwise, the amount of pension is computed as for normal retirement with a minimum benefit of 25% of FAS if credited service is 10 or more years; otherwise, the minimum is 20% of FAS.

Duty Death:

Eligibility - Death which is the result of performance of duty.

Amount of Pension - 2/3 of the member's highest 12 consecutive months salary or the current top step police officer pay, whichever is greater.

Non-Duty Death:

Eligibility - Death after 5 or more years of credited service.

Amount of Pension - 2/3 of pension member would have received had he retired the day before death, to the widow for life. Minimum benefit is 1/7 of FAS. If no widow, unmarried children under 18 receive equal shares of above amount.

Death After Retirement:

Amount of Pension - 2/3 of deceased retired member's annual pension to widow for life. If no widow, unmarried children under 18 receive equal shares of above amount.

If retired member is unmarried, there is no eligible child (or parent), and death occurs within 10 years of retirement, the pension is continued to the designated beneficiary for the balance of the 10 year period following retirement.

Optional forms of payment are available on an "equivalent actuarial value" basis to the 10 year certain and life form of payment.

Member Contributions: 7% of salary. Member contributions will increase to 9% of salary effective January 1, 2005, to 10% of salary effective January 1, 2006 and to 11% of salary effective January 1, 2007. Effective October 1, 2011, the member contribution rate is increased to 18%, and Chapter 185 revenue received in calendar years 2011 and 2012 is used to reduce member contributions to 11%. If the Chapter 185 revenue is not sufficient to reduce the member contribution rate is increased to 20%, and Chapter 185 revenue received in calendar year 2013, the member contribution rate is increased to 20%, and Chapter 185 revenue received in calendar year 2013 will be used to reduce member contributions to 11%. If the Chapter 185 revenue is not sufficient to reduce the member contributions to 11%, then the City will make up the difference. Effective October 1, 2014, the member contribution rate is lowered back to 11%. Interest is not credited to member contributions.



SUMMARY OF BENEFIT PROVISIONS (SEPTEMBER 30, 2018)

Premium Tax Monies: Casualty insurance premium tax monies collected by the State and distributed pursuant to Chapter 185, Florida Statutes.

Chapter 185 Share Accounts: Effective October 1, 1988, separate accounts were established for each member of the Pension Fund. The accounts are funded by premium tax monies and are credited with net investment earnings after deduction of expenses. The accounts may also be funded by accumulated leave paid out at termination up to the amount permitted by law.

Share accounts will not receive any allocation of Chapter 185 revenue during fiscal years ending September 30, 2011 and September 30, 2012. For the fiscal year ending September 30, 2013, Chapter 185 revenue will again be allocated to the Share Plan accounts. Share accounts will not receive any allocation of Chapter 185 revenue during fiscal year ending September 30, 2014. Effective with the fiscal year ending September 30, 2015, Chapter 185 revenue will again be allocated to the Share Danaccounts.

City Contributions: Actuarially determined amounts which together with member contributions are sufficient to cover the requirements of the funding objective stated on page A-1.

Deferred Retirement Option Plan (DROP):

Eligibility - Any member who is eligible to receive a normal retirement pension may participate in the DROP. Participation shall cease after the earlier of 5 years in the DROP or 30 years of service.

Amount of Pension - Calculated as if the member had elected to retire on the date of election to participate in the DROP, using credited service and final average salary at the date of election. The payments will be accumulated in an account and be credited with investment earnings. Disbursements from the account are deferred until termination of employment.

Member Contributions - Cease following election to participate in the DROP. Accumulated leave paid out at termination may be contributed up to the amount permitted by law.

Post-Retirement Supplemental Pension Distribution: The Board of Trustees may make a supplemental distribution each April 1 from net accumulated experience from all sources, if any, to the extent of investment earnings in excess of 7% (to a 2% excess) for hires before April 1, 1987 and in excess of 8% (to a 1% excess) for hires after March 31, 1987 plus one-half of investment earnings in excess of 9%, if any, for all hires, applied to the actuarial present value of pensions being paid to retired members and beneficiaries.



ACCOUNTING INFORMATION SUBMITTED FOR VALUATION

	Year Ended 9/30/18	Year Ended 9/30/17
REVENUES:		
a. Member contributions	\$ 2,632,288	\$ 2,384,738
b. Buyback contributions	47,691	42,330
c. City contributions	3,556,968	3,285,065
d. Chapter 185 revenue	1,455,967	1,333,046
e. Prepaid contribution	0	0
f. Transfers to Plan for Share and DROP accounts	1,309,407	904,892
g. Investment income		
1. Interest, dividends and other income	6,567,601	6,606,650
2. Net appreciation	28,014,026	39,059,250
3. Investment expenses	(1,025,906)	(1,171,466)
4. Net investment income	33,555,721	44,494,434
h. Total revenues	\$ 42,558,042	\$ 52,444,505
EXPENDITURES:		
a. Refunds of member contributions	225,759	25,530
b. Benefits paid	12,267,778	10,883,644
c. Lump-Sum share account distributions	2,456,656	3,647,914
d. DROP account distributions	4,077,436	3,533,092
e. Supplemental pension distribution	0	0
f. Administrative expenses	319,039	308,777
g. Total expenditures	19,346,668	18,398,957
RESERVE INCREASE:		
Total revenues minus total expenditures	\$ 23,211,374	\$ 34,045,548

REVENUES AND EXPENDITURES



		Market Value				
		 9/30/18 9/30/17		9/30/17		
Cash & cash equivalents		\$ 4,633,178	\$	4,413,325		
Prepaid co	·	0		0		
Payables		(333,737)		(235,300)		
Receivable	·S	49,762		19,349		
Prepaid ex	penses	1,268,692		1,205,069		
Bonds	 government/domestic 	55,894,612		48,293,507		
	- corporate	16,882,766		6,459,120		
Stocks	- domestic	63,585,557		68,552,246		
	- international	0		0		
	- private equity	3,720,959		0		
Mutual Fur	nds - domestic	129,446,988		133,305,650		
	- international	53,770,315		52,676,452		
Real Estate	2	53,757,296		45,167,273		
Mortgage	backed securities	0		0		
Participant Loans		1,359,818		1,150,575		
Accrued investment income		424,426		241,992		
Total Asset	ts	\$ 384,460,632	\$	361,249,258		

SUMMARY OF ASSETS



	2015	2016	2017	2018
Beginning of Year Values				
(1) Market Value	\$258,066,881	\$258,834,220	\$327,203,710	\$361,249,258
Market Value net of Share/DROP Accounts	171,949,069	167,290,456	229,616,069	257,862,321
(2) Funding Value	245,070,469	266,026,170	335,208,195	352,551,922
Funding Value net of Share/DROP Accounts	158,952,657	174,482,406	237,620,554	249,164,985
End of Year				
(3) Market Value net of Share/DROP Accounts(4) Net Addition to Assets	167,290,456	229,616,069	257,862,321	275,972,094
Excluding Investment Income, Chapter 185 and DROP Cash Flows	(1,021,114)	48,610,209	(7,978,033)	(6,994,524)
(5) Total Net Investment Income = (3)-(1)-(4)	(3,637,499)	13,715,404	36,224,285	25,104,297
(6) Projected Net Rate of Return	8.00%	8.00%	7.875%	7.75%
(7) Projected Investment Income=(6) x [(2)+0.5 x (4)]	12,675,368	14,903,001 *	* 18,398,484	19,039,249
(8) Investment Income in Excess of Projected	(16,312,867)	(1,187,597)	17,825,801	6,065,048
Excess Investment Income Recognized				
(9a) From Current Year = .25 x (8)	(4,078,217)	(296,899)	4,456,450	1,516,262
(9b) From One Year Prior	1,042,646	(4,078,217)	(296,899)	4,456,450
(9c) From Two Years Prior	2,957,408	1,042,646	(4,078,217)	(296,899)
(9d) From Three Years Prior	3,953,658	2,957,408	1,042,646	(4,078,217)
(9e) Total Cap. Val. Change Recogn. = (9a)+(9b)+(9c)+(9d)	3,875,495	(375,062)	1,123,980	1,597,596
(10) Increase(Decr.) in Funding Value = (4) + (7) + (9e)	15,529,749	63,138,148	11,544,431	13,642,321
End of Year				
(11) Market Value	\$258,834,220	\$327,203,710	\$361,249,258	\$384,460,632
Market Value net of Share/DROP Accounts	167,290,456	229,616,069	257,862,321	275,972,094
(12) Funding Value	266,026,170 **	335,208,195	352,551,922	371,295,844
Funding Value net of Share/DROP Accounts	174,482,406	237,620,554	249,164,985	262,807,306
(13) Rate of Return on Net Funding Value	10.4%	7.8%	8.4%	8.4%
(14) Rate of Return on Net Market Value	(2.1)%	7.7%	16.1%	9.9%
(15) Ratio of Funding Value to Market Value	103%	102%	98%	97%

DERIVATION OF FUNDING VALUE OF ASSETS

* Reflects actual deposit timing for \$50,000,000 proceeds from the pension obligation bond.

** The Actuarial Value of Assets as of September 30, 2015 including the \$50 million proceeds of the pension obligation bond discounted from July 5, 2016 is \$313,182,055.



	Share	DROP	Total
A. Beginning of Year Reserve	\$ 48,430,228	\$54,956,709	\$103,386,937
B. Disbursements	(2,456,656)	(4,077,436)	(6,534,092)
C. Net Additions/Adjustments	1,242,197	1,942,072	3,184,269
D. Investment Earnings	3,985,590	4,465,834	8,451,424
E. End of Year Reserve (A + B + C + D)	\$51,201,359	\$57,287,179	\$108,488,538



Under the Special Act, the fixed rate on DROP accounts for members who enter the DROP on or after October 1, 2012 and on Share Plan accounts for members who are vested is 8.00% per year. However, if the amount paid in investment earnings creates a deficiency as compared to the gross earnings of the fund from fiscal year ending September 30, 2012, then the rate will be reduced to 4% effective the following October 1 until the deficiency is satisfied. The DROP accounts for members who are in the DROP as of October 1, 2012 continue to earn 8.25% per year.

(a) Gross rate of market investment return for fiscal year ending*

	9/30/12	18.43%
	9/30/13	13.74%
	9/30/14	9.53%
	9/30/15	0.69%
	9/30/16	8.77%
	9/30/17	14.01%
	9/30/18	10.19%
(b)	Cumulative return from fiscal year ending 9/30/12 through 9/30/18	103.0%
(c)	Return needed from fiscal year ending 9/30/12 to maintain 8% fixed interest crediting rate	71.4%
(d)	Shortfall of actual return since fiscal year ending 9/30/12 to return based on 8% per year: (c) - (b), not less than 0%	0.0%
(e)	Actual fixed interest crediting rate for DROP/Share Plan accounts for 10/1/18 through 9/30/19	8.0% **
(f)	Minimum gross rate of market investment return 10/1/18 through 9/30/19 to provide 8.00% fixed interest crediting rate for 10/1/19 through 9/30/20	(8.8)%
* As de	termined by the Investment Consultant.	

** Members in the DROP as of October 1, 2012 will continue to earn 8.25% per year.



CALCULATION OF SUPPLEMENTAL PENSION DISTRIBUTION AMOUNT - SEC. 17(12) AS OF SEPTEMBER 30, 2018

Factor (i):	Actu pens using	\$106,243,026 ##	
Factor (ii):	(a)	Rate of market investment return 10/1/17 through 9/30/18 calculated by actuary	9.7% *
	(b)	Lesser of (a) and 8.00%	8.00%
Preliminary		<pre>bution Amount (prior to experience gain limitation): or (i) x [Factor (ii) - 7.0%)]</pre>	1,062,430
Amount Ava	ailable	for Distribution:	
	(a)	Unamortized Balances of Accumulated net experience gains (page B-11)	(43,951,336)
	(b)	Unamortized Balances of Accumulated distributions @ (page B-11)	4,132,360
	(c)	Accumulated net gains less accumulated distributions [(a) - (b)] < 0	0
	(d)	Amount available for distribution#	0

- @ This amount does **not** include the supplemental pension distribution, if any, for the current year.
- # The lesser of the preliminary distribution amount and accumulated net gains less accumulated distributions, not less than \$0.
- ## Excludes members hired after March 31, 1987.
- * Return of the total pension fund before investment expenses.



CALCULATION OF SUPPLEMENTAL PENSION DISTRIBUTION AMOUNT - SEC. 17(12) AS OF SEPTEMBER 30, 2018

Factor (i):	pension recipients on 9/30/18					
	usin	g 7.0% interest set by Special Act	\$184,777,508 ##			
Factor (ii):	(a)	Rate of market investment return 10/1/17 through 9/30/18 calculated by actuary	9.7% *			
			5.770			
	(b)	Excess of (a) over 9%, if positive,				
		otherwise zero.	0.7%			
	(c)	1/2 of (b)	0.35%			
Factor (iii):	(a)	Net rate of market investment return 10/1/17 through				
	. ,	9/30/18 calculated by actuary	9.7%			
	(b)	Lesser of (a) and 9%	9.0%			
Preliminary	Distri	bution Amount (prior to experience gain limitation):				
	Fact	or (i) x [Factor (ii) + ((Factor (iii) - 8.00%)]	2,494,496			
Amount Ava	ailable	for Distribution:				
	(a)	Unamortized Balances of Accumulated net experience gains (page B-11)	(43,951,336)			
	(b)	Unamortized Balances of Accumulated distributions @ (page B-11)	4,132,360			
	(c)	Accumulated net gains less accumulated distributions [(a) - (b)] < 0	0			
	(d)	Amount available for distribution#	0			

The lesser of the preliminary distribution amount and accumulated net gains less accumulated distributions,

including any supplemental pension distributions for the current year determined on page B-6 of this report.
 ## Includes members hired after March 31, 1987.

* Return of the total pension fund before investment expenses.



			· · ·			
			Addition to Supp			
	Experience Gain/(Loss)*		Distributio	Distribution Reserve		
Year Ended	Unamort.		Unamort.		Net Unamort.	
September 30	For Year	Balance	For Year	Balance	Balance	
1992	\$ 2,690,102	\$ 2,690,102	\$ 237,777	\$ 237,777	\$ 2,452,325	
1993	2,897,258	5,658,917	374,365	614,282	5,044,635	
1994	(2,192,085)	3,597,634	0	617,542	2,980,092	
1995	7,969,009	11,641,571	508,437	1,127,456	10,514,115	
1996	3,801,172	15,703,104	625,973	1,756,172	13,946,932	
1997	11,915,022	27,958,649	671,448	2,430,738	25,527,911	
1998	(2,054,604)	26,513,470	795,633	3,227,980	23,285,490	
1999	1,317,262	27,209,332	1,210,681	4,453,115	23,303,374	
2000	1,306,848	28,753,737	1,005,600	5,475,473	23,278,264	
2001	(1,194,305)	27,729,286	0	5,487,451	22,241,835	
2002	(20,340,405)	7,449,284	0	5,478,365	1,970,919	
2003	(6,969,923)	204,562	0	5,445,433	(5,240,871)	
2004	(8,289,567)	(8,507,096)	0	5,385,592	(13,892,688)	
2005	(1,393,874)	(10,472,274)	0	5,295,375	(15,767,649)	
2006	(1,344,886)	(12,442,674)	0	5,171,008	(17,613,682)	
2007	18,831,566	6,588,529	1,580,142	6,588,529	0	
2008	(8,914,445)	(2,080,609)	0	6,400,898	(8,481,507)	
2009	(11,642,886)	(15,238,314)	0	6,161,238	(21,399,552)	
2010	(6,544,967)	(22,737,844)	0	5,863,350	(28,601,194)	
2011	(14,463,674)	(38,291,884)	0	5,500,590	(43,792,474)	
2012	(3,649,317)	(42,618,248)	0	5,394,429	(48,012,677)	
2013	3,185,651	(40,099,567)	0	5,262,805	(45,362,372)	
2014	3,620,537	(37,263,884)	0	5,103,868	(42,367,752)	
2015	2,093,970	(36,107,628)	0	4,914,514	(41,022,142)	
2016	(621,595)	(40,971,323)	0	4,691,395	(45,662,718)	
2017	(567,465)	(42,686,410)	0	4,431,961	(47,118,371)	
2018	(118,171)	(43,951,336)	0	4,132,360 @	(48,083,696)	
Projected					(34,918,908)	

SUPPLEMENTAL PENSION DISTRIBUTION ACCUMULATED GAIN (LOSS) LIMITATION

* All sources.

@ This amount is composed of \$4,132,360 for unamortized balances of prior supplemental pension distributions and \$0 for the current year supplemental pension distribution.



RECONCILIATION OF MEMBERSHIP FOR THE PLAN YEAR ENDED SEPTEMBER **30, 2018**

		Vested		Pension	Recipients	
	Active	Terminated	Active	Service	Disability	All
	Members	Members	DROP	Retired	Retired	Beneficiaries
No. at Start of Year	253	10	26	176	17	34
Increase (Decrease) From						
Service Retirement		(1)	(13)	14		
DROP Retirement	(3)		3			
Disability Retirement	(1)				1	
Deaths	(1)			(3)		1
Other Pension Terminations		(1)				
Vested Terminations	(1)	1				
Non-Vested Terminations	(6)					
New Entrants/Rehires	28					
No. at End of Year	269	9	16	187	18	35



ACTIVE MEMBERS NOT PARTICIPATING IN THE DROP AS OF SEPTEMBER 30, 2018 BY NEAR AGE AND YEARS OF SERVICE

	Years of Service to Valuation Date										
Age Group	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25 +	Totals
20-24 NO.	5	1	2	0	0	0	0	0	0	0	8
ΤΟΤ ΡΑΥ	249,997	59214	114920	0	0	0	0	0	0	0	424,131
AVG PAY	49,999	59,214	57,460	0	0	0	0	0	0	0	53,016
25-29 NO.	13	4	6	10	5	2	0	0	0	0	40
ΤΟΤ ΡΑΥ	650,190	240,336	333,900	643,098	317,890	146,132	0	0	0	0	2,331,546
AVG PAY	50,015	60,084	55,650	64,310	63,578	73,066	0	0	0	0	58,289
30-34 NO.	5	4	5	4	7	12	7	0	0	0	44
ΤΟΤ ΡΑΥ	250793	227692	303,593	254,378	474,156	931,667	673,120	0	0	0	3,115,399
AVG PAY	50,159	56,923	60,719	63,595	67,737	77,639	96,160	0	0	0	70,805
35-39 NO.	3	1	1	3	5	8	24	1	0	0	46
ΤΟΤ ΡΑΥ	149886	56911	52,652	183,333	326,054	581,831	2,322,570	108,353	0	0	3,781,590
AVG PAY	49,962	56,911	52,652	61,111	65,211	72,729	96,774	108,353	0	0	82,208
40-44 NO.	2	1	0	1	0	4	17	22	4	0	51
ΤΟΤ ΡΑΥ	99924	58426	0	65,633	0	326,216	1,542,355	2,436,872	443,438	0	4,972,864
AVG PAY	49,962	58,426	0	65,633	0	81,554	90,727	110,767	110,860	0	97,507
45-49 NO.	0	0	2	1	1	0	6	21	32	0	63
ΤΟΤ ΡΑΥ	0	0	111,380	60,015	106418	0	608,764	2,303,007	4,017,352	0	7,206,936
AVG PAY	0	0	55,690	60,015	106,418	0	101,461	109,667	125,542	0	114,396
50-54 NO.	0	0	0	0	0	1	3	4	8	0	16
ΤΟΤ ΡΑΥ	0	0	0	0	0	77466	295,254	491461	1008265	0	1,872,446
AVG PAY	0	0	0	0	0	77,466	98,418	122,865	126,033	0	117,028
55-59 NO.	0	0	0	0	0	0	1	0	0	0	1
ΤΟΤ ΡΑΥ	0	0	0	0	0	0	88493	0	0	0	88,493
AVG PAY	0	0	0	0	0	0	88,493	0	0	0	88,493
60-64 NO.	0	0	0	0	0	0	0	0	0	0	C
ΤΟΤ ΡΑΥ	0	0	0	0	0	0	0	0	0	0	0
AVG PAY	0	0	0	0	0	0	0	0	0	0	0
TOT NO.	28	11	16	19	18	27	58	48	44	0	269
TOT AMT	1,400,790	642,579		1,206,457				5,339,693	5,469,055	0	23,793,405
AVG AMT	50,028	58,416	57,278	63,498	68,029	76,419	95,354	111,244	124,297	0	88,451

	Average	es
Age:	38.5	years.
Service:	10.8	years.



RETIRED AND BENEFICIARY MEMBERS AS OF SEPTEMBER 30, 2018 BY ATTAINED AGES

	Age an	d Service Retired	Disabi	lity Retired	Survivir	g Beneficiaries		Totals
Attained		Members	Μ	embers	Survivii	-		Totais
Ages		Annual Pensions		Annual		Annual		Annual Pensions
	No.		No.	Pensions	No.	Pensions	No.	
Under 20					1	\$ 14,686	1	\$ 14,686
35 - 39								
40 - 44				\$-	1	31,865	1	31,865
45 - 49	5	\$ 416,333	7	335,761			12	752,094
50 - 54	27	1,846,999	4	174,393	3	135,339	34	2,156,731
55 - 59	50	3,618,774	2	123,177	2	18,578	54	3,760,529
60 - 64	44	2,975,741	2	81,071	4	87,081	50	3,143,893
65 - 69	29	1,301,904	2	67,501	3	74,223	34	1,443,628
70	7	311,432			2	34,347	9	345,779
71	7	288,207			3	68,950	10	357,157
72	6	266,861					6	266,861
73	3	147,339			2	47,688	5	195,027
74	2	70,681					2	70,681
75	3	104,987			1	12,254	4	117,241
76	4	138,513			1	29,954	5	168,467
77	3	123,323			1	24,983	4	148,306
78	2	88,845					2	88,845
79	2	73,859	1	29,909	3	45,316	6	149,084
80								
81					1	15,573	1	15,573
82	3	76,994					3	76,994
83					2	38,391	2	38,391
84					2	20,317	2	20,317
85	1	16,874					1	16,874
86	2	37,681			1	3,431	3	41,112
87								
88								
89	_	50.010					-	
90	2	56,318				2 705	2	56,318
91 02	1	18,116			1	3,705	2	21,821
92 93					1	0 102	1	0 102
93 94					1	9,192	1	9,192
					<u> </u>			
Totals	203	\$ 11,979,781	18	\$ 811,812	35	\$ 715,873	256	\$ 13,507,466

Average Age: 63.8 years.



VESTED TERMINATED MEMBERS AS OF SEPTEMBER 30, 2018 By Attained Ages

Attained Ages	No.	Estimated Annual Benefits
38	1	\$18,570
41	1	17,513
43	1	14,281
45	3	87,746
48	1	28,943
49	1	17,463
50	1	43,333
Totals	9	\$227,849

Averages

Age: 45.4 years.

Benefit: \$25,317



Number Added						Termi	nations	s During	Year				Active
Year		ring	Norm	al/Early	Terminations During Year y Disability Died-in Withdrawals		Membe						
Ended	•		Retirement			rement		rvice	Vested			otal	End of
9/30	Α	E	Α	E	Α	E	Α	E	Α	Α	Α	E	Year
1994	3	11	9	1.1	0	0.8	0	0.3	0	2	2	5.9	207
1995	18	14	8	1.2	0	0.7	0	0.2	1	5	6	5.3	211
1996	13	18	11	3.3	0	0.6	0	0.2	0	7	7	6.1	206
1997	22	16	3	1.0	3	0.7	0	0.2	2	8	10	6.1	212
1998	20	9	5	2.5	0	0.6	2	0.2	1	1	2	10.0	223
1999	14	12	4	2.6	0	0.7	0	0.2	2	6	8	10.7	225
2000	28	6	3	1.7	0	0.7	0	0.2	0	3	3	6.9	247
2001	20	13	4	1.3	1	0.7	0	0.2	0	8	8	8.4	254
2002	11	14	8	2.7	2	0.8	0	0.2	0	4	4	8.3	251
2003	12	8	4	1.3	0	0.8	0	0.2	1	3	4	7.6	255
2004	16	12	9	5.6	0	0.8	1	0.3	0	2	2	7.0	259
2005	15	18	10	8.3	0	0.8	0	0.3	0	8	8	6.7	256
2006	24	28	13	6.2	0	0.8	0	0.3	0	15	15	6.5	252
2007	38	10	3	4.3	1	0.9	0	0.3	1	5	6	7.1	280
2008	18	23	7	5.9	2	0.8	0	0.3	0	14	14	9.4	275
2009	11	23	8	6.1	0	0.8	0	0.3	5	10	15	8.4	263
2010	13	22	13	6.0	1	0.8	0	0.3	2	6	8	6.7	254
2011	8	13	7	4.7	1	0.8	0	0.3	1	4	5	6.3	249
2012	2	37	30	12.1	2	0.6	0	0.2	0	5	5	5.5	214
2013	12	11	4	2.4	2	0.6	0	0.2	2	3	5	4.3	215
2014	18	12	4	3.2	1	0.6	0	0.1	1	6	7	4.5	221
2015	24	4	1	2.5	0	0.7	1	0.1	1	1	2	5.3	241
2016	19	10	7	4.2	1	0.7	1	0.1	0	1	1	6.6	250
2017	12	9	4	2.9	1	0.8	0	0.2	1	3	4	7.0	253
2018	28	12	3	4.1	1	0.9	1	0.2	1	6	7	6.9	269
5-Year Totals													
2014 - 2018	101	47	19	16.9	4	3.7	3	0.7	4	17	21	30.3	
Expected for													
2019 A represents				8.3		0.8		0.2				8.0	

E represents expected number.



SECTION C

ACTUARIAL COST METHOD, ACTUARIAL ASSUMPTIONS AND DEFINITIONS OF TECHNICAL TERMS The actuarial cost method is a procedure for allocating the actuarial present value of benefits and expenses to time periods. The method used for your valuation is known as the individual entry-age actuarial cost method, and has the following characteristics:

- (i) The annual normal costs for each individual active member is sufficient to accumulate the value of the member's pension at time of retirement or DROP.
- (ii) Each annual normal cost is a constant percentage of the member's year by year projected pensionable compensation.

The entry-age actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's pensionable compensation between the entry age of the member and the assumed active status exit ages. This is based on our understanding of the approach preferred by the Florida Division of Retirement. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called the actuarial accrued liability. Deducting accrued assets from the actuarial accrued liability determines the unfunded actuarial accrued liability. The unfunded actuarial accrued liability was financed as a level percent of member payroll. Please refer to page A-11 for a schedule of financing periods.

The characteristics of this method of financing the unfunded actuarial accrued liability are shown on page C-2.

The sum of active & DROP member payroll was assumed to increase 4.50% a year for the purpose of determining the level percent contributions. According to FS 112.64(5) this assumption may not exceed the average payroll growth over the last ten years which was negative. This assumption is consistent with the base rate of increase in salaries used to calculate actuarial present values. Expressing contributions, as on page A-2, as a percent of active member payroll excluding DROP members may cause fluctuations due to the level of participation in the DROP.



LEVEL PERCENT OF ACTIVE MEMBER PAYROLL AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES* (AMORTIZATION SCHEDULE \$ AMOUNTS IN THOUSANDS)

	UnDRC	OPed Pay	Ur	funded	Contribu	tion
	Inflated	Constant	Inflated	Constant	Inflated	Constant
Year	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
2018	\$23,793	\$23,793	\$19,091	\$19,091	\$1,465	\$1,624
2019	24,048	23,793	19,033	18,831	1,480	1,624
2020	24,305	23,793	18,940	18,541	1,496	1,624
2021	24,565	23,793	18,823	18,232	1,512	1,624
2022	24,828	23,793	18,681	17,903	1,528	1,624
2023	25,094	23,793	18,511	17,552	1,545	1,624
2028	26,465	23,793	17,326	15,577	1,551	1,552
2033	27,912	23,793	15,540	13,247	1,626	1,543
2038	29,438	23,793	11,603	9,378	1,806	1,621
2043	31,047	23,793	5,650	4,330	1,735	1,478
2048	32,743	23,793	0	0	0	1,478
	* \$	4,479,077	over 30 years	\$ (984,501)	over 15 years	
		6,184,244	over 29 years	1,022,846	over 14 years	
		5,075,781	over 28 years	0	over 13 years	
		983,201	over 27 years	0	over 12 years	
		939,661	over 26 years	0	over 11 years	
		850,967	over 25 years	0	over 10 years	
		774,544	over 24 years	0	over 9 years	
		0	over 23 years	426,887	over 8 years	
		0	over 22 years	0	over 7 years	
		0	over 21 years	0	over 6 years	
		118,171	over 20 years	0	over 5 years	
		591,754	over 19 years	0	over 4 years	
		,				
		609,999	over 18 years	0	over 3 years	
			over 18 years over 17 years	0 0	over 3 years over 2 years	
		609,999	•			

Level percent-of-payroll financing of unfunded actuarial accrued liabilities treats each generation of taxpayers equally during the financing period. The alternative, level-dollar financing, produces declining percent-of-payroll contributions and places a greater relative burden on current taxpayers.

The annual rate of increase in member payroll used to compute the level percent-of-payroll contribution is the same rate of payroll growth used to compute actuarial liabilities and costs. It reflects across-the-board salary increases not group size increases.

If future payroll growth is less than the assumed rate due to smaller than projected salary increases, the percent-of-payroll contribution rate for unfunded actuarial accrued liabilities will tend to decline.

If future payroll growth is less than the assumed rate due to decreases in the number of members, the percent-of-payroll contribution rate for unfunded actuarial accrued liabilities will tend to increase but dollar contributions will be less than indicated in the preceding schedule.



Funding objective contribution requirements and actuarial present values are calculated by applying estimates of future Fund activities (actuarial assumptions) to the benefit provisions and people information of the Pension Fund, using the actuarial cost method described on page C-1.

The principal areas of risk which require estimates of future Fund activities are:

- (i) rates of inflation impacting assets of the Pension Fund
- (ii) long-term rates of investment return to be generated by the assets of the Pension Fund
- (iii) rates of salary increases to active members
- (iv) rates of mortality among members, retired members and beneficiaries
- (v) rates of withdrawal of active members
- (vi) rates of disability among active members
- (vii) rates of retirements due to age and service

In making a valuation, the monetary effect of each activity is calculated for as long as a present covered person survives – a period of time which can be as long as a century.

Actual activities of the Pension Fund will not coincide exactly with estimated activities due to their nature. Each valuation provides a complete recalculation of estimated future activities and takes into account the effect of differences between estimated and actual activities to date. The result is a continual series of adjustments (usually small) to the computed contribution rate. From time to time one or more of the estimates are modified to reflect experience trends (but not random or temporary year to year fluctuations).

Both the economic and decrement assumptions were established following the Experience Study Report dated March 10, 2011 covering the ten-year period from October 1 2000, through September 30, 2010. The investment return assumption has been adjusted in accordance with subsequent analyses. The covered group is too small to provide statistically significant experience on which to base the mortality assumption. Mortality is based on a commonly used mortality table and projection scale.

The actuarial assumptions include an INFLATION rate, SALARY INCREASE rates and a REAL INVESTMENT RETURN rate. These assumptions are used, in combination with the other assumptions, to (i) determine the present value of amounts expected to be paid in the future and (ii) establish rates of contribution which are expected to remain relatively level as a percent of total member payroll.



The interest rate used in making this valuation was 7.625% a year, compounded yearly (previously 7.75%). It is composed of inflation and real investment return.

RATES OF INFLATION. 2.50% per annum, compounded annually. This is the rate at which growth in the supply of money and credit is estimated to exceed growth in the supply of goods and services. It may be thought of as the rate of depreciation of the purchasing power of the dollar. There are a number of indices for measuring the inflation rate. The recent inflation rate, as measured by the Consumer Price Index, has been:

		Year Ended September 30							
	2018	2017	2016	2015	2014	Average			
Actual	2.3 %	2.2 %	1.5 %	0.0 %	1.7 %	1.5 %			
Assumed	2.5	3.0	3.0	3.0	3.0	2.9			

RATES OF REAL INVESTMENT RETURN. 5.125% per annum, compounded annually (previously 5.25%). This is the rate of return estimated to be produced by investing a pool of assets in an inflation-free environment. Recent real investment return on the funding value of assets (internal rate of return) has been:

		Year Ended September 30						
	2018	2017	2016	2015	2014	Average		
Expected Rate of Return	7.75 %	7.875 %	8.00 %	8.00 %	8.00 %	7.93 %		
Rate of Return (Pension Assets)	8.4	8.4	7.8	10.8	10.9	9.26		
less inflation	<u>2.3</u>	<u>2.2</u>	<u>1.5</u>	<u>0.0</u>	<u>1.7</u>	<u>1.54</u>		
Real Rate of Return	6.1	6.2	6.3	10.8	9.2	7.72		
Assumed Real Rate of Return	5.25	4.875	5.00	5.00	5.00	5.03		

The total investment return rate was computed using the approximate formula i = I divided by 1/2 (A + B - I), where I is actual ordinary investment income plus market value adjustments, A is the beginning of year funding value, and B is the end of year funding value.

The preceding investment return rates reflect the particular characteristics of this pension fund and should not be used to measure an investment advisor's performance or for comparison with other pension funds. Such use will usually mislead.



RATES OF SALARY INCREASES. Employee salaries are assumed to increase between the date of hire and date of retirement. Salary increases occur in recognition of (i) individual merit and seniority, (ii) inflation related depreciation of the purchasing power of salaries, and (iii) competition from other employers for personnel. A schedule of assumed rates of increases in individual salaries for sample ages follows:

Attributable to:	Annual Rates of Salary Increase for Sample Ages								
	20	30	40	50	60				
Merit & Seniority	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %				
General Increase in Wage Level Due to:									
Inflation	2.5	2.5	2.5	2.5	2.5				
Other factors	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>				
Total	5.0	5.0	5.0	5.0	5.0				

The valuation is based on a constant group size and total payroll increasing at the rate of the general increase in wage levels due to inflation and other causes, which in this case is 5.0% a year.

A schedule of recent salary change experience, as measured by average reported pay, follows:

	Year Ended September 30					Average			
	2018	2017	2016	2015	2014	3-Year	5-Year	10-Year	
% Change: Actual (1)	6.9 %	8.3 %	6.0 %	4.8 %	5.0 %	7.1 %	6.2 %	4.2 %	
Assumed (1)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.3	
% Change in Total Payroll (2)	2.5	5.7	1.3	3.4	3.0	3.2	3.2	0.5	

(1) Excluding termination and new members.

(2) Including pays of members electing DROP participation but still working.



In order to achieve the financial objective of a contribution rate which remains level as a percent of payroll, the rate of investment return (net of investment expenses) must exceed the rate of average increase in salaries by an amount equal to the estimated real investment return rate. The following schedule illustrates the recent history of the relationship between total investment return and average pay changes.

		Year End	led Septembe	er 30		Ave	rage
	2018	2017	2016	2015	2014	3-Year	5-Year
Net Rate of Investment Return (Pension Assets)	8.4 %	8.4 %	7.8 %	10.8 %	10.9 %	8.2 %	9.3 %
Rate of Change in Average Pay	<u>6.9</u>	<u>8.3</u>	<u>6.0</u>	<u>6.0</u>	<u>5.0</u>	<u>7.1</u>	<u>6.4</u>
Difference: Actual Target	1.5 2.8	0.1 2.8	1.8 3.0	4.8 3.0	5.9 3.0	1.1 2.8	2.8 2.9

RATES OF MORTALITY. 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 90% blue collar adjustment and a 10% white collar adjustment. For females, the base mortality rates include a 100% white collar adjustment. These are the same rates used for Special Risk Class members of the Florida Retirement System (FRS) in the July 1, 2016 actuarial valuation, as mandated by Chapter 112.63, Florida Statutes. Sample values follow:

FRS Healthy Post-Retirement Mortality for Special Risk Class Members

Sample	Probabil	ity of	Future Life			
Attained	Dying Nex	kt Year	Expectancy (years)			
Ages (in 2018)	Men	Women	Men	Women		
50	0.53 %	0.23 %	34.01	38.40		
55	0.67	0.32	29.37	33.39		
60	0.90	0.47	24.80	28.48		
65	1.29	0.73	20.40	23.74		
70	1.98	1.22	16.26	19.27		
75	3.21	2.07	12.52	15.19		
80	5.29	3.47	9.30	11.56		

This assumption is used to measure the probabilities of each benefit payment being made after retirement.



Sample	Probabil	ity of	Future	e Life		
Attained	Dying Nex	kt Year	Expectancy (years)			
Ages (in 2018)	Men	Men Women		Women		
50	0.22 %	0.15 %	35.00	38.75		
55	0.39	0.24	29.88	33.61		
60	0.71	0.39	25.00	28.59		
65	1.21	0.70	20.44	23.76		
70	1.98	1.22	16.26	19.27		
75	3.21	2.07	12.52	15.19		
80	5.29	3.47	9.30	11.56		

FRS Healthy Pre-Retirement Mortality for Special Risk Class Members

This assumption is used to measure the probabilities of members dying before retirement. 50% of deaths before retirement were assumed to be duty related.

For disabled retirees, the mortality table used was 60% of the RP-2000 for Disabled Annuitants and 40% of the RP-2000 Annuitant Mortality Table with a White Collar adjustment, set back 4 years for males and set forward 2 years for females, with no provision being made for future mortality improvements. These are same rates used for Special Risk Class members of the Florida Retirement System (FRS) in the July 1, 2016 actuarial valuation, as mandated by Chapter 112.63, Florida Statutes.

Sample	Probabili	-	Future Life Expectancy (years)		
Attained Ages (in 2018)	Dying Next Year Men Women		Men	Women	
50	1.67 %	0.91 %	23.74	27.06	
55	2.03	1.26	20.77	23.37	
60	2.47	1.67	17.91	19.90	
65	3.07	2.24	15.15	16.62	
70	3.90	3.18	12.52	13.58	
75	5.30	4.60	10.02	10.86	
80	7.59	6.66	7.80	8.48	

FRS Disabled Mortality for Special Risk Class Members



RATES OF WITHDRAWAL from active membership. The 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	12.00 %
	1	9.00
	2	7.00
	3	5.00
	4	4.50
	5	3.50
	6	2.50
	7	1.50
	8	1.00
	9	0.50
25	10 & Over	1.00
30		1.00
35		1.00
40		1.00
45		1.00
50		1.00
55		1.00
60		1.00
00		1.00

VESTED MEMBERS who terminate with a benefit worth less than 100% of their own accumulated contributions were presumed to elect a refund of accumulated contributions and forfeit the vested benefit.



Sample Ages		ming Disabled Jext Year
Ages	Men	Women
20	0.15 %	0.06 %
25	0.18	0.10
30	0.20	0.15
35	0.29	0.27
40	0.42	0.39
45	0.65	0.57
50	1.05	0.91
55	1.84	1.54
60	3.06	2.21

RATES OF DISABILITY. These rates represent the probabilities of active members becoming disabled.

The mortality table was set forward five years from the age at disability for projecting disability costs. 50% of disability retirements were projected to receive a pension not less than the minimum duty disability pension.

RATES OF RETIREMENT. These rates are used to measure the probabilities of eligible members retiring during the next year.

Number of Years After First Eligibility for Normal Retirement	Probability of Normal Retirement
0	45 %
1	35
2	35
3	35
4	100

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



ASSET VALUATION. Assets were included in the valuation using a 4 year smoothed market value effective September 30, 2001.

ADMINISTRATIVE EXPENSES. Administrative expenses were included in the calculated contribution requirement.

INVESTMENT EXPENSES. Investment expenses are offset against gross investment income.

ACTIVE MEMBER GROUP SIZE. The valuation was based on a constant active member group size. This is unchanged from previous valuations.

MARRIAGE PROPORTION. 90% of active members were assumed to be married. In each case the male was assumed to be 3 years older than the female.

COST-OF-LIVING ADJUSTMENTS. The post-retirement cost-of-living benefit is projected to occur at the maximum rate of 3% a year, following attainment of age 65.

SALARY. The actuarial valuation includes all amounts included in final average salary for benefit purposes.



Pensions in an Inflationary Environment

Value of \$1,000/month Retirement Benefit to an Individual who Retires at Age 50 in an Environment of 2.5% Inflation and a 3% simple annual COLA starting at age 65

Age	Value
50	\$1,000
51	976
52	952
53	929
54	906
55	884
60	781
65	711
70	720
75	717
80	706
85	687

The life expectancy of a 50 year old male retiree is age 84. The life expectancy for a 50 year old female retiree is age 88. Approximately half of the people will outlive their life expectancy. The effects of even moderate amounts of inflation can be significant for those who live to an advanced age.



Pay Increase Timing:	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	Decrements of all types are assumed to occur mid-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.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used without adjustment for multiple decrement table effects.
Normal Form of Benefit:	The assumed normal form of benefit is the 66 2/3% joint and survivor form for married members and the 10 year certain and life for unmarried members.
Loads:	No loads were used.
Incidence of Contributions:	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. New entrant normal cost contributions are applied to the funding of new entrant benefits.



Accrued Service. Service credited under the fund which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability. The difference between the actuarial present value of future benefit payments and the actuarial present value of future normal costs. Also referred to as "accrued liability" or "past service liability."

Actuarial Assumptions. Estimates of expected future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement estimates (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic estimates (salary increases and investment income) consist of the underlying rates in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future benefit payments" between future normal costs and actuarial accrued liabilities. Sometimes referred to as the "actuarial valuation cost method."

Actuarial Equivalent. A single amount or series of amounts of equal actuarial present value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.

Actuarial Present Value. The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment. Also referred to as "present value."

Amortization. Paying off an interest-discounted amount with periodic payments of interest and principal -- as opposed to paying off with a lump sum payment.

Experience Gain (Loss). The difference between actual actuarial costs and assumed actuarial costs - during the period between two valuation dates.

Funding Value of Assets. Also referred to as actuarial value of assets, smoothed market value of assets, or valuation assets.

Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased in over a closed 4 year period. During periods when investment performance exceeds the assumed rate, valuation assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, valuation assets will tend to be greater than market value. If assumed rates are exactly realized for 3 consecutive years, valuation assets will become equal to market value.



Normal Cost. The actuarial cost allocated to the current year by the actuarial cost method. Sometimes referred to as "current service cost."

Pension Benefit Obligation. A standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date. The PBO is independent of the actuarial funding method used to determine contributions.

Unfunded Actuarial Accrued Liability. The difference between actuarial accrued liability and the funding value of assets. Sometimes referred to as "unfunded past service liability," "unfunded accrued liability" or "unfunded supplemental present value."

Most pension funds have unfunded actuarial accrued liability. It increases each time new benefits are added and each time an experience loss is realized.

The existence of unfunded actuarial accrued liability is not in itself bad, any more than a mortgage on a house is bad. Unfunded actuarial accrued liability does not represent a debt that is payable today. What is important is the ability to control the amount of unfunded actuarial accrued liability and the trend in its amount (after due allowance for devaluation of the dollar).



SECTION D

DISCLOSURES REQUIRED BY GOVERNMENTAL ACCOUNTING STANDARDS BOARD STATEMENT NO. 67

This information is presented in draft form for review by the System's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the System's financial statements.

STATEMENT 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	\$ 4,969,598	\$ 4,465,713	\$ 4,119,566	\$ 3,720,389	\$ 3,553,404
Interest	27,649,993	26,458,916	25,142,553	23,790,608	22,792,357
Benefit Changes	2,595,355	-	-	-	-
Difference between actual & expected experience	2,535,765	335,340	264,885	439,779	294,048
Assumption Changes	3,904,405	5,183,638	2,275,600	2,221,969	-
Benefit Payments	(18,801,870)	(18,064,650)	(16,224,666)	(14,788,140)	(13,557,996)
Refunds	(225,759)	(25,530)	(93,453)	(60,567)	(168,503)
Other (DROP and Share Plan Adjustments)	 2,765,374	2,237,938	1,683,012	2,110,393	84,844
Net Change in Total Pension Liability	25,392,861	20,591,365	17,167,497	17,434,431	12,998,154
Total Pension Liability - Beginning	 358,140,046	337,548,681	320,381,184	302,946,753	289,948,599
Total Pension Liability - Ending (a)	\$ 383,532,907	\$ 358,140,046	\$ 337,548,681	\$ 320,381,184	\$ 302,946,753
Plan Fiduciary Net Position					
Contributions - Employer*	\$ 3,556,968	\$ 3,285,065	\$ 59,726,454	\$ 8,644,805	\$ 8,941,538
Contributions - Employer (from State)	1,455,967	1,333,046	1,259,981	1,212,205	1,100,113
Contributions - Non-Employer Contributing Entity	-	-	-	-	-
Contributions - Member (including buyback contributions)	2,679,979	2,427,068	2,336,635	2,154,131	1,927,618
Net Investment Income	33,555,721	44,494,434	21,229,525	1,873,520	22,389,189
Benefit Payments	(18,801,870)	(18,064,650)	(16,224,666)	(14,788,140)	(13,557,996)
Refunds	(225,759)	(25,530)	(93,453)	(60,567)	(168,503)
Administrative Expense	(319,039)	(308,777)	(288,017)	(266,916)	(337,907)
Other	 1,309,407	904,892	423,031	898,188	370,252
Net Change in Plan Fiduciary Net Position	23,211,374	34,045,548	68,369,490	(332,774)	20,664,304
Plan Fiduciary Net Position - Beginning	 361,249,258	327,203,710	258,834,220	259,166,994	238,502,690
Plan Fiduciary Net Position - Ending (b)	\$ 384,460,632	\$ 361,249,258	\$ 327,203,710	\$ 258,834,220	\$ 259,166,994
Net Pension Liability - Ending (a) - (b)	(927,725)	(3,109,212)	10,344,971	61,546,964	43,779,759
Plan Fiduciary Net Position as a Percentage					
of Total Pension Liability	100.24 %	100.87 %	96.94 %	80.79 %	85.55 %
Covered Payroll	\$ 23,929,891	\$ 21,679,436	\$ 20,603,955	\$ 18,805,018	\$ 17,446,782
Net Pension Liability as a Percentage					
of Covered Payroll	(3.88)%	(14.34)%	50.21 %	327.29 %	250.93 %

* Employer contribution for FYE 9/30/2016 includes \$50,000,000 proceeds from pension obligation bond.



Schedule of the Employer's Net Pension Liability (GASB Statement No. 67)

FY Ending September 30,	Total Pension Liability	Plan Net Position	1	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2014	\$302,946,753	\$259,166,994	\$	43,779,759	85.55%	\$ 17,446,782	250.93%
2015	\$320,381,184	\$258,834,220	\$	61,546,964	80.79%	\$ 18,805,018	327.29%
2016	\$337,548,681	\$327,203,710	\$	10,344,971	96.94%	\$ 20,603,955	50.21%
2017	\$358,140,046	\$361,249,258	\$	(3,109,212)	100.87%	\$ 21,679,436	(14.34)%
2018	\$383,532,907	\$384,460,632	\$	(927,725)	100.24%	\$ 23,929,891	(3.88)%



Notes to Schedule of the Employer's Net Pension Liability (GASB Statement No. 67)

Valuation Date:	September 30, 2017
Measurement Date:	September 30, 2018
Methods and Assumptions Use	d to Determine Net Pension Liability:
Actuarial Cost Method	Entry Age Normal
Inflation	2.5%
Salary Increases	5.0%, including inflation
Investment Rate of Return	7.75%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	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 90% blue collar adjustment and a 10% white collar adjustment. For females, the base mortality rates include a 100% white collar adjustment. These are the same rates used for Special Risk Class members of the Florida Retirement System (FRS) in the July 1, 2016 FRS Valuation, as mandated by Chapter 112.63, Florida Statutes.
Other Information:	
Notes	See Section A in the September 30, 2017 Actuarial Valuation Report. Effective as of September 30, 2017, the investment return assumption was lowered from 7.875% to 7.75%. Additionally, under Chapter 2018-168 of the Florida Statutes, the Special Act was amended by increasing the benefit multiplier from 2.68% to 3.00% for Credited Service earned on or after October 1, 2017.



FY Ending September 30,	Actuarially Determined Contribution	Actual Contribution*	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2014	\$ 8,941,538	\$ 10,041,651	\$ (1,100,113)	\$ 17,446,782	57.56%
2015	\$ 9,744,918	\$ 8,644,805	\$ 1,100,113	\$ 18,805,018	45.97%
2016	\$ 9,726,454	\$ 59,726,454	\$ (50,000,000)	\$ 20,603,955	289.88%
2017	\$ 3,285,065	\$ 3,285,065	\$-	\$ 21,679,436	15.15%
2018	\$ 3,131,968	\$ 3,556,968	\$ (425,000)	\$ 23,929,891	14.86%

* Employer contribution for FYE 9/30/2016 includes \$50,000,000 proceeds from pension obligation bond.



Notes to Schedule of Contributions (GASB Statement No. 67)

Valuation Date:	September 30, 2016
Notes	Actuarially determined contributions are calculated as of September 30,
	which is two years prior to the end of the fiscal year in which
	contributions are reported.
Methods and Assumptions Use	d to Determine Contribution Rates:
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	30 years
Asset Valuation Method	4-year smoothed market
Inflation	3.0%
Salary Increases	5.0%, including inflation
Investment Rate of Return	7.9%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	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 90% blue collar adjustment and a 10% white collar adjustment. For females, the base mortality rates include a 100% white collar adjustment. These are the same rates used for Special Risk Class members of the Florida Retirement System (FRS) in the July 1, 2016 FRS Valuation, as mandated by Chapter 112.63, Florida Statutes.
Other Information:	
Notes	See Section A in the September 30, 2016 Actuarial Valuation Report. Effective as of September 30, 2016, the investment return assumption was lowered from 8% to 7.875%, and the mortality table was changed from the RP-2000 Combined Healthy Participant Mortality Table for males and females with mortality improvements projected to all future years after 2000 using Scale AA to the mortality assumption used by the Florida Retirement System (FRS) for Special Risk Class members in the FRS actuarial valuation report as of July 1, 2016. The mortality assumption change was made in compliance with Chapter 112.63, Florida Statutes, which requires all public pension plans in Florida to use the same mortality tables used in either of the last two actuarial valuation reports of FRS effective no later than September 30, 2016.



A single discount rate of 7.75% 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 7.75%. 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 (7.75%) 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 7.75%, 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:

	Current Single Discount	
1% Decrease	Rate Assumption	1% Increase
 6.75%	7.75%	8.75%
 \$35,490,117	\$(927,725)	\$(30,472,743)

Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption



SECTION E

SUMMARY OF VALUATION RESULTS IN STATE FORMAT

SUMMARY OF VALUATION RESULTS IN STATE FORMAT (\$ AMOUNTS IN THOUSANDS)

	September 30, 2018			September 30, 2017		
	After			Before		
	Assumpt	tion	Ass	sumption		
	Chang			Change		
) Participant Data	8	-				
(i) Active participants - number		269		269		253
- annual payroll (excl. DROP participants)	\$ 23	,793	\$	23,793	\$	21,910
(ii) Retired members & beneficiaries (excl. disability)						
- number		238		238		236
 annualized benefit payroll 	12	,696		12,696		12,400
(iii) Disabled members & beneficiaries						
- number		18		18		17
- annualized benefit payroll		812		812		753
(iv) Terminated vested members						
- number		9		9		10
 annualized benefit payroll 		228		228		273
) Assets						
(i) Actuarial value of funding		,296		371,296		352,552
(ii) Market value	384	,461		384,461		361,249
(iii) Contribution receivable		0		0		0
) Actuarial Liabilities						
(i) Actuarial present value of active member benefits:						
service retirement		,077		128,812		116,710
termination benefits - pensions		,644		4,510		4,437
disability retirement		5,003		5,866		5,789
survivor benefits (pre-retirement)		.,599		1,561		1,509
survivor benefits (post-retirement)	10	,030		9,613		8,801
termination benefits - refunds	- 4	495		493		425
share accounts		,201		51,201		48,430
Total	206	5,049		202,056		186,102
(ii) Prepaid City contributions	2	0		0		0
(iii) Actuarial present value of terminated vested member benefits	2	,308		2,265		2,670
(iv) Actuarial present value of retired member & beneficiary:	167	005		160 676		157 101
total service retirement & survivors disability retirement		2,825 1,289		160,676 10,158		157,121 9,589
•	10			,		,
distribution reserve DROP Reserve	E 7	0 2,287		0 57,287		0 54,957
Total		,287),401		228,121		221,667
(v) Total actuarial present value of future benefit payments and reserve		3,759		432,442		410,440
(v) Total actuarial present value of future benefit payments and reserve (vi) Payables	e: 438 none			432,442 none		410,440 none
(vii) Actuarial accrued liability (including Share Accounts	none	:		none		none
	\$ 390),387	\$	385,908	\$	366,391
and DROP Reserve)						

(1) Please refer to page A-11 for requested detail.



West Palm Beach Police Pension Fund E-1

SUMMARY OF VALUATION RESULTS IN STATE FORMAT (\$ AMOUNTS IN THOUSANDS)

			September 30, 2018				September 30, 2017	
				After Assumption		Before sumption		
				Change		Change		
(d)		arial Present Value of Accrued Benefits (calculated in accordance with FASB						
		ment No. 35)						
	(i)	Vested accrued benefits						
		Retired members and beneficiaries - pensions	\$	230,401	\$	228,121	\$ 221,667	
		- distribution reserves		0		0	0	
		Terminated members		2,308		2,265	2,670	
		Active members (includes non-forfeitable accum. member contributions						
		of \$21,750 and \$20,063)		72,333		70,878	61,784	
		Active member share accounts		51,201		51,201	48,430	
		Distributable reserves	<u> </u>	0	<u> </u>	0	0	
		Total	\$	356,244	\$	352,466	\$ 334,552	
	(ii)	Non-vested accrued benefits		2,769		2,634	2,409	
	(iii)	Prepaid City contributions		0		0	0	
	(iv)	Total actuarial p.v. of accrued benefits	\$	359,013	\$	355,100	\$ 336,961	
	(v)	Actuarial p.v. of accrued benefits at begin. of year	\$	336,961	\$	336,961	\$ 317,899	
	(vi)	Changes attributable to:						
		Amendments	\$	0	\$	0	\$0	
		Assumption change		3,912		0	3,435	
		Operation of decrements		32,066		32,066	27,918	
		Benefit payments		(19,028)		(19,028)	(18,090)	
		Other (Changes in Reserves)		5,102		5,102	5,799	
	(vii)	Net change		22,052		18,140	19,061	
		Actuarial p.v. of Accr. benefits at end of year	\$	359,013	\$	355,100	\$ 336,961	
(e)		costs for fiscal years beginning October 1, 2018 and October 1, 2017 (EANC)		,		,	1 /	
'	(i)	Normal costs						
	.,	Service pensions (incl. post-ret. surv. pensions)		21.44		20.75 %	20.72	%
		Disability pensions (incl. post-ret. surv. pensions)		1.66		1.63	1.63	
		Survivor pensions (pre-retirement)		0.38		0.36	0.36	
		Deferred service pensions		1.16		1.12	1.13	
		Refunds of member contributions		0.77		0.78	0.78	
		Total normal cost		25.41		24.64	24.62	
	(ii)	Payment to amortize unf'd act. accr. liab.		4.18		3.29	3.30	
	(iii)	Administrative expenses		0.97		0.97	1.01	
	(iv)	FS112.64(5) Requirement		1.83		1.40	1.01	
	(v)	Amount to be paid by participants		11.00		11.00	11.42	
	(v) (vi)	Expected state contribution		0.00		0.00	0.00	
	(vi) (vii)	Expected plan sponsor contribution		0.00		0.00	0.00	
	(11)	% of payroll		21.39 %		19.30 %	19.35	%
			ć		ć			/0
		dollars	\$	5,437	\$	4,906	\$ 4,529	



West Palm Beach Police Pension Fund E-2

SUMMARY OF VALUATION RESULTS IN STATE FORMAT (\$ AMOUNTS IN THOUSANDS)

			September 30, 2018				September 30, 2017			
		-	After Assumption Change		Before Assumption Change					
(f)	Past Contributions (fiscal y	ear ending 9/30/18 and 17)								
	(i) Required minimum:	Plan sponsor	\$	3,132	\$	3,132	\$	3,285		
		Members		2,632		2,632		2,385		
		Total		5,764		5,764		5,670		
	(ii) Actual:	Plan sponsor		3,132		3,132		3,285		
		Members		2,632		2,632		2,385		
		Total		5,764		5,764		5,670		
(g)	Net Experience Gain (Loss)		\$	(118)	\$	(118)	\$	(567)		
(h)	Other Disclosures									
()		e member future salaries								
	from attained age		\$	191,274	\$	189,798	Ś ź	180,014		
	from entry age		Ŧ	-	ANC method					
	(ii) Present value of active member future contribs.									
	from attained age		\$	21,040	\$	20,878	\$	19,802		
	from entry age		not applicable to individual EANC method							

