

City of Fort Pierce

## Retirement and Benefit System

Fifty-Ninth Annual Actuarial Valuation Report  
for the Year Ending September 30, 2017



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March 8, 2018

City Commission  
and Retirement Board  
City of Fort Pierce Retirement and Benefit System  
Fort Pierce, Florida

Dear City Commission and Retirement Board:

The results of the September 30, 2017 annual actuarial valuation of the City of Fort Pierce Retirement and Benefit System are presented in this report. The purpose of the valuation was to measure the System's funding progress and to determine the employer contribution rates for the 2018-2019 fiscal year. The computed contribution rates shown on page B-1 are best viewed as the minimum contribution rates that comply with the Board's funding policy. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Until the plan is fully funded, we encourage the plan sponsor to contribute in excess of the computed contribution rate.

We believe that the ideal circumstance is for a plan to be fully funded at relatively low levels of risk. Therefore, we encourage a review of investment and other sources of risk as the plan approaches full funding.

Disclosures under the Governmental Accounting Board (GASB) Statements No. 67 and No. 68 were issued in a separate report.

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

The valuation was based upon information, furnished by the City, concerning Retirement System benefits, financial transactions, and individual members, terminated members, retirees and beneficiaries. Data was checked for internal and year-to-year consistency, but was not audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided.

Future actuarial measurements may differ significantly from those presented in this report due to such factors as experience differing from that anticipated by actuarial assumptions, changes in plan provisions, actuarial assumptions/methods or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements.

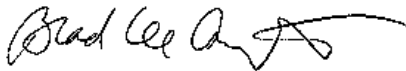
This report was prepared using assumptions set by the Retirement Board (except mortality) as described in Section D.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. We certify that the information contained in this report is accurate and fairly presents the actuarial position of the City of Fort Pierce Retirement and Benefit System as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

The signing actuaries are independent of the plan sponsor.

Brad Lee Armstrong and Jeffrey T. Tebeau are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Brad Lee Armstrong, ASA, EA, FCA, MAAA



Jeffrey T. Tebeau, ASA, EA, MAAA

BLA/JTT:sc

## **SECTION A**

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### **SUMMARY OF VALUATION RESULTS AND CERTIFICATION**

# Summary of Valuation Results

## September 30, 2017

### Funding Objective

The basic funding objective of the Retirement and Benefit System is to avoid transfer of the cost of benefit obligations between generations of taxpayers. This objective is implemented by contributions sufficient to:

- Pay for costs allocated to the current year on account of service rendered by participants in the current year (Normal Cost).
- Pay for costs allocated to prior years on account of service rendered by participants in prior years (Unfunded Actuarial Accrued Liability) over a maximum 30-year period.

The annual actuarial valuation measures the relationship between Retirement and Benefit System obligations and assets and determines the contribution rates for the ensuing year. When appropriate, amortization bases were combined in order to moderate scheduled contribution rate volatility.

### Funding Progress Indicators

The September 30, 2017 actuarial valuation indicates that the actuarial accrued liabilities of the Retirement and Benefit System are 89% funded by valuation assets. This is unchanged from last year's funded ratio of 89%. Although not historically referred to, the ratio of the market value of assets to the Actuarial Accrued Liabilities is 91% which is an increase from last years market value funded ratio of 88%.

### Trends to Monitor

The market value of assets currently exceeds the funding value of assets by approximately \$2.5 million. Absent investment returns below the 7.75% assumed or losses from other sources, this will create a downward pressure on contribution requirements and a coinciding upward pressure on the funded ratios in subsequent valuation years.

### Assumption Changes

There were no assumption or method changes as of the September 30, 2017 valuation.

# Summary of Valuation Results

## September 30, 2017

### Observed Experience

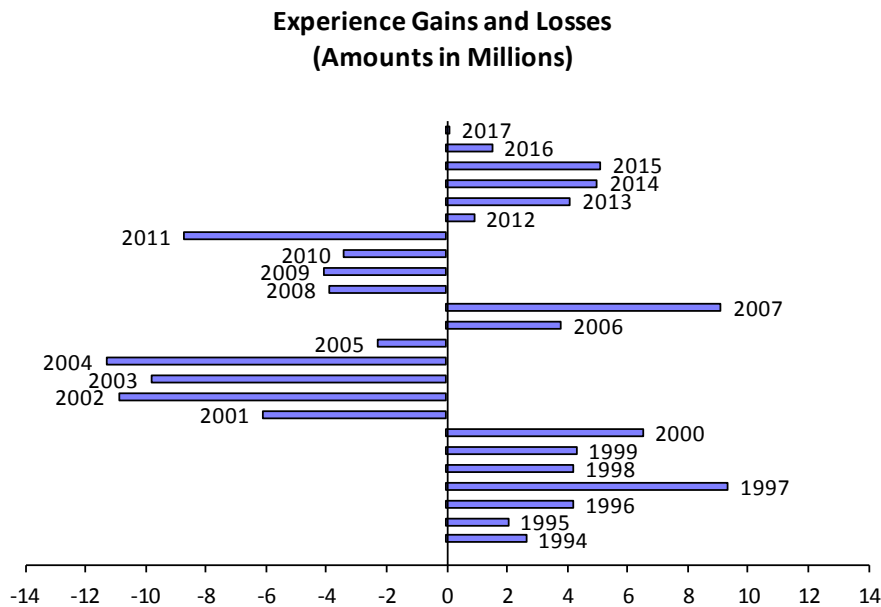
While the investment return on market value was 10.59%, the recognized rate of investment return was 8.03% due to averaging investment experience over the last 4 years. The recognized investment return was greater than 7.75% assumed return for fiscal year 2017. Note that each year's investment experience gain (loss) is spread over four years in equal dollar installments to reduce the effect of market volatility on contribution rates.

Demographic experience varied among the divisions. The principal deviations from projected experience were:

- 5.7% average pay increases across all the divisions vs. 5.0% expected (unfavorable)
- Lower than expected retiree mortality experience (unfavorable)
- 10-year average payroll growths were less than the 4.0% assumed (unfavorable for unfunded liability contribution rates)

The net effect of the preceding experience factors was an aggregate experience gain of \$68,563.

Year-to-year experience variations are expected and normal in the operation of a retirement system as members vary their activities and economic conditions change. The expectation is that the favorable years and unfavorable years will tend to cancel over 5 to 10 year periods.



Derivation of the current year's gain is located on Page B-3.

# Summary of Valuation Results

## September 30, 2017

### Valuation Results - Contribution Requirement

The percent-of-payroll contribution requirements for the 2018-2019 fiscal year are:

	General	Utilities Authority	Police
Members			
-Bargaining	5.16 %	6.16 %	5.16 %
-Non-Bargaining	5.16	6.16	5.16
Employer for			
-Bargaining	16.99 %	18.11 %	12.00 %
-Non-Bargaining	16.99	18.11	12.00
-Illustrative	\$1,627,793	\$2,500,994	\$900,394

For comparison, the percent-of-payroll contribution requirements for the 2017-2018 fiscal year based on last year's valuation are:

	General	Utilities Authority	Police
Members			
-Bargaining	5.16 %	6.16 %	5.16 %
-Non-Bargaining	5.16	6.16	5.16
Employer for			
-Bargaining	17.35 %	17.92 %	11.98 %
-Non-Bargaining	17.35	17.92	11.98
-Illustrative	\$1,639,755	\$2,439,936	\$799,048

Comparative contribution information is shown on page B-2. Composition of the current contribution rates is shown on page B-1.



# Summary of Valuation Results

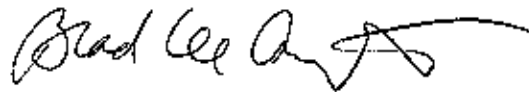
## September 30, 2017

### Cost-of-Living Adjustment (COLA)

Section 13 - 43 of the City's Code of Ordinances provides for a COLA if the investment return of the fund exceeds that required to satisfy the actuarial interest assumption, which did happen this year. In addition, the cumulative value of any COLA's granted since 1999 may not exceed the cumulative net actuarial gains since 1999. Page B-11 shows the cumulative value of COLA's and net actuarial gains/(losses) since 1999. The present balance is (\$32,664,805). So even though the recognized rate of investment return for the last fiscal year of 8.03% exceeded the actuarial interest assumption of 7.75%, no COLA could be provided under Section 13 - 43 until the Retirement and Benefit System's future actuarial gains exceed \$32,664,805 plus interest. Given the cumulative net actuarial loss balance, this COLA provision is not likely to operate for the indefinite future.

### Certification

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



Brad Lee Armstrong, ASA, FCA, EA, MAAA  
Enrolled Actuary No. 17-5614

## Other Observations

### General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Contributions and Funded Status

Given the System's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the Retirement and Benefit System earning 7.75% on the Market Value of Assets), it is expected that:

1. The employer normal cost is sufficient to cover the cost of benefits accruing each year;
2. The Unfunded Actuarial Accrued Liabilities (UAAL) will continue to be amortized according to the schedules on pages B7-9, but may not be completely paid off in the definite future; and
3. The funded status of the Retirement and Benefit System will continue to increase gradually towards a 100% funded ratio.

### Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the Actuarial Accrued Liability (AAL) and the Funding Value of Assets (FVA). Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1. The measurement is inappropriate for assessing the sufficiency of Retirement System assets to cover the estimated cost of settling the Retirement and Benefit System's benefit obligations, for example: transferring the liability to an unrelated third party in a market value type transaction.
2. The measurement is dependent upon the Actuarial Cost Method which, in combination with the Retirement System's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. Even if the funded status is over 100%, the Retirement and Benefit System would still require future normal cost contributions (i.e., contributions to cover the cost of active membership accruing an additional year of service credit).
3. The measurement would produce a different result if the Market Value of Assets (MVA) were used instead of the FVA, unless the MVA is used in the measurement.

# Other Observations

## Limitations of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entities to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

## Risks to Future Employer Contribution Requirements

There are ongoing risks to future employer contribution requirements to which the Retirement and Benefit System is exposed, such as:

- Actual and Assumed Investment Rate of Return
- Actual and Assumed Mortality Rates
- Amortization Policy

## **SECTION B**

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### **VALUATION RESULTS**

**Contributions to Finance Benefits of the  
Retirement and Benefit System  
for the Plan Year Beginning October 1, 2018  
to be Contributed during the Fiscal Year  
Beginning October 1, 2018**

Contributions for	Contributions Expressed as Percents of Active Member Payroll		
	General Members	Utilities Authority	Police Members
Normal Cost			
Service pensions	11.25 %	10.34 %	12.47 %
Disability pensions	0.46	0.42	0.92
Death-in-service pensions	0.49	0.50	0.36
Deferred service pensions	2.27	2.30	1.83
Refunds of member contributions	0.77	0.93	0.58
Total Normal Cost	15.24	14.49	16.16
Unfunded Actuarial Accrued Liability <sup>(1)</sup>			
Retired members and beneficiaries	0.00	0.00	0.00
Active and vested terminated members	3.87	6.41	0.00
Total Unf'd. Actuarial Accrued Liability	3.87	6.41	0.00
Administrative Expenses	0.73	0.73	0.73
Total Unadjusted Computed Contribution	19.84	21.63	16.89
Adjustments to Computed Contribution			
FS 112.64 (5) Compliance	2.31	2.64	0.77
Full funding credit <sup>(2)</sup>	0.00	0.00	(0.50)
Total Adjustments	2.31	2.64	0.27
Total Adjusted Contribution Requirement <sup>(3)</sup>	22.15	24.27	17.16
Member portion	5.16	6.16	5.16
Employer portion	16.99	18.11	12.00

(1) Financing period schedules begin on page B-7.

(2) This is a temporary credit toward the contribution requirement; see page B-9.

(3) FS 112.64 (2) states that "the total contributions to the retirement system or plan shall be sufficient to meet the normal cost of the retirement system or plan and to amortize the unfunded liability." Therefore, the Total Adjusted Contribution for the System shall be no less than Total Normal Cost for the System including the Administrative Expense Load.

FS 112.64 requires employer contributions to be deposited not less frequently than quarterly. Member contributions, which are in addition to the Employer contributions, must be deposited immediately after each pay period.

# Recommended and Actual Contributions Comparative Statement

Fiscal Date	Valuation Date	Percentage-of-Payroll Contributions			Dollar Contributions@	
		General Members	Utilities Authority	Police Members	Proj. Funding Requirement	Actual \$
79/80 (b)	9/78	7.75 %	8.05 %	10.21 %	\$ 700,500	\$ 785,821
84/85	9/83	7.61	7.82	9.59	1,189,618	1,349,378
89/90	9/88	6.02	7.76	9.17	1,779,600	2,021,209
94/95	9/93	4.99	6.80	4.77	1,846,977	2,386,067
99/00 (b)	9/98 #	0.51	1.20	1.45	709,194	982,054
00/01 (b)	9/99	0.00	0.26	0.00	801,012	1,195,351
01/02 (b)	9/00	0.00	0.26	0.00	906,649	2,158,784
02/03 (b)	9/01	2.91	1.10	0.00	2,048,079	2,271,079
03/04	9/02	4.67	3.23	1.38	2,893,397	3,610,663
04/05	9/03	6.15	4.93	3.76	3,948,626	5,634,357
05/06	9/04	8.01	6.23	6.76	6,283,117	8,975,380
06/07	9/05	11.05	11.94	14.14	3,624,157	4,114,963
07/08 (b)	9/06	11.59	11.01	14.88	3,939,766	4,082,846
08/09 (b)	9/07	9.71	10.06	12.26	3,517,935	3,580,089
09/10	9/08	10.36	10.67	12.79	3,964,443	3,377,350
10/11	9/09	11.06	11.86	12.97	3,999,560	3,181,447
11/12 (b)	9/10	12.59	14.08	13.51	3,937,037	3,566,751
12/13 (b)	9/11	16.50	18.51	15.83	4,860,538	4,266,803
13/14 (b)	9/12	16.20	17.41	15.33	4,676,221	4,356,127
14/15	9/13	14.61	16.81	13.76	4,242,676	4,093,268
15/16	9/14	15.03	16.30	13.76	4,196,009	4,211,311
16/17 (b)	9/15	14.89	16.23	14.61	4,296,532	4,565,884
17/18 (b)	9/16	17.35	17.92	11.98	4,878,739	
<b>18/19</b>	<b>9/16</b>	<b>16.99</b>	<b>18.11</b>	<b>12.00</b>	<b>5,029,181</b>	

\* Prior to 9/30/96 the minimum employer contribution required in accordance with Sec. 21.3 of the Retirement and Benefit System Ordinance was 7.60% for General and Utilities Authority, 9.61% for Police.

@ Actual Employer contributions are determined by applying the Employer's contribution rate to the emerging payroll. Projected funding requirement is derived from the City portion of the contribution rates on page B-1. The payroll was increased by a factor of 1.0816 (1.04^2) to reflect projected payroll growth to the beginning of the fiscal year during which the contribution will be made. Prior to the valuation date of 9/30/05, dollar contributions included Fire members.

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

# Prior to the 9/98 actuarial valuation reimbursement of investment expenses (approx. 2% of payroll) were included in the contribution requirement. The plan was amended 4/98 to allow payment of investment expenses out of investment income.

## Experience Gain/(Loss) Year Ended September 30, 2017

	Divisions			
	General Members	Utilities Authority	Police Members	Total
<b>DERIVATION</b>				
(1) UAAL* at start of year	\$7,101,139	\$13,298,556	\$2,374,168	\$22,773,863
(2) Employer normal cost for year	979,703	1,184,883	833,852	2,998,438
(3) Employer contributions	1,356,423	2,147,330	1,062,131	4,565,884
(4) Interest accrued: .0775 x [(1) + ½ [(2) – (3)]]	535,740	993,343	175,152	1,704,235
(5) Expected UAAL before changes: [(1) + (2) - (3) + (4)]	7,260,159	13,329,452	2,321,041	22,910,652
(6) Effect of assumption changes	0	0	0	0
(7) Effect of cost method changes/ accounting and timing differences	0	0	0	0
(8) Effect of benefit changes	0	0	0	0
(9) Expected UAAL after changes	7,260,159	13,329,452	2,321,041	22,910,652
(10) Actual UAAL	7,351,596	12,800,846	2,689,647	22,842,089
(11) Gain/(loss): (9) - (10)	(91,437)	528,606	(368,606)	68,563

\* UAAL represents Unfunded Actuarial Accrued Liability.

## Development of Funding Value of Retirement System Assets

Year Ended September 30:	2014	2015	2016	2017	2018	2019	2020
A. Funding Value Beginning of Year	\$157,144,811	\$167,451,348	\$177,623,515	\$185,171,022			
B. Market Value End of Year	179,120,149	174,633,807	183,206,017	194,774,112			
C. Market Value Beginning of Year	168,762,698	179,120,149	174,633,807	183,206,017			
D. Non-Investment Net Cash Flow	(6,582,335)	(7,470,414)	(7,899,981)	(7,445,730)			
E. Investment Income							
E1. Market Total: B - C - D	16,939,786	2,984,072	16,472,191	19,013,825			
E2. Amount for Immediate Recognition (8.0%)	12,308,292	13,097,291	13,893,882	14,062,232			
E3. Amount for Phased-In Recognition: E1 - E2	4,631,494	(10,113,219)	2,578,309	4,951,593			
F. Phased-In Recognition of Investment Income							
F1. Current Year: 0.25 x E3	1,157,874	(2,528,305)	644,577	1,237,898			
F2. First Prior Year	2,279,460	1,157,874	(2,528,305)	644,577	\$ 1,237,898		
F3. Second Prior Year	3,636,260	2,279,460	1,157,874	(2,528,305)	644,577	\$ 1,237,898	
F4. Third Prior Year	<u>(2,493,014)</u>	<u>3,636,261</u>	<u>2,279,460</u>	<u>1,157,872</u>	<u>(2,528,304)</u>	<u>644,578</u>	<u>\$ 1,237,899</u>
F5. Total Recognized Investment Gain	4,580,580	4,545,290	1,553,606	512,042	(645,829)	1,882,476	1,237,899
G. Funding Value End of Year: A + D + E2 + F5	167,451,348	177,623,515	185,171,022	192,299,566			
H. Difference between Market & Funding Value	11,668,801	(2,989,708)	(1,965,005)	2,474,546			
I. Recognized Rate of Return	10.98%	10.78%	8.89%	8.03%			
J. Market Value Return	10.24%	1.70%	9.65%	10.59%			

The Funding Value of Assets recognizes assumed investment income (Line E2) fully each year. Differences between actual and assumed investment income (Line E3) are phased-in over a closed 4-year period. During periods when investment performance exceeds the assumed rate, the Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, the Funding Value of Assets will tend to be greater than Market Value. If assumed rates are exactly realized for 3 consecutive years, it will become equal to Market Value.



## Funding Indicators # – Historical Comparison (\$ Amounts in Thousands)

Valuation Date	Indicator (1)	Indicator (2)			Indicator (3)		
	Gain/ (Loss)	Valuation Assets	AAL*	Funded Ratio	Unfunded AAL	Member Payroll	Ratio to Payroll
9/30/93	\$ 4,360	\$ 75,833	\$ 72,883	104 %	\$ (2,950)	\$23,602	(12) %
9/30/94	2,627	83,023	77,060	108	(5,963)	24,137	(25)
9/30/95 (b)	2,031	92,515	86,560	107	(5,955)	26,174	(23)
9/30/96 (b)	4,188	103,164	93,874	110	(9,290)	27,529	(34)
9/30/97	9,324	119,224	100,121	119	(19,103)	29,986	(64)
9/30/98 (b)	4,181	132,975	109,210	122	(23,765)	30,296	(78)
9/30/99 (b)	4,315	146,903	120,514	122	(26,389)	31,688	(83)
9/30/00 (b)	6,465	162,020	129,969	125	(32,051)	33,312	(96)
9/30/01 (b)	(6,086)	165,023	137,067	120	(27,955)	35,600	(79)
9/30/02 (b)	(10,908)	167,050	149,437	112	(17,610)	37,037	(48)
9/30/03	(9,845)	168,943	162,127	104	(6,816)	40,313	(17)
9/30/04	(11,328)	171,558	186,671	92	15,113	43,544	35
9/30/05	(2,296)	185,776	216,534	86	30,758	48,880	63
9/30/06 (b)	3,801	120,062	130,861	92	10,800	30,532	35
9/30/07 (b)	9,087	135,944	138,610	98	2,666	30,984	9
9/30/08	(3,888)	143,467	150,475	95	7,008	32,952	21
9/30/09	(4,060)	147,094	158,755	93	11,661	31,016	38
9/30/10 (b)	(3,429)	148,691	164,865	90	16,174	26,779	60
9/30/11 (b)	(8,690)	142,463	167,683	85	25,220	25,744	98
9/30/12 (b)	854	147,618	171,745	86	24,127	25,842	93
9/30/13	4,086	157,145	177,505	89	20,360	25,199	81
9/30/14	4,960	167,451	182,407	92	14,956	25,150	59
9/30/15 (b)	5,140	177,624	191,986	93	14,362	25,475	56
9/30/16 (b)	1,460	185,171	207,945	89	22,774	27,493	83
<b>9/30/17</b>	<b>69</b>	<b>192,300</b>	<b>215,142</b>	<b>89</b>	<b>22,842</b>	<b>28,563</b>	<b>80</b>

# Excludes Fire after 9/05 valuation date.

\* Actuarial Accrued Liabilities.

(b) After changes in benefit provisions and/or actuarial assumptions.

## Unfunded Actuarial Accrued Liability (\$ amounts in thousands)\*

	September 30, 2017			September 30, 2016		
	General Members	Utilities Authority	Police Members	General Members	Utilities Authority	Police Members
A. Actuarial present value of future benefits	\$74,104	\$108,836	\$62,106	\$71,900	\$106,529	\$58,812
B. Actuarial present value of future normal costs	9,249	12,398	8,257	9,240	12,620	7,436
C. Actuarial accrued liability	64,855	96,438	53,848	62,660	93,909	51,376
D. Actuarial value of assets	57,504	83,637	51,159	55,559	80,610	49,002
E. Unfunded actuarial accrued liability	7,352	12,801	2,690	7,101	13,299	2,374
F. Funded Ratio	88.7%	86.7%	95.0%	88.7%	85.8%	95.4%

\* Totals may be off due to rounding.

# Sources and Financing of Unfunded Actuarial Accrued Liability General Members

Year Established	Initial Years	Years Remaining	Unf'd. Act. Accr. Liab.		Amortization Factor	Amortization Payment*	% of Payroll Contribution*	
			Initial Amount	Current Amount				
<b>Initial Unfunded</b>								
1981	34	4	\$ 2,135,178	\$ 348,957	3.4581	\$ 100,910	1.14 %	
<b>Experience Changes</b>								
1991	30	4	(8,308)	(4,083)	3.4581	(1,181)	(0.01)	
1992	30	5	(260,310)	(153,832)	4.1730	(36,864)	(0.42)	
1993	30	6	(1,200,305)	(813,622)	4.8364	(168,229)	(1.90)	
1994	30	7	(298,407)	(224,561)	5.4521	(41,188)	(0.46)	
1995	30	8	(571,245)	(467,384)	6.0236	(77,592)	(0.88)	
1996	30	9	(328,506)	(287,057)	6.5539	(43,799)	(0.49)	
1997	30	10	(1,697,188)	(1,561,432)	7.0461	(221,602)	(2.50)	
1998	30	11	(1,095,283)	(1,049,048)	7.5029	(139,819)	(1.58)	
1999	30	12	(888,248)	(877,466)	7.9268	(110,696)	(1.25)	
2000	30	13	(1,366,921)	(1,381,864)	8.3203	(166,084)	(1.87)	
2001	30	14	1,108,179	1,142,584	8.6854	131,552	1.49	
2002	30	15	2,074,314	2,168,987	9.0243	240,349	2.71	
2003	30	16	2,097,459	2,213,546	9.3388	237,026	2.68	
2004	30	17	2,013,373	2,135,482	9.6307	221,737	2.50	
2005	30	18	208,003	220,875	9.9016	22,307	0.25	
2006	30	19	(1,561,550)	(1,654,833)	10.1530	(162,989)	(1.84)	
2007	30	20	(3,153,776)	(3,325,628)	10.3863	(320,192)	(3.61)	
2008	30	21	1,535,312	1,606,762	10.6029	151,540	1.71	
2009	30	22	1,306,244	1,353,512	10.8039	125,280	1.41	
2010	30	23	301,258	308,376	10.9904	28,059	0.32	
2011	30	24	3,140,943	3,170,414	11.1635	283,999	3.21	
2012	30	25	(171,717)	(170,590)	11.3241	(15,064)	(0.17)	
2013	30	26	(1,386,129)	(1,353,109)	11.4732	(117,936)	(1.33)	
2014	30	27	(1,482,476)	(1,475,737)	11.6116	(127,092)	(1.43)	
2015	30	28	(2,209,363)	(2,205,887)	11.7400	(187,895)	(2.12)	
2016	30	29	(358,467)	(363,216)	11.8592	(30,627)	(0.35)	
2017	30	30	91,437	91,437	11.9698	7,639	0.09	
<b>Benefit Changes</b>								
1996	30	9	(126,041)	(110,139)	6.5539	(16,805)	(0.19)	
1998	30	11	(4,204)	(4,027)	7.5029	(537)	(0.01)	
2000	30	13	416,125	420,674	8.3203	50,560	0.57	
2004	30	17	603,572	640,177	9.6307	66,472	0.75	
2005	30	18	2,422,727	2,572,655	9.9016	259,822	2.93	
2006	30	19	1,820,155	1,928,886	10.1530	189,982	2.14	
2010	30	23	421,454	431,412	10.9904	39,254	0.44	
2011	30	24	(604,106)	(609,774)	11.1635	(54,622)	(0.62)	
2012	30	25	(520,387)	(516,970)	11.3241	(45,652)	(0.52)	
<b>Assumption Changes</b>								
1995	30	8	822,391	672,868	6.0236	111,706	1.26	
2001	30	14	(571,357)	(589,098)	8.6854	(67,826)	(0.77)	
2011	30	24	154,468	155,917	11.1635	13,967	0.16	
2015	30	28	1,398,986	1,396,785	11.7400	118,977	1.34	
2016	30	29	3,523,964	3,570,647	11.8592	301,087	3.40	
<b>Totals</b>					<b>\$7,351,596</b>		<b>\$547,934</b>	<b>6.18 %</b>

\* Actual wage growth over the past 10 years has been (1.27)%, versus the 4.0% assumed. FS 112 requires use of the 10-year average if less than assumed. Because the 10-year average is less than 0, 0 has been used in the above calculation as required.

# Sources and Financing of Unfunded Actuarial Accrued Liability Utilities Authority Members

Year Established	Initial Years	Years Remaining	Unf'd. Act. Accr. Liab.		Amortization Factor	Amortization Payment*	% of Payroll Contribution*
			Initial Amount	Current Amount			
<b>Initial Unfunded</b>							
1981	34	2	\$3,349,127	\$ 520,711	1.8617	\$ 279,695	2.19 %
<b>Experience Changes</b>							
1989	30	2	(130,266)	(21,268)	1.8617	(11,424)	(0.09)
1990	30	3	407,412	108,572	2.6961	40,271	0.32
1991	30	4	(238,416)	(87,552)	3.4720	(25,216)	(0.20)
1992	30	5	(388,969)	(178,954)	4.1937	(42,672)	(0.33)
1993	30	6	(1,360,632)	(762,889)	4.8649	(156,814)	(1.23)
1994	30	7	(978,978)	(604,034)	5.4892	(110,041)	(0.86)
1995	30	8	(974,186)	(665,027)	6.0698	(109,564)	(0.86)
1996	30	9	(940,560)	(695,428)	6.6097	(105,213)	(0.82)
1997	30	10	(2,192,535)	(1,726,572)	7.1119	(242,773)	(1.90)
1998	30	11	(2,534,640)	(2,098,033)	7.5789	(276,824)	(2.17)
1999	30	12	(1,141,977)	(982,930)	8.0133	(122,662)	(0.96)
2000	30	13	(1,309,143)	(1,161,239)	8.4173	(137,959)	(1.08)
2001	30	14	1,593,737	1,450,586	8.7930	164,970	1.29
2002	30	15	2,859,829	2,653,859	9.1424	290,279	2.27
2003	30	16	2,692,574	2,533,673	9.4674	267,620	2.10
2004	30	17	1,574,647	1,495,373	9.7697	153,063	1.20
2005	30	18	225,846	215,523	10.0508	21,443	0.17
2006	30	19	(2,695,199)	(2,575,396)	10.3122	(249,742)	(1.96)
2007	30	20	(3,178,605)	(3,031,406)	10.5554	(287,191)	(2.25)
2008	30	21	1,783,264	1,692,476	10.7815	156,979	1.23
2009	30	22	2,272,126	2,140,437	10.9918	194,730	1.53
2010	30	23	2,668,679	2,489,202	11.1874	222,500	1.74
2011	30	24	4,692,517	4,325,017	11.3694	380,410	2.98
2012	30	25	(1,001,517)	(910,240)	11.5386	(78,887)	(0.62)
2013	30	26	(1,332,212)	(1,191,870)	11.6959	(101,905)	(0.80)
2014	30	27	(2,039,760)	(2,006,688)	11.8423	(169,452)	(1.33)
2015	30	28	(1,615,435)	(1,592,928)	11.9784	(132,984)	(1.04)
2016	30	29	178,810	180,553	12.1049	14,916	0.12
2017	30	30	(528,606)	(528,606)	12.2227	(43,248)	(0.34)
<b>Benefit Changes</b>							
1996	30	9	1,797,497	1,329,027	6.6097	201,072	1.57
1998	30	11	(6,868)	(5,685)	7.5789	(750)	(0.01)
2000	30	13	217,608	193,021	8.4173	22,931	0.18
2005	30	18	5,714,128	5,452,971	10.0508	542,542	4.25
2007	30	20	879,772	839,031	10.5554	79,488	0.62
2011	30	24	(859,973)	(792,623)	11.3694	(69,716)	(0.55)
2012	30	25	(837,844)	(761,484)	11.5386	(65,995)	(0.52)
<b>Assumption Changes</b>							
1990	30	3	(71,195)	(18,973)	2.6961	(7,037)	(0.06)
1995	30	8	1,262,801	862,055	6.0698	142,025	1.11
2001	30	14	(1,106,750)	(1,007,340)	8.7930	(114,561)	(0.90)
2011	30	24	695,546	641,073	11.3694	56,386	0.44
2015	30	28	2,088,919	2,059,815	11.9784	171,961	1.35
2016	30	29	4,976,532	5,025,036	12.1049	415,122	3.25
<b>Totals</b>				<b>\$12,800,846</b>		<b>\$1,155,773</b>	<b>9.05 %</b>

\* Actual wage growth over the past 10 years has been 0.21%, versus the 4.0% assumed. FS 112 requires use of the 10-year average if less than assumed. This has been used in the above calculation as required.

# Sources and Financing of Unfunded Actuarial Accrued Liability Police Members

Year Established	Initial Years	Years Remaining	Unf'd. Act. Accr. Liab.		Amortization Factor	Amortization Payment*	% of Payroll Contribution*
			Initial Amount	Current Amount			
<b>Initial Unfunded</b>							
1981	34	5	\$ (92,516)	\$ (303,441)	4.2794	\$ (70,907)	(1.02) %
<b>Experience Changes</b>							
1991	30	5	(203,783)	(111,030)	4.2794	(25,945)	(0.37)
1992	30	5	(212,982)	(130,577)	4.2794	(30,513)	(0.44)
1993	30	6	(924,672)	(660,351)	4.9830	(132,519)	(1.91)
1994	30	7	(461,122)	(349,973)	5.6431	(62,018)	(0.89)
1995	30	8	(631,047)	(515,433)	6.2622	(82,309)	(1.19)
1996	30	9	(985,977)	(852,856)	6.8430	(124,632)	(1.80)
1997	30	10	(2,131,299)	(1,927,181)	7.3878	(260,861)	(3.76)
1998	30	11	769,031	719,545	7.8988	91,095	1.31
1999	30	12	(1,200,250)	(1,152,231)	8.3782	(137,527)	(1.98)
2000	30	13	(597,465)	(584,287)	8.8279	(66,186)	(0.95)
2001	30	14	578,886	575,073	9.2498	62,172	0.90
2002	30	15	1,258,164	1,263,094	9.6455	130,952	1.89
2003	30	16	1,317,638	1,330,885	10.0167	132,867	1.92
2004	30	17	2,033,822	2,058,798	10.3649	198,632	2.86
2005	30	18	(40,822)	(41,266)	10.6915	(3,860)	(0.06)
2006	30	19	455,702	458,677	10.9979	41,706	0.60
2007	30	20	(2,754,392)	(2,752,909)	11.2853	(243,937)	(3.52)
2008	30	21	569,652	563,981	11.5549	48,809	0.70
2009	30	22	481,424	471,099	11.8078	39,897	0.58
2010	30	23	458,881	442,891	12.0451	36,769	0.53
2011	30	24	856,807	814,250	12.2676	66,374	0.96
2012	30	25	319,593	298,515	12.4764	23,926	0.34
2013	30	26	(1,367,523)	(1,253,572)	12.6722	(98,923)	(1.43)
2014	30	27	(1,437,583)	(1,304,928)	12.8559	(101,504)	(1.46)
2015	30	28	(1,315,599)	(1,186,817)	13.0282	(91,096)	(1.31)
2016	30	29	(1,280,599)	(1,167,022)	13.1899	(88,479)	(1.28)
2017	30	30	368,606	368,606	13.3415	27,628	0.40
<b>Benefit Changes</b>							
1996	30	9	(52,503)	(45,416)	6.8430	(6,637)	(0.10)
1998	30	11	866,643	810,877	7.8988	102,658	1.48
2000	30	13	154,856	151,440	8.8279	17,155	0.25
2002	30	15	(2,757)	(2,768)	9.6455	(287)	(0.00)
2005	30	18	3,376,647	3,413,398	10.6915	319,263	4.60
2006	30	19	21,867	22,011	10.9979	2,001	0.03
2010	30	23	144,060	139,040	12.0451	11,543	0.17
2011	30	24	(576,034)	(547,421)	12.2676	(44,623)	(0.64)
2012	30	25	(211,273)	(197,339)	12.4764	(15,817)	(0.23)
<b>Assumption Changes</b>							
1995	30	8	576,369	470,772	6.2622	75,177	1.08
2000	30	13	93,418	91,357	8.8279	10,349	0.15
2001	30	14	418,050	415,296	9.2498	44,898	0.65
2011	30	24	577,020	548,361	12.2676	44,700	0.64
2015	30	28	1,193,697	1,076,881	13.0282	82,657	1.19
2016	30	29	1,395,375	1,271,618	13.1899	96,409	1.39
<b>Totals</b>				<b>\$2,689,647</b>		<b>\$19,057</b>	<b>0.27 %</b>

\* Actual wage growth over the past 10 years has been 1.08%, versus the 4.0% assumed. FS 112 requires use of the 10-year average if less than assumed. Because the 10-year average is less than 0, 0 has been used in the above calculation as required.

# Actuarial Balance Sheet - September 30, 2017

## (\$ amounts in thousands)\*

### Present Resources and Expected Future Resources

	General Members	Utilities Authority Members	Police Members	Total
A. Funding value of plan assets:				
1. Net assets from plan financial statements (Market)	\$58,244	\$ 84,714	\$51,817	\$194,775
2. Funding value adjustment	(740)	(1,077)	(658)	(2,475)
3. Funding value of assets	\$57,504	\$ 83,637	\$51,159	\$192,300
B. Actuarial present value of expected future employer contributions:				
1. For normal costs	\$ 6,069	\$ 6,973	\$ 5,538	\$ 18,580
2. For unfunded actuarial accrued liability	7,352	12,801	2,690	22,843
3. Total	\$13,421	\$ 19,774	\$ 8,228	\$ 41,423
C. Actuarial present value of expected future member contributions	3,180	5,425	2,717	11,322
D. Total Present and Future Resources	\$74,105	\$108,836	\$62,104	\$245,045

### Actuarial Present Value of Expected Future Benefit Payments and Reserves

	General Members	Utilities Authority Members	Police Members	Total
A. To retired members and beneficiaries	\$40,956	\$ 60,335	\$33,118	\$134,409
B. To vested terminated members	1,687	2,071	407	4,165
C. To present active members:				
1. Allocated to service rendered prior to valuation date	\$22,213	\$ 34,032	\$20,322	\$ 76,567
2. Allocated to service likely to be rendered after valuation date	9,249	12,398	8,257	29,904
3. Total	\$31,462	\$ 46,430	\$28,579	\$106,471
D. Total actuarial present value of expected future benefit payments	\$74,105	\$108,836	\$62,104	\$245,045

\* Totals may be off due to rounding.

## Cumulative Experience Gains/(Losses)

Year Ended September 30	Balance at Beginning of Year	Interest	Gain/(Loss) During Year	Value of Cost- of-Living Adjustment During Year	Balance at End of Year
1999	\$ -	\$ -	\$ 4,314,699	\$ 709,305	\$ 3,605,394
2000	3,605,394	288,432	6,465,035	1,219,607	9,139,254
2001	9,139,254	731,140	(6,086,030)	1,186,656	2,597,708
2002	2,597,708	207,817	(10,907,939)	-	(8,102,414)
2003	(8,102,414)	(648,193)	(9,844,539)	-	(18,595,145)
2004	(18,595,145)	(1,487,612)	(11,328,205)	-	(31,410,961)
2005	(31,410,961)	(2,512,877)	(2,296,402)	-	(36,220,240)
2006*	(18,683,996)	(1,494,720)	3,801,047	-	(16,377,668)
2007	(16,377,668)	(1,310,213)	9,086,773	-	(8,601,108)
2008	(8,601,108)	(688,089)	(3,888,228)	-	(13,177,425)
2009	(13,177,425)	(1,054,194)	(4,059,794)	-	(18,291,413)
2010	(18,291,413)	(1,463,313)	(3,428,818)	-	(23,183,544)
2011	(23,183,544)	(1,854,684)	(8,690,267)	-	(33,728,495)
2012	(33,728,495)	(2,698,280)	853,641	-	(35,573,134)
2013	(35,573,134)	(2,845,851)	4,085,864	-	(34,333,121)
2014	(34,333,121)	(2,746,650)	4,959,820	-	(32,119,951)
2015	(32,119,951)	(2,569,596)	5,140,356	-	(29,549,191)
2016	(29,549,191)	(2,290,062)	1,460,257	-	(30,378,996)
2017	(30,378,996)	(2,354,372)	68,563	-	(32,664,805)

\* After removing the estimated impact of Fire members.

## **SECTION C**

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### **SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA SUBMITTED BY THE RETIREMENT AND BENEFIT SYSTEM**



# Summary of Benefit Provisions (September 30, 2017)

**Participation:** Participation in the Retirement and Benefit System begins upon employment.

**Normal Retirement** (no reduction factor for age):

**Eligibility** - Original members: 20 or more years of service.

**All members** - General, Utilities Authority: 25 or more years of service regardless of age, or age 60 with 5 or more years of service.

- Police: 25 or more years of service, regardless of age, or age 55 with 5 or more years of service.

**Mandatory Retirement Age** - None.

**Annual Amount** - All members: Total service times 3.0% of final average salary.

*For members hired prior to October 1, 2012:*

- The maximum pension benefit is \$100,000 annually.

*For members hired on or after October 1, 2012:*

- The maximum annual pension benefit shall not exceed 75% of final average salary.

- The maximum pension benefit is \$100,000 annually.

The normal form of benefit is a benefit payable for life. Optional forms are available on an actuarial equivalent basis.

**Type of Final Average Salary** - General: Highest 5 consecutive years out of last 10. Police, Utilities Authority: Highest 5 years out of last 10. Overtime hours included in compensation are limited to 300 hours per fiscal year.

*For members hired prior to October 1, 2012:* Payments for unused sick and vacation time included in compensation are limited to unused sick and vacation time accrued through September 20, 2012 for General and Police, and July 1, 2011 for Utilities Authority.

*For members hired on or after October 1, 2012:* Payments for unused sick and vacation time are not included in compensation.

**Deferred Retirement Option Plan (DROP) Retirement:**

**Eligibility** - General, Police, and Utilities Authority members: Same as Normal Retirement, election may be made on or after normal retirement eligibility, but not after reaching 30 years of service. Participation in the DROP ends after five years.

**Annual Amount** - Computed as a normal retirement but based upon service and final average salary at time of DROP election. Member contributions cease and monthly benefits (and post-retirement increases, if any) accumulate in a self-directed DROP account and are payable to the member upon termination of employment.

**Deferred Retirement (vested benefit):**

**Eligibility** - For Members hired prior to October 1, 2012: 5 or more years of service.  
For Members hired on or after October 1, 2012: 10 or more years of service.  
Benefit begins upon attaining age 60.

**Annual Amount** - Computed as a normal retirement but based upon service and final average salary at time of termination.

**Duty Disability Retirement:**

**Eligibility** - No age or service requirements if the Retirement Board finds the member to be in receipt of weekly workers' compensation on account of disability in the course of duty.

**Annual Amount** - Computed as a normal retirement based upon service projected to the end of the duty disability period and final average salary at time of disability. Minimum benefit is 75% of final average salary during the duty disability period. The duty disability period ends on the earlier of the 25th anniversary of the member's hire date or the date the member attains age 65 but not prior to 5 years from the date of duty disability retirement.

**Non-Duty Disability Retirement:**

**Eligibility** - 5 or more years of service.

**Annual Amount** - Computed as a normal retirement but based upon service and final average salary at time of disability.

**Duty Death Before Retirement:**

**Eligibility** - No age or service requirements. Benefits begin upon termination of workers' compensation.

**Annual Amount** - A benefit equal to the same amount that was paid by workers' compensation to the spouse until death, to unmarried children under 18 and dependent parents.

**Non-Duty Death Before Retirement:**

**Eligibility** - 5 or more years of service.

**Annual Amount** - Computed as a normal retirement but actuarially reduced in accordance with a 100% joint and survivor election.

**Post-Retirement Increases:** COLA may be granted from investment returns in excess of actuarial interest assumption, not to exceed 3%.

**Military Service:** May be purchased by members who meet the eligibility conditions.

**Member Contributions:**       General: 5.16% of annual salary  
                                      Police: 5.16% of annual salary  
                                      Utilities Authority: 6.16% of annual salary

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

**Changes in Plan Provisions:** There were no changes in Plan Provisions since the last valuation.

# Accounting Information Submitted for Valuation

## Revenues and Expenditures

	Year Ended	
	9/30/2017	9/30/2016
<b>REVENUES:</b>		
a. Member contributions:		
General	\$ 467,700	\$ 424,671
Police	387,859	338,330
Utilities Authority	813,648	770,508
b. Employer contributions:		
General	1,356,423	1,241,098
Police	1,062,131	931,515
Utilities Authority	2,147,330	2,038,699
c. Investment income:		
1. Interest and dividends	3,451,878	3,349,118
2. Gain or loss on sales	4,777,142	2,508,100
3. Unrealized gain/loss	11,499,060	11,261,975
d. Total revenues	<u>\$ 25,963,171</u>	<u>\$ 22,864,014</u>
<b>EXPENDITURES:</b>		
a. Refunds of member contributions:		
General	\$ 106,162	\$ 124,833
Police	38,145	227,175
Utilities Authority	113,280	140,340
b. Benefits paid:		
General	4,066,919	4,032,966
Police	3,087,513	2,934,218
Utilities Authority	6,014,520	5,917,139
c. Investment expenses	714,255	647,002
d. Administrative expenses	209,251	217,891
e. Other	45,031	50,240
f. Total expenditures	<u>\$ 14,395,076</u>	<u>\$ 14,291,804</u>
<b>ADJUSTMENTS:</b>	\$ -	\$ -
<b>RESERVE INCREASE:</b>	\$ 11,568,095	\$ 8,572,210

## Market Value of Assets

	9/30/2017	9/30/2016
Cash	(1,850,000)	\$ 95,891
Receivables & Accruals	522,063	623,581
Other short-term	4,702,303	3,076,924
Real Estate	21,671,230	20,372,890
Bonds - government	25,818,039	29,855,487
- corporate	19,458,250	15,586,770
Stocks - common	14,901,644	13,788,126
- mutual funds	109,577,169	99,752,022
Other - prepaid expenses	3,936	105,712
Total assets	<u>194,804,634</u>	<u>183,257,403</u>
Less accounts payable	<u>30,522</u>	<u>51,386</u>
Net assets	<u>\$ 194,774,112</u>	<u>\$ 183,206,017</u>

## Retired Member and Beneficiary Data September 30, 2017 Tabulated by Valuation Divisions

Valuation Divisions	No.	Annual Benefits	Average Benefit	Actuarial Value of Benefits
General Members	202	\$ 4,194,976	\$ 20,767	\$ 40,955,992
Utilities Authority Members	221	5,939,504	26,876	60,334,932
Police Members	82	3,136,403	38,249	33,118,397
<b>Totals</b>	<b>505</b>	<b>\$13,270,883</b>	<b>\$26,279</b>	<b>\$134,409,321</b>

Divisions	All Retirement's Averages			New Age and Service Retired Members Added During Year Ended 9/30/2017		
	Attained Age	Retirement Age	Current	Averages		
			Annual Benefits	No.	Age	Annual Benefits
General Members	70.2	59.9	\$20,767	10	59.3	\$16,915
Utilities Authority Members	69.1	58.1	26,876	4	59.2	23,790
Police Members	65.3	53.9	38,249	2	51.9	49,367

## Retired Member and Beneficiary Data Historical Comparison

Period	Added		Removed		Net Increase		End of Period		Expected Removals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Benefits
9/30/83	15	\$ 94,040	9	\$ 17,784	6	\$ 76,256	147	\$ 678,832	4.2	\$ 12,930
9/30/84	16	74,505	6	14,486	10	60,019	157	738,851	4.3	15,103
9/30/85	11	87,916	6	16,055	5	71,861	162	810,712	4.8	17,129
9/30/86	21	237,533	8	34,936	13	202,597	175	1,013,309	5.3	20,394
9/30/87	17	182,208	7	18,904	10	163,304	185	1,176,613	5.7	25,092
9/30/88	16	176,569	6	18,144	10	158,425	195	1,335,038	6.0	29,181
9/30/89	18	210,866	7	29,378	11	181,488	206	1,516,526	6.6	34,395
9/30/90	19	284,294	8	50,713	11	233,581	217	1,750,107	7.2	40,904
9/30/91	12	166,933	12	40,397	-	126,536	217	1,876,643	7.8	48,142
9/30/92	19	279,791	6	12,185	13	267,606	230	2,144,249	7.4	46,602
9/30/93	26	505,107	8	102,192	18	402,915	248	2,547,164	8.1	53,142
9/30/94	20	319,610	8	59,627	12	259,983	260	2,807,147	8.7	58,237
9/30/95	22	481,651	9	41,888	13	439,763	273	3,246,910	9.2	64,542
9/30/96	12	177,476	9	54,301	3	123,175	276	3,370,085	8.4	61,052
9/30/97	20	311,526	11	62,949	9	248,577	285	3,618,662	8.9	66,449
9/30/98	35	833,113	9	47,534	27	785,579	311	4,404,241	9.1	72,632
9/30/99	25	507,447	15	126,797	10	380,650	321	4,784,891	9.7	82,380
9/30/00	27	646,116	14	129,198	13	516,918	334	5,301,809	9.9	90,589
9/30/01	23	628,192	15	97,296	8	530,896	342	5,832,705	9.9	97,991
9/30/02	23	526,601	3	33,319	20	493,282	362	6,325,987	9.7	109,931
9/30/03	17	313,250	5	42,129	12	271,121	374	6,597,108	10.6	121,871
9/30/04	25	705,692	3	44,505	22	661,187	396	7,258,295	11.2	132,981
9/30/05	11	354,475	22	266,853	(11)	87,622	385	7,345,917	12.4	149,279
9/30/06 *	37	1,017,845	99	2,907,201	(62)	(1,889,356)	323	5,456,561	10.0	109,462
9/30/07	32	820,021	18	202,924	14	617,097	337	6,073,658	11.0	126,496
9/30/08	23	635,039	12	184,195	11	450,844	348	6,524,502	11.2	138,459
9/30/09	55	1,551,148	16	182,856	39	1,368,292	387	7,892,794	11.7	149,577
9/30/10	56	2,229,035	14	177,196	42	2,051,839	429	9,944,633	12.3	170,609
9/30/11	26	672,328	16	239,318	10	433,010	439	10,377,643	12.9	197,045
9/30/12	27	746,421	14	251,747	13	494,674	452	10,872,317	13.5	196,990
9/30/13	32	927,561	15	134,978	17	792,583	469	11,664,900	14.2	214,174
9/30/14	40	890,500	20	262,625	20	627,875	489	12,292,775	14.2	232,649
9/30/15	31	739,422	19	262,533	12	476,889	501	12,769,664	15.2	249,235
9/30/16	24	653,823	26	380,819	(2)	273,004	499	13,042,668	16.1	270,359
<b>9/30/17</b>	<b>19</b>	<b>382,822</b>	<b>13</b>	<b>154,607</b>	<b>6</b>	<b>228,215</b>	<b>505</b>	<b>13,270,883</b>	<b>13.8</b>	<b>249,276</b>

\* Removed 90 Fire retirees and beneficiaries, and \$2,811,761 annual benefits in the 9/30/2006 valuation.

## Retired Members and Beneficiaries Historical Comparison

Valuation Date	% Increase in Annual Benefits	No. of Active Per Retired	Annual Benefits as % of Active Payroll	Average Benefits
9/30/83	8.0 %	4.9	5.5 %	\$ 4,618
9/30/84	8.8	4.7	5.5	4,706
9/30/85	9.7	4.7	5.4	5,004
9/30/86	25.0	4.4	6.1	5,790
9/30/87	16.1	4.2	6.6	6,360
9/30/88	13.5	4.2	6.8	6,846
9/30/89	13.6	4.0	7.5	7,362
9/30/90	15.4	3.9	7.8	8,065
9/30/91	7.2	3.9	7.9	8,648
9/30/92	14.3	3.6	8.6	9,323
9/30/93	18.8	3.1	10.8	10,271
9/30/94	10.2	3.0	11.6	10,797
9/30/95	15.7	3.0	12.4	11,893
9/30/96	3.8	3.0	12.2	12,210
9/30/97	7.4	3.2	12.1	12,697
9/30/98	21.7	2.8	14.5	14,162
9/30/99	8.6	2.7	15.1	14,906
9/30/00	10.8	2.7	15.9	15,874
9/30/01	10.0	2.7	16.4	17,055
9/30/02	8.5	2.5	17.1	17,475
9/30/03	4.3	2.5	16.4	17,639
9/30/04	10.0	2.4	16.7	18,329
9/30/05	1.2	2.6	15.0	19,080
9/30/06 *	20.3	2.0	17.9	16,893
9/30/07	11.3	2.0	19.6	18,023
9/30/08	7.4	2.0	19.8	18,749
9/30/09	21.0	1.7	25.4	20,395
9/30/10	26.0	1.3	37.1	23,181
9/30/11	4.4	1.3	40.3	23,639
9/30/12	4.8	1.2	42.1	24,054
9/30/13	7.3	1.1	46.3	24,872
9/30/14	5.4	1.1	48.9	25,139
9/30/15	3.9	1.0	50.1	25,488
9/30/16	2.1	1.1	47.4	26,138
<b>9/30/17</b>	<b>1.7</b>	<b>1.1</b>	<b>46.5</b>	<b>26,279</b>

\* Removed 90 Fire retirees and beneficiaries, and \$2,811,761 annual benefits in the 9/30/2006 valuation.

## Retired Member and Beneficiary Data as of September 30, 2017 by Type of Benefit Being Paid

<u>Type of Benefit Being Paid</u>	<u>No.</u>	<u>Annual Benefits</u>	<u>Average Benefits</u>
Age and Service Benefits			
Straight Life - benefit terminating at death of retiree	171	\$ 4,630,837	\$27,081
Option A - 100% joint and survivor benefit*	108	3,144,783	29,118
Option B/D/E - 50%/75%/67% joint and survivor benefit*	98	3,159,613	32,241
Option C - 10-year certain and life	24	607,689	25,320
Surviving beneficiaries	64	840,135	13,127
Other Age and Service Benefits	<u>1</u>	<u>13,155</u>	<u>13,155</u>
Total Age and Service Benefits	466	12,396,212	26,601
Casualty Benefits			
Duty disability	10	348,662	34,866
Non-duty disability	10	161,280	16,128
Duty death	2	47,846	23,923
Non-duty death	12	262,508	21,876
Surviving beneficiaries	<u>5</u>	<u>54,375</u>	<u>10,875</u>
Total Casualty Benefits	39	874,671	22,427
<b>Total Benefits Being Paid</b>	<b>505</b>	<b>\$13,270,883</b>	<b>\$26,279</b>

\* Includes pop-up provision.



## Retired Members and Beneficiaries as of September 30, 2017 by Attained Age

Age Last Birthday	Age and Service		Casualty		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	3	\$ 19,122	1	\$ 33,018	4	\$ 52,140
45-49	6	232,329	4	83,540	10	315,869
50-54	20	811,901	6	166,777	26	978,678
55-59	39	1,553,813	6	169,507	45	1,723,320
60-64	106	3,340,997	7	105,204	113	3,446,201
65-69	87	2,319,278	9	209,638	96	2,528,916
70-74	82	2,186,976	0	-	82	2,186,976
75-79	46	904,343	5	74,972	51	979,315
80-84	27	429,664	0	-	27	429,664
85-89	29	419,426	1	32,015	30	451,441
90 & Over	21	178,363	0	-	21	178,363
<b>Totals</b>	<b>466</b>	<b>\$ 12,396,212</b>	<b>39</b>	<b>\$ 874,671</b>	<b>505</b>	<b>\$ 13,270,883</b>

## Inactive Vested Members as of September 30, 2017 by Attained Age

Attained Age	General Members		Utilities Authority*		Police Members*		TOTAL	
	No.	Estimated Annual Benefits	No.	Estimated Annual Benefits	No.	Estimated Annual Benefits	No.	Estimated Annual Benefits
30-34	1	\$ 4,347					1	\$ 4,347
35-39	3	34,333	1	\$ 26,280			4	60,613
40-44			1	22,124	3	\$ 50,529	4	72,653
45-49	2	48,736	4	41,847	4	67,565	10	158,148
50-54	6	132,261	2	47,191	1	7,094	9	186,546
55-59	7	77,106	9	155,209			16	232,315
60-64			1	9,027			1	9,027
<b>TOTALS</b>	<b>19</b>	<b>\$296,783</b>	<b>18</b>	<b>\$301,678</b>	<b>8</b>	<b>\$125,188</b>	<b>45</b>	<b>\$723,649</b>

\* Deferred annuities were estimated for 6 Utilities Authority members and 1 Police member who terminated during the 2016-2017 plan year.

## Active Members Included in Valuation General Members

Valuation September 30	Active Members	Vested		Valuation Payroll	Average		
		Term. Members			Age	Service	Pay
1998	249	3		\$ 6,868,334	44.6 yrs.	8.5 yrs.	\$ 27,584
1999	242	2		6,892,761	45.3	8.6	28,482
2000	260	2		7,717,224	45.8	8.5	29,682
2001	268	3		8,308,758	45.1	8.3	31,003
2002	275	7		8,901,179	45.5	8.1	32,368
2003	302	5		9,994,351	46.5	7.7	33,094
2004	294	7		10,546,747	46.1	8.1	35,873
2005	297	7		11,854,374	46.4	8.6	39,914
2006	287	6		11,206,771	46.5	8.0	39,048
2007	289	6		11,131,329	47.3	8.3	38,517
2008	281	6		11,949,389	47.9	9.0	42,525
2009	265	8		11,108,762	47.5	8.6	41,920
2010	226	13		8,874,396	46.8	8.0	39,267
2011	219	16		8,488,894	47.1	8.2	38,762
2012	216	16		8,625,945	47.8	8.9	39,935
2013	198	17		7,765,325	48.2	9.4	39,219
2014	198	14		7,912,918	48.3	9.3	39,964
2015	185	15		7,383,853	48.9	9.8	39,913
2016	203	20		8,738,017	48.5	8.8	43,044
<b>2017</b>	<b>199</b>	<b>19</b>		<b>8,858,072</b>	<b>48.7</b>	<b>9.1</b>	<b>44,513</b>

## Number Added to and Removed from Active Membership General Members

Year Ended September 30	Number Added During Year		Normal Retirement		Disability Retirement		Died-In- Service		Terminations				Active Members End of Year	
	A	E	A	E	A	E	A	E	Withdrawal	Vested	Totals			Transfer
									A	A	A	E		
2008	19	27	7	14.8	0	0.4	0	0.5	19	1	20	19.7		281
2009	20	36	23	18.2	0	0.4	1	0.5	10	2	12	17.0		265
2010	10	49	23	12.9	0	0.4	0	0.5	21	5	26	16.1		226
2011	17	24	11	7.5	1	0.4	1	0.5	8	3	11	12.3		219
2012	10	13	4	7.0	0	0.5	3	0.3	5	1	6	12.3		216
2013	9	27	10	9.8	0	0.5	1	0.4	13	3	16	11.0		198
2014	23	23	10	8.4	0	0.5	0	0.4	13	0	13	9.5		198
2015	14	26	8	10.1	0	0.4	2	0.4	14	2	16	10.9	(1)	185
2016	41	23	7	8.3	0	0.5	0	0.4	10	6	16	9.9		203
<b>2017</b>	<b>17</b>	<b>23</b>	<b>7</b>	<b>6.7</b>	<b>1</b>	<b>0.4</b>	<b>0</b>	<b>0.3</b>	<b>14</b>	<b>1</b>	<b>15</b>	<b>16.5</b>	<b>2</b>	<b>199</b>
<b>10-Year Totals</b>	<b>180</b>	<b>271</b>	<b>110</b>	<b>103.7</b>	<b>2</b>	<b>4.4</b>	<b>8</b>	<b>4.2</b>	<b>127</b>	<b>24</b>	<b>151</b>	<b>135.2</b>		

A represents actual number; E represents expected number.

## Active Members Included in Valuation Utilities Authority Members

Valuation September 30	Active Members	Vested		Valuation Payroll	Average		
		Term. Members			Age	Service	Pay
1998	230	12		\$ 8,481,126	43.7 yrs.	10.0 yrs.	\$ 36,874
1999	247	10		9,431,774	44.0	9.3	38,185
2000	244	12		9,750,426	44.1	9.5	39,961
2001	257	13		10,236,646	44.1	9.0	39,831
2002	253	9		10,675,070	44.9	9.7	42,194
2003	248	10		10,744,695	45.3	10.0	43,325
2004	245	11		11,193,220	45.8	10.1	45,687
2005	256	12		12,754,845	46.5	10.1	49,824
2006	263	11		12,551,346	46.6	9.6	47,724
2007	278	10		13,494,349	46.5	9.3	48,541
2008	282	12		13,970,069	46.5	9.1	49,539
2009	266	7		13,244,000	46.0	9.3	49,789
2010	248	8		12,119,371	46.2	9.3	48,868
2011	237	10		11,893,916	47.0	9.9	50,185
2012	237	10		11,801,344	47.2	9.9	49,795
2013	232	9		11,534,243	46.7	9.6	49,717
2014	219	15		11,071,951	46.4	9.3	50,557
2015	228	18		11,841,919	46.3	9.1	51,938
2016	229	16		12,588,492	46.3	9.4	54,972
<b>2017</b>	<b>230</b>	<b>18</b>		<b>12,768,134</b>	<b>46.5</b>	<b>9.8</b>	<b>55,514</b>

## Number Added to and Removed from Active Membership Utilities Authority Members

Year Ended September 30	Number Added During Year		Normal Retirement		Disability Retirement		Died-In- Service		Terminations				Active Members End of Year	
	A	E	A	E	A	E	A	E	Withdrawal		Totals			Transfer
									A	E	A	E		
2008	27	23	11	9.2	0	0.5	0	0.6	9	3	12	18.7		282
2009	11	27	13	8.2	2	0.5	1	0.5	10	1	11	18.3		266
2010	11	29	19	9.7	0	0.5	0	0.5	9	1	10	15.3		248
2011	5	16	7	5.8	0	0.5	0	0.5	7	2	9	13.4		237
2012	20	20	8	8.6	0	0.6	0	0.4	11	1	12	11.0		237
2013	25	30	14	9.0	0	0.6	1	0.5	15	0	15	12.0		232
2014	23	36	18	8.8	0	0.6	0	0.4	12	6	18	13.3		219
2015	27	19	10	6.1	1	0.5	0	0.4	4	4	8	13.5	1	228
2016	25	24	6	5.3	0	0.5	0	0.3	15	3	18	15.0		229
<b>2017</b>	<b>19</b>	<b>18</b>	<b>2</b>	<b>6.8</b>	<b>0</b>	<b>0.5</b>	<b>0</b>	<b>0.3</b>	<b>10</b>	<b>6</b>	<b>16</b>	<b>16.7</b>		<b>230</b>
<b>10-Year Totals</b>	<b>193</b>	<b>242</b>	<b>108</b>	<b>77.5</b>	<b>3</b>	<b>5.3</b>	<b>2</b>	<b>4.4</b>	<b>102</b>	<b>27</b>	<b>129</b>	<b>147.2</b>		

A represents actual number; E represents expected number.

## Active Members Included in Valuation Police Members

Valuation September 30	Active Members	Vested Term. Members	Payroll	Average		
				Age	Service	Pay
1998	111	3	\$ 4,234,703	37.7 yrs.	7.9 yrs.	\$ 38,150
1999	106	2	4,224,186	38.1	8.4	39,851
2000	112	2	4,503,739	38.6	7.9	40,212
2001	107	1	4,418,980	38.5	8.1	41,299
2002	102	2	4,567,931	39.7	9.0	44,784
2003	103	3	4,921,744	39.9	9.1	47,784
2004	103	3	5,496,631	40.3	9.9	53,365
2005	105	3	5,943,309	40.9	10.6	56,603
2006	111	2	6,773,879	39.3	9.4	61,026
2007	106	2	6,358,225	38.9	9.4	59,983
2008	117	2	7,032,172	39.2	9.4	60,104
2009	111	3	6,663,530	38.6	9.2	60,032
2010	102	3	5,785,106	38.4	9.0	56,717
2011	101	4	5,361,391	38.9	9.7	53,083
2012	99	3	5,415,125	39.0	9.8	54,698
2013	106	3	5,899,165	39.2	9.2	55,653
2014	109	2	6,165,492	38.4	8.9	56,564
2015	107	4	6,249,587	39.0	9.1	58,407
2016	100	6	6,166,648	38.3	9.0	61,666
<b>2017</b>	<b>110</b>	<b>8</b>	<b>6,937,207</b>	<b>37.9</b>	<b>8.6</b>	<b>63,066</b>

## Number Added to and Removed from Active Membership Police Members

Year Ended September 30	Number Added During Year		Normal Retirement		Disability Retirement		Died-In- Service		Terminations				Active Members End of Year	
	A	E	A	E	A	E	A	E	Withdrawal		Totals	Transfer		
									A	A	A			E
2008	13	2	0	4.7	0	0.2	0	0.1	2	0	2	4.2	117	
2009	12	18	5	5.1	0	0.2	0	0.1	12	1	13	5.1	111	
2010	4	13	9	4.4	0	0.2	0	0.1	4	0	4	5.3	102	
2011	5	6	1	1.7	0	0.2	0	0.1	4	1	5	5.3	101	
2012	14	16	1	0.9	3	0.3	0	0.1	12	0	12	3.7	99	
2013	17	10	2	1.4	0	0.2	0	0.1	8	0	8	4.4	106	
2014	19	16	4	2.0	0	0.2	0	0.1	12	0	12	5.3	109	
2015	14	16	2	2.0	1	0.2	0	0.1	11	2	13	5.8	107	
2016	15	22	4	3.4	0	0.2	0	0.1	15	3	18	5.8	100	
<b>2017</b>	<b>17</b>	<b>5</b>	<b>1</b>	<b>1.5</b>	<b>0</b>	<b>0.2</b>	<b>1</b>	<b>0.1</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>6.6</b>	<b>(2)</b>	<b>110</b>
<b>10-Year Totals</b>	<b>130</b>	<b>124</b>	<b>29</b>	<b>27.1</b>	<b>4</b>	<b>2.1</b>	<b>1</b>	<b>1.0</b>	<b>82</b>	<b>8</b>	<b>90</b>	<b>51.5</b>		

A represents actual number; E represents expected number.

## General Members as of September 30, 2017 by Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	1							1	\$ 29,263
25-29	9	1						10	361,215
30-34	11	2	4					17	637,794
35-39	10	1	2	2				15	553,165
40-44	9	2	5	8	2			26	1,314,503
45-49	10	7	6	6	4			33	1,661,900
50-54	12	3	12	5	1			33	1,477,744
55-59	8	3	10	7	8			36	1,856,704
60	1	1	2					4	143,905
61								0	0
62	1	1			1			3	171,662
63	1							1	50,437
64		3	1					4	132,675
65		1						1	131,333
66	1		1					2	36,225
67	1	1	1					3	77,193
68	2	1	1					4	167,310
71	1							1	10,431
72	1							1	7,928
73				1				1	9,079
76			1					1	8,702
79				2				2	18,904
<b>Totals</b>	<b>79</b>	<b>27</b>	<b>46</b>	<b>31</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>199</b>	<b>\$8,858,072</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 48.7 years  
Service: 9.1 years  
Annual Pay: \$44,513

## Utilities Authority Members as of September 30, 2017 by Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	2							2	\$ 56,763
25-29	16	1						17	644,583
30-34	14	5	6					25	1,284,915
35-39	11	6	4	5				26	1,251,953
40-44	7	4	6	2	1			20	1,198,777
45-49	13	6	7	6	3	5		40	2,461,674
50-54	10	3	11	4	7	2		37	2,135,467
55-59	6	5	11	7	5			34	1,928,531
60	2		7	1	1			11	636,375
61	2	1			1	1	1	6	427,306
62		1	1					2	117,198
63	2	1	1		1			5	336,219
65		1						1	56,222
66				1				1	114,477
67	2							2	74,480
73			1					1	43,194
<b>Totals</b>	<b>87</b>	<b>34</b>	<b>55</b>	<b>26</b>	<b>19</b>	<b>8</b>	<b>1</b>	<b>230</b>	<b>\$12,768,134</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 46.5 years  
Service: 9.8 years  
Annual Pay: \$55,514

## Police Members as of September 30, 2017 by Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	10							10	\$ 430,945
25-29	20							20	1,000,031
30-34	10	3	2					15	790,975
35-39	10	2	3	1				16	898,449
40-44	5	4	2	6	1			18	1,275,277
45-49	2		1	4	7			14	1,156,200
50-54	4			3	4			11	900,194
55-59			1	1	3			5	402,359
60				1				1	82,777
<b>Totals</b>	<b>61</b>	<b>9</b>	<b>9</b>	<b>16</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>110</b>	<b>\$6,937,207</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age:           37.9       years  
Service:       8.6       years  
Annual Pay:   \$63,066



## **SECTION D**

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### **ACTUARIAL COST METHOD, ACTUARIAL ESTIMATES AND DEFINITIONS OF TECHNICAL TERMS**

## Actuarial Cost Method Used for the Valuation

The actuarial cost method is a procedure for allocating the actuarial present value of future benefits and expenses to time periods. The method used for this valuation is the individual entry-age actuarial cost method, and has the following characteristics:

**Actuarial Present Value of Future Benefits.** Actuarial present values are calculated using the benefit provisions applicable to active members, vested terminated members, and retirees and beneficiaries as of the valuation date using the assumptions summarized elsewhere in this report.

**Normal Costs.** The actuarial present values for each year of service rendered before and after the valuation date are determined so that:

- (i) the annual normal costs for each individual active member, payable from the member's effective date of employment (or entry age) to projected date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) each annual normal cost is a constant percentage of the active member's year-by-year projected pensionable pay.

**Actuarial Accrued Liabilities.** The actuarial present value of future benefits minus the actuarial present value of normal costs rendered after the valuation date is the Actuarial Accrued Liabilities.

**Funding Value of Assets.** The accrued assets recognized as of the valuation date for the purpose of determining contribution requirements.

**Unfunded Actuarial Accrued Liabilities.** The Actuarial Accrued Liabilities minus the funding value of assets are the Unfunded Actuarial Accrued Liabilities.

**Amortization of Unfunded Actuarial Accrued Liabilities.** Unfunded Actuarial Accrued Liabilities were amortized by level (principal & interest combined) percent-of-payroll contributions over periods shown elsewhere in this report. Active member payroll was assumed to increase 4.0% a year for the purpose of determining the level percent contributions, unless the 10-year average annual payroll growth is lower than 4.0%.

**Actuarial Assumptions.** Assumptions are established by the Board after consulting with the actuary. Non-economic assumptions are generally selected on the basis of the System's historical activity, modified for expected future differences. The reasonableness of the economic assumptions is based upon capital market expectations provided by various investment consultants and other sources such as the Social Security Trustees report. All actuarial assumptions are based on future expectations, not market measures.

## Level Percent of Active Member Covered Payroll Amortization of Unfunded Actuarial Accrued Liability\* (\$ amounts in thousands) General Members

Year	Pay		Unfunded		Contribution	
	Inflated Dollars	Constant Dollars	Inflated Dollars	Constant Dollars	Inflated Dollars	Constant Dollars
2017	\$ 8,858	\$8,858	\$ 7,352	\$7,352	\$ 342	\$ 342
2018	9,212	8,858	7,559	7,268	356	342
2019	9,581	8,858	7,768	7,182	370	342
2020	9,964	8,858	7,978	7,092	385	342
2021	10,363	8,858	8,189	7,000	292	250
2026	12,608	8,858	9,001	6,324	701	492
2031	15,339	8,858	5,912	3,414	1,602	925
2036	18,663	8,858	2,220	1,054	233	110
2046	27,625	8,858	15	5	15	5
2047	28,730	8,858	0	0	0	0

* \$	91,437	over 30 years	\$	2,168,987	over 15 years
	3,207,431	over 29 years		553,486	over 14 years
	(809,102)	over 28 years		(961,190)	over 13 years
	(1,475,737)	over 27 years		(877,466)	over 12 years
	(1,353,109)	over 26 years		(1,053,075)	over 11 years
	(687,560)	over 25 years		(1,561,432)	over 10 years
	2,716,557	over 24 years		(397,196)	over 9 years
	739,788	over 23 years		205,484	over 8 years
	1,353,512	over 22 years		(224,561)	over 7 years
	1,606,762	over 21 years		(813,622)	over 6 years
	(3,325,628)	over 20 years		(153,832)	over 5 years
	274,053	over 19 years		344,874	over 4 years
	2,793,530	over 18 years		0	over 3 years
	2,775,659	over 17 years		0	over 2 years
	2,213,546	over 16 years		0	over 1 year
			<b>\$</b>	<b>7,351,596</b>	<b>TOTAL</b>

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.

**Level Percent of Active Member Covered Payroll  
Amortization of Unfunded Actuarial Accrued Liability\*  
(\$ amounts in thousands)  
Utility Authority Members**

Year	Pay		Unfunded		Contribution	
	Inflated Dollars	Constant Dollars	Inflated Dollars	Constant Dollars	Inflated Dollars	Constant Dollars
2017	\$12,768	\$12,768	\$12,801	\$12,801	\$ 819	\$ 819
2018	13,279	12,768	12,926	12,429	852	819
2019	13,810	12,768	13,026	12,044	606	560
2020	14,362	12,768	13,395	11,908	595	529
2021	14,937	12,768	13,803	11,799	646	552
2026	18,173	12,768	14,628	10,277	1,024	719
2031	22,110	12,768	11,117	6,420	2,266	1,309
2036	26,901	12,768	5,938	2,819	1,088	516
2046	39,819	12,768	(88)	(28)	(89)	(29)
2047	41,412	12,768	0	0	0	0

* \$ (528,606)	over 30 years	\$ 2,653,859	over 15 years
5,205,589	over 29 years	443,246	over 14 years
466,887	over 28 years	(968,218)	over 13 years
(2,006,688)	over 27 years	(982,930)	over 12 years
(1,191,870)	over 26 years	(2,103,718)	over 11 years
(1,671,724)	over 25 years	(1,726,572)	over 10 years
4,173,467	over 24 years	633,599	over 9 years
2,489,202	over 23 years	197,028	over 8 years
2,140,437	over 22 years	(604,034)	over 7 years
1,692,476	over 21 years	(762,889)	over 6 years
(2,192,375)	over 20 years	(178,954)	over 5 years
(2,575,396)	over 19 years	(87,552)	over 4 years
5,668,494	over 18 years	89,599	over 3 years
1,495,373	over 17 years	499,443	over 2 years
2,533,673	over 16 years	0	over 1 year
		<b>\$ 12,800,846</b>	<b>TOTAL</b>

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.

## Level Percent of Active Member Covered Payroll Amortization of Unfunded Actuarial Accrued Liability\* (\$ amounts in thousands) Police Members

Year	Pay		Unfunded		Contribution	
	Inflated Dollars	Constant Dollars	Inflated Dollars	Constant Dollars	Inflated Dollars	Constant Dollars
2017	\$ 6,937	\$6,937	\$2,690	\$2,690	\$ (35)	\$ (35)
2018	7,215	6,937	2,935	2,822	(36)	(35)
2019	7,503	6,937	3,201	2,959	(38)	(35)
2020	7,803	6,937	3,488	3,101	(39)	(35)
2021	8,116	6,937	3,800	3,248	(41)	(35)
2026	9,874	6,937	4,336	3,046	549	386
2031	12,013	6,937	1,380	797	879	508
2036	14,616	6,937	(892)	(423)	(335)	(159)
2046	21,635	6,937	61	20	62	20
2047	22,500	6,937	0	0	0	0

* \$	368,606	over 30 years	\$	1,260,326	over 15 years
	104,596	over 29 years		990,369	over 14 years
	(109,936)	over 28 years		(341,490)	over 13 years
	(1,304,928)	over 27 years		(1,152,231)	over 12 years
	(1,253,572)	over 26 years		1,530,422	over 11 years
	101,176	over 25 years		(1,927,181)	over 10 years
	815,190	over 24 years		(898,272)	over 9 years
	581,931	over 23 years		(44,661)	over 8 years
	471,099	over 22 years		(349,973)	over 7 years
	563,981	over 21 years		(660,351)	over 6 years
	(2,752,909)	over 20 years		(545,048)	over 5 years
	480,688	over 19 years		0	over 4 years
	3,372,132	over 18 years		0	over 3 years
	2,058,798	over 17 years		0	over 2 years
	1,330,885	over 16 years		0	over 1 year
			<b>\$</b>	<b>2,689,647</b>	<b>TOTAL</b>

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.

## Actuarial Estimates Used for the Valuation

Funding objective contribution requirements and actuarial present values are calculated by applying estimates of future activities (actuarial estimates) to the benefit provisions and people information of the System.

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

- (i) long-term rates of investment return to be generated by the assets of the System
- (ii) patterns of pay increases to members
- (iii) rates of mortality among members, retirants, and beneficiaries
- (iv) rates of withdrawal of active members
- (v) rates of disability among active members
- (vi) the age patterns of actual retirements

In 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.

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Actual activities of the System will not coincide exactly with estimated activities, due to the nature of the activities. 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).

In accordance with Chapter 112, Florida Statutes, 112.661(9), the Retirement Board adopts the assumed rate of return assumption used for actuarial valuation purposes. The actuarial assumptions are set by the Board. The rationale for certain actuarial assumptions is described in the October 1, 1995 through September 30, 2000 experience study report. All actuarial assumptions are estimates of future experience.

Actuarial estimates regarding the net investment return, inflation, real investment return, and salary increase rates 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 valuation payroll.

**Net Rate of Investment Return.** 7.75% per annum, compounded annually, net of investment expenses.

**Inflation.** 2.75% 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					Average for Period
	2017	2016	2015	2014	2013	
Actual	2.20%	1.50%	0.00%	1.70%	1.20%	1.32%
Assumed	2.75%	3.00%	4.50%	4.50%	4.50%	3.85%

**Real Investment Return.** 5.00% per annum, compounded annually. This is the rate of return assumed to be produced by investing a pool of assets in an inflation-free environment. Recent real investment return for the Retirement and Benefit System has been:

	Year Ended September 30					Average for Period
	2017	2016	2015	2014	2013	
Total Rate of Return	8.00%	8.90%	10.80%	11.00%	10.80%	9.90%
Less Inflation Rate	2.20%	1.50%	0.00%	1.70%	1.20%	1.32%
Actual Real Rate of Return	5.80%	7.40%	10.80%	9.30%	9.60%	8.58%
Assumed Real Rate of Return	5.00%	5.00%	3.50%	3.50%	3.50%	4.10%
Assumed Net Rate of Return	7.75%	8.00%	8.00%	8.00%	8.00%	7.95%

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

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

**Salary Increases.** Employee salaries are estimated 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 estimated rates of increases in individual salaries for sample ages follows:

<b>Annual Rates of Salary Increases for Sample Ages</b>						
<b>Age</b>	<b>General and Utilities Authority</b>			<b>Police Officers</b>		
	<b>Merit &amp; Seniority</b>	<b>Wage Inflation</b>	<b>Total</b>	<b>Merit &amp; Seniority</b>	<b>Wage Inflation</b>	<b>Total</b>
20	2.5 %	4.0 %	6.5 %	4.0 %	4.0 %	8.0 %
30	1.7 %	4.0 %	5.7 %	2.8 %	4.0 %	6.8 %
40	1.1 %	4.0 %	5.1 %	2.2 %	4.0 %	6.2 %
50	0.6 %	4.0 %	4.6 %	1.2 %	4.0 %	5.2 %
55	0.5 %	4.0 %	4.5 %	0.7 %	4.0 %	4.7 %
60	0.5 %	4.0 %	4.5 %	0.2 %	4.0 %	4.2 %

The merit and seniority rates for General and Utilities Authority were first used in the September 30, 2016 valuation.

The merit and seniority rates for Police Officers were first used in the September 30, 2001 valuation.

It is estimated that the group size will remain constant and that total payroll for the group will increase at the rate of the general increase in wage levels due to inflation, which in this case is 4.0%.



A schedule of recent salary change experience follows:

	<b>% Change in Salaries</b>					
	<b>Year Ended September 30</b>					<b>Average</b>
	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>5-Year</b>
<b>Rate of Change in Salaries</b>						
- Total	<b>5.7</b> %	10.1 %	3.9 %	4.5 %	4.2 %	5.7 %
- General	<b>6.1</b>	11.9	1.0	3.5	3.7	5.2
- U.A.	<b>4.6</b>	8.8	5.2	4.0	2.8	5.1
- Police	<b>7.2</b>	10.6	5.2	6.9	7.9	7.5
Expected - Total	<b>5.0</b>	5.5	5.8	5.9	5.8	5.5 %
- General	<b>4.7</b>	5.2	5.5	5.6	5.6	5.2
- U.A.	<b>4.8</b>	5.3	5.7	5.7	5.7	5.3
- Police	<b>6.3</b>	6.5	6.8	6.8	6.7	6.6

	<b>% Change in Total Payroll</b>						
	<b>Year Ended September 30</b>					<b>Average*</b>	
	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>5-Year</b>	<b>10-Year</b>
- Total	<b>3.9</b> %	7.9 %	1.3 %	(0.2) %	(2.5) %	0.6 %	(0.1) %
- General	<b>1.4</b>	18.3	(6.7)	1.9	(10.0)	0.2	(1.3)
- U.A.	<b>1.4</b>	6.3	7.0	(4.0)	(2.3)	0.4	0.2
- Police	<b>12.5</b>	(1.3)	1.4	4.5	8.9	1.5	1.1

*\*5-year and 10-year averages include DROP payroll.*

In order to achieve the funding objective of a contribution rate which remains level as a percent-of-payroll, the total rate of investment return must exceed the rate of average increase in salaries by an amount equal to the estimated real investment return rate.

**Mortality Tables.** The mortality tables used to measure retired life mortality were the Florida Retirement System (FRS) Mortality Tables, as described below:

- Male non-disabled retiree mortality (General & Utilities Authority): fully generational mortality. 50% of the RP-2000 Annuitant White Collar Table and 50% of the RP-2000 Annuitant Blue Collar Table, projected with scale BB. Sample values shown below.
- Male non-disabled retiree mortality (Police): fully generational mortality. 10% of the RP-2000 Annuitant White Collar Table and 90% of the RP-2000 Annuitant Blue Collar Table, projected with scale BB. Sample values shown below.
- Female non-disabled retiree mortality (All Divisions): fully generational mortality. 100% of the RP-2000 Annuitant White Collar Table, projected with scale BB. Sample values shown below.
- Male employee mortality (General & Utilities Authority): fully generational mortality. 50% of the RP-2000 Employee White Collar Table and 50% of the RP-2000 Employee Blue Collar Table, projected with scale BB.
- Male employee mortality (Police): fully generational mortality. 10% of the RP-2000 Employee White Collar Table and 90% of the RP-2000 Employee Blue Collar Table, projected with scale BB.
- Female employee mortality (All Divisions): fully generational mortality. 100% of the RP-2000 Employee White Collar Table, projected with scale BB.
- Male disabled mortality (General & Utilities Authority): 100% of the RP-2000 Disabled Male Table set back 4 years.
- Male disabled mortality (Police): 60% of the RP-2000 Disabled Male Table set back 4 years and 40% of the RP-2000 Annuitant White Collar Table.
- Female disabled mortality (General & Utilities Authority): 100% of the RP-2000 Disabled Female Table, set forward 2 years.
- Female disabled mortality (Police): 60% of the RP-2000 Disabled Female Table, set forward 2 years and 40% of the RP-2000 Annuitant White Collar Table.

Sample Ages in 2017	Single Life Retirement Values					
	Present Value of \$1 Monthly for Life			Future Life Expectancy (Years)		
	General & UA Males	Police Males	All Divisions Females	General & UA Males	Police Males	All Divisions Females
45	\$144.52	\$143.74	\$149.67	39.33	38.61	43.37
50	140.40	139.16	145.76	34.62	33.86	38.26
55	135.09	133.30	140.51	29.99	29.21	33.25
60	127.39	125.40	133.52	25.32	24.64	28.35
65	117.23	115.24	124.31	20.80	20.24	23.61
70	104.63	102.69	112.88	16.55	16.11	19.15
75	89.81	88.19	99.36	12.69	12.39	15.07
80	73.72	72.60	84.11	9.36	9.18	11.45

The margin for future mortality improvements is included in projection scales. 100% of deaths were assumed to be non-duty related.

**Rates of separation 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 estimate measures the probabilities of members remaining in employment.

Samples Ages	Years of Service	Percent Separating Within Next Year	
		General and Utilities Authority	Police
ALL	0	22.00 %	15.00 %
	1	16.50	12.00
	2	12.00	10.00
	3	10.00	8.00
	4	8.00	6.00
20	5 & Over	8.00	6.00
25		8.00	6.00
30		8.00	6.00
35		8.00	6.00
40		8.00	6.00
45		5.00	3.50
50		2.25	1.00
55		2.25	1.00
60		2.25	1.00
65		2.25	1.00

The rates for all divisions were first used in the September 30, 2016 valuation.

**Rates of Disability.** These estimates represent the probabilities of active members becoming disabled.

Sample Ages	Percent Becoming Disabled Within Next Year	
	General and Utilities Authority	Police
20	0.04 %	0.07 %
25	0.04	0.09
30	0.04	0.10
35	0.05	0.14
40	0.10	0.21
45	0.17	0.32
50	0.36	0.52
55	0.59	0.92
60	0.90	1.53
65	1.00	1.65

The mortality table was set forward ten years for projecting disability costs. 100% of the disability retirements were assumed to be non-duty related for General and Utilities Authority members. 75% of the disability retirements were assumed to be non-duty for Police members.

**Rates of Retirement.** These rates are used to measure the probabilities of an eligible member retiring during the next year.

Service Years	Service Based		Age Based		
	General and Utilities Authority	Police	Retirement Ages	General and Utilities Authority	Police
25	40 %	75 %	55		35 %
26	40	75	56		30
27	40	75	57		30
28	40	75	58		30
29	40	75	59		30
30	40	100	60	10 %	30
31	40	100	61	5	30
32	40	100	62	12	30
33	40	100	63	6	30
34	40	100	64	14	40
35	100	100	65	65	100
			66	25	
			67	30	
			68	40	
			69	50	
			70	100	

These rates were first used for the September 30, 1995 valuation with the exception of the Police service based rates, which were first used for the September 30, 2000 valuation, Police age based rates which were first used for the September 30, 2001 valuation, and Utilities Authority service based rates which were first used for the September 30, 2007 valuation.

**Marital Status.** It is estimated that 80% of active members who meet the age and service requirements for pre-retirement survivor benefits are married. Female spouses are estimated to be 3 years younger than the male participant. Male spouses are estimated to be 3 years older than the female participant.

**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.

**Lump sum payments** included in the calculation of the average pay upon which benefits are computed were estimated to increase benefits by the following percents.

General members	3.5 %
Utilities Authority members	3.0
Police members	4.0

**Administrative Expenses.** Administrative expenses for the next year are assumed to be equal to the previous year's amount.

**Investment Expenses.** Investment expenses are paid out of investment income.

**Active Member Group Size.** The valuation was based on a constant active member group size.

## Definitions of Technical Terms

**Accrued Service.** Service credited under the system 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 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 liability. 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 activities.

**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 lump sum payment.

**Experience Estimates (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.

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

**Funding Value of Assets.** The actuarial value of assets used to determine contribution amounts.

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

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

Most retirement systems have an unfunded actuarial accrued liability. They arise each time new benefits are added and each time an experience loss is realized.

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 E

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### ADDITIONAL DISCLOSURE INFORMATION

**GASB Statements No. 67 and No. 68 are the accounting standards which replaced GASB Statements No. 25 and No. 27. GASB Statement No. 67 is first effective for fiscal year 2014 and GASB Statement No. 68 is first effective for fiscal year 2015. A separate GASB Statements No. 67 and No. 68 report has been issued outside of this report. This section contains historical GASB Statements No. 25 and No. 27 reporting information for prior fiscal years and illustrative information for fiscal year 2015 and after.**



## Additional Disclosure Information

### Schedule of Funding Progress (Dollar Amounts in Thousands)

Valuation Date	Valuation Assets	AAL*	Funded Ratio	Unfunded AAL*	Member Payroll	Ratio to Payroll
9/30/07 (b)	\$ 135,944	\$ 138,610	98 %	\$ 2,666	\$30,984	9 %
9/30/08	\$ 143,467	\$ 150,475	95 %	\$ 7,008	\$32,952	21 %
9/30/09	147,094	158,755	93	11,661	31,016	38
9/30/10 (b)	148,691	164,865	90	16,174	26,779	60
9/30/11 (b)	142,463	167,683	85	25,220	25,744	98
9/30/12 (b)	147,618	171,745	86	24,127	25,842	93
9/30/13	157,145	177,505	89	20,360	25,199	81
9/30/14	167,451	182,407	92	14,956	25,150	59
9/30/15 (b)	177,624	191,986	93	14,362	25,475	56
9/30/16 (b)	185,171	207,945	89	22,774	27,493	83
<b>9/30/17</b>	<b>192,300</b>	<b>215,142</b>	<b>89</b>	<b>22,842</b>	<b>28,563</b>	<b>80</b>

\* Actuarial Accrued Liabilities.

(b) After changes in benefit provisions and/or actuarial assumptions.

### Schedule of Employer Contributions

Fiscal Year	Aggregate Contribution Rates as Percents of Valuation Payroll	Projected Dollar Contribution Based on Valuation Payroll	Actual Contribution Based on Actual Payroll@
09/10	11.06 %	\$ 3,978,173	\$ 3,377,350
10/11	11.81	3,999,560	3,181,447
11/12	13.46	3,937,037	3,566,751
12/13	17.29	4,860,538	4,266,803
13/14	16.57	4,676,221	4,356,127
14/15	15.42	4,242,676	4,093,268
15/16	15.28	4,196,009	4,211,311
16/17	15.44	4,296,532	4,565,884
17/18	16.41	4,878,739	
<b>18/19</b>	<b>16.28</b>	<b>5,029,181</b>	

@ Actual Employer contributions are determined by applying the Employer's contribution rate to the emerging payroll. Projected funding requirement is based on a stable work force and projected salary increases.

# Additional Disclosure Information

## Supplementary Information

The information presented in the additional disclosure schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	September 30, 2017
Actuarial Cost Method	Individual Entry Age
Amortization Method	Level Percent-of-Payroll, Closed
Remaining Amortization Periods#	2-30 years
Asset Valuation Method	4-year smoothed market
Actuarial Assumptions:	
Investment Rate of Return*	7.75%
Projected Salary Increases**	General & U.A.: 4.0% - 6.5% Police: 4.0% - 8.0%
* Includes Price Inflation at	2.75%
**Includes Wage Inflation and other general increases at	4.00%
Cost-of-living adjustments	None
Retirees and beneficiaries receiving benefits	505
Terminated plan members entitled to but not yet receiving benefits	45
Active plan members	
- Vested	312
- Non-vested	<u>227</u>
Total	1,089

# The periods are in compliance with Florida Statutes and Actuarial Standards of Practice, but do not necessarily produce an Annual Required Contribution with an aggregate amortization of the unfunded actuarial accrued liability under 30 years.

## **SECTION F**

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### **STATE REQUIRED DATA**

## Actuarial Present Value of Accrued Benefits (\$ in Thousands)\*

	September 30, 2017				September 30, 2016			
	General Members	Utilities Authority	Police Members	Total	General Members	Utilities Authority	Police Members	Total
(i) Actuarial present value of active member benefits:								
Service retirement	\$26,942	\$39,995	\$25,464	\$ 92,401	\$25,628	\$37,907	\$23,202	\$ 86,737
Vested termination benefits	2,735	3,877	1,485	8,097	2,774	3,968	1,369	8,111
Disability retirement	664	867	945	2,476	666	895	881	2,442
Survivor benefits (pre-retirement)	854	1,270	444	2,568	868	1,232	412	2,512
Termination benefits - refunds	266	421	241	928	244	479	198	921
Total	31,461	46,430	28,579	106,470	30,180	44,481	26,062	100,723
(ii) Actuarial present value of terminated vested members	1,687	2,071	407	4,165	1,707	1,212	244	3,163
(iii) Actuarial present value of retired members & beneficiaries:								
Present value of benefits	40,956	60,335	33,118	134,409	40,012	60,836	32,505	133,353
Reserve	0	0	0	0	0	0	0	0
Total	40,956	60,335	33,118	134,409	40,012	60,836	32,505	133,353
(iv) Total actuarial present value of future benefit payments	74,104	108,836	62,104	245,044	71,899	106,529	58,811	237,239
(v) Present value of active member future payroll	61,633	88,071	52,663	202,367	61,084	88,338	46,620	196,043
(vi) Present value of future active member contributions	3,180	5,425	2,717	11,323	3,152	5,442	2,406	10,999
(vii) Active member accumulated contributions	4,484	8,256	3,568	16,309	4,288	7,746	3,345	15,380
(viii) Plan costs for fiscal year beginning October 1, 2018								
Normal costs								
Service pensions	11.25%	10.34%	12.47%		11.44%	10.52%	12.68%	
Disability pensions	0.46%	0.42%	0.92%		0.46%	0.42%	0.92%	
Death-in-service pensions	0.49%	0.50%	0.36%		0.51%	0.50%	0.37%	
Deferred service pensions	2.27%	2.30%	1.83%		2.26%	2.30%	1.87%	
Refunds of member contributions	0.77%	0.93%	0.58%		0.76%	0.91%	0.55%	
Total normal cost	15.24%	14.49%	16.16%		15.43%	14.65%	16.39%	
Payment to amortize unf'd act. accr. liab.	3.87%	6.41%	0.00%		3.98%	6.52%	0.00%	
Administrative expenses	0.73%	0.73%	0.73%		0.79%	0.79%	0.79%	
FS112.64(5) Requirement/Temporary Funding Credits	2.31%	2.64%	0.27%		2.31%	2.12%	-0.04%	
Amount to be paid by participants	5.16%	6.16%	5.16%		5.16%	6.16%	5.16%	
Expected plan sponsor contribution								
% of payroll	16.99%	18.11%	12.00%	16.28%	17.35%	17.92%	11.98%	16.41%
dollars	1,628	2,501	900	5,029	1,640	2,440	799	4,879

\* Totals may be off due to rounding.

## Actuarial Present Value of Accrued Benefits (\$ in Thousands)\*

	September 30, 2017				September 30, 2016			
	General Members	Utilities Authority	Police Members	Total	General Members	Utilities Authority	Police Members	Total
Actuarial Present Value of Accrued Benefits (calculated in accordance with FASB Statement No. 35)								
(i) Vested accrued benefits								
Retired members and beneficiaries	\$ 40,956	\$ 60,335	\$ 33,118	\$ 134,409	\$ 40,012	\$ 60,836	\$ 32,505	\$ 133,353
Terminated members	1,687	2,071	407	4,165	1,707	1,212	244	3,163
Active members (includes non-forfeitable accum. member contributions)	13,852	22,467	13,342	49,661	12,683	20,415	12,063	45,161
Total	\$ 56,495	\$ 84,873	\$ 46,867	\$ 188,235	\$ 54,402	\$ 82,463	\$ 44,812	\$ 181,677
(ii) Non-vested accrued benefits	1,192	1,988	1,380	4,560	1,030	1,961	1,071	3,634
(iii) Total actuarial p.v. of accrued benefits	\$ 57,687	\$ 86,861	\$ 48,247	\$ 192,795	\$ 55,432	\$ 84,424	\$ 45,883	\$ 185,739
(iv) Actuarial p.v. of accrued benefits at begin. of year	\$ 55,432	\$ 84,424	\$ 45,883	\$ 185,739	\$ 51,248	\$ 78,539	\$ 44,183	\$ 173,970
(v) Changes attributable to:								
Amendments	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Assumption change	-	-	-	-	2,909	3,864	989	7,762
Operation of decrements	6,428	8,565	5,490	20,483	5,433	8,078	3,872	17,383
Benefit payments	(4,173)	(6,128)	(3,126)	(13,427)	(4,158)	(6,057)	(3,161)	(13,376)
Other	-	-	-	-	-	-	-	-
(vi) Net change	2,255	2,437	2,364	7,056	4,184	5,885	1,700	11,769
(vii) Actuarial p.v. of Accr. benefits at end of year	\$ 57,687	\$ 86,861	\$ 48,247	\$ 192,795	\$ 55,432	\$ 84,424	\$ 45,883	\$ 185,739

\* Totals may be off due to rounding.

## Reconciliation of Membership Data

	From 10/1/16 To 9/30/17	From 10/1/15 To 9/30/16
<b>A. Active Members</b>		
1. Number Included in Last Valuation	532	520
2. New Members Included in Current Valuation	53	81
3. Non-Vested Employment Terminations	(26)	(40)
4. Vested Employment Terminations	(8)	(12)
5. Service Retirements	(10)	(17)
6. Disability Retirements	(1)	0
7. Deaths	(1)	0
8. Other	0	0
9. Number Included in this Valuation	539	532
 <b>B. Terminated Vested Members</b>		
1. Number Included in Last Valuation	42	37
2. Additions from Active Members	9	12
3. Lump Sum Payments	(1)	(3)
4. Payments Commenced	(4)	(3)
5. Deaths	0	0
6. Other	(1)	(1)
7. Number Included in this Valuation	45	42
 <b>C. Service Retirees, Disability Retirees and Beneficiaries</b>		
1. Number Included in Last Valuation	499	501
2. Additions from Active Members	12	16
3. Additions from Terminated Vested Members	4	3
4. Removals Resulting in No Further Payments	(13)	(26)
5. Deaths Resulting in New Survivor Benefits	3	5
6. Other	0	0
7. Number Included in this Valuation	505	499