

City of Jacksonville Beach General
Employees' Retirement System
Sixty-Eighth Annual Actuarial Valuation
October 1, 2018



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April 15, 2019

Board of Trustees
City of Jacksonville Beach
General Employees' Retirement System
Jacksonville Beach, Florida

The results of the October 1, 2018 Annual Actuarial Valuation of the City of Jacksonville Beach General Employees' Retirement System are presented in this report. The purpose of the annual valuation is to measure the System's funding progress and to determine the City's contribution rate for the fiscal year beginning October 1, 2019 in accordance with established funding policies. The results of the valuation may not be applicable for other purposes. Disclosures under the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 were issued in a separate report.

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

The signing actuaries are independent of the plan sponsor.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. We did not perform an analysis of the potential range of such future measurements under the scope of this assignment.

Valuation results, comments, recommendations and our certification are contained in Section A.

The valuation was based upon information compiled during the fiscal year ending September 30, 2018, furnished by the City, concerning pension fund benefits, financial transactions, and individual members, terminated members, retired members and beneficiaries. Data was checked for reasonableness and missing information, but was not audited. GRS is not responsible for the accuracy or completeness of the data provided to us. This information is summarized in Section B.

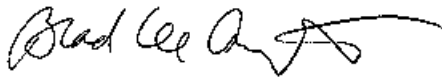
A description of the actuarial valuation process, actuarial assumptions and definitions of technical terms are contained in Section C. Additional disclosure information is contained in Section D and a summary of valuation results in the State format is contained in Section E.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section C of this report. This report includes certain risk metrics but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the plan's financial condition.

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 Jacksonville Beach General Employees' Retirement 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.

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, FSA, EA, MAAA

BLA/JTT:sc



SECTION A

**VALUATION RESULTS, COMMENTS, CONCLUSION,
RECOMMENDATIONS AND STATEMENT BY ENROLLED ACTUARY**

Funding Objective

The funding objective of the Retirement System is to establish and receive contributions, expressed as percents of active member payroll, which will achieve progress towards 100% funded status and will remain approximately level from year-to-year and will not have to be increased for future generations of citizens in the absence of benefit improvements. This objective is stated in the Ordinance and meets the requirements of Part VII, Chapter 112, Florida Statutes.

Contribution Rates

The Retirement System is supported by member contributions, City contributions, and investment income from Retirement System's assets.

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

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

Contribution requirements for the Plan and fiscal year beginning October 1, 2019 are shown on page A-2.

Contributions to Finance Benefits of the Retirement System for the Plan Year Beginning October 1, 2019 to be Contributed During the Fiscal Year Beginning October 1, 2019

Contributions for	Contributions Expressed as Percents of unDROPed Active Member Payroll
<i>Normal Cost</i>	
Service pensions	7.56 %
Disability pensions	0.33
Survivor pensions	
Pre-retirement	0.49
Termination benefits	
Deferred service pensions	1.27
Refunds of member contributions	<u>1.35</u>
Total Normal Cost	11.00
<i>Unfunded Actuarial Accrued Liability ⁽¹⁾</i>	
Retired members and beneficiaries	0.00
Active and vested terminated members	<u>11.91</u>
Total unfunded actuarial accrued liability	11.91
<i>Administrative Expenses</i>	0.79
<i>Total Calculated Contribution Requirement</i>	23.70
<i>Adjustments to Calculated Contribution Requirement</i>	
Temporary full funding credit	0.00
FS 112.64(5) compliance	<u>1.79</u>
Total adjustments	1.79
<i>Total Adjusted Contribution Requirement</i>	25.49 %
Member portion	7.95 %
City portion	17.54 %

⁽¹⁾ *Unfunded Actuarial Accrued Liability was financed as level percents of member payroll. Please refer to page A-13 for a schedule of financing periods.*

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

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

Comparative contribution amounts for prior fiscal years are shown on page A-15.

Determining Dollar Contributions for the Fiscal Year Beginning October 1, 2019

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

Contribute the City amount indicated in the following schedule. Included in these amounts is the projected increase in salary level between the valuation date and the fiscal year in which the contribution is made. The projection factor of 1.037733 $[(1.025)^{1.5}]$ is consistent with that used to calculate the actuarial liability. The member contribution amounts should not be used to reconcile actual member contributions.

Total Contribution Requirement	\$ 3,375,594
Less Member Contributions	1,052,804
City Contribution	\$ 2,322,790

The above contribution amounts are estimated to be contributed, on average, halfway through the fiscal year. If contributions are made on a later schedule, interest should be added at the rate of .62% (.0062) for each month of delay.

Funding Progress Achievement Indicators

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

A traditional measure has been the relationship of valuation assets to unfunded actuarial accrued liability - a measure that is influenced by the choice of actuarial cost method. This relationship is shown on page A-14.

We believe a better understanding of funding progress and status can be achieved using the following indicators.

Indicator (1) *The actuarial present value of gains or losses realized in the operation of the retirement system.* Gains and losses are expected to cancel each other over an economic cycle but sizable year-to-year fluctuations are common. An experience gain can result from assets increasing in value by more than anticipated, or by the System's obligation increasing by less than anticipated, or by other favorable combinations or deviation from expected asset and liability changes. Further details on the derivation of the gain (loss) are shown on page A-12.

Indicator (2) *The ratio of valuation assets to the actuarial present value of credited projected benefits* allocated in the proportion credited service is to projected total service. The ratio is expected to increase over time, but the basic trend may be interrupted by benefit improvements. This ratio is the most appropriate of the three described here for assessing the need for future contributions above the amounts needed to fund the normal cost.

Indicator (3) *The ratio of the unfunded actuarial present value of credited projected benefits to member payroll.* The unfunded actuarial present value of credited projected benefits is controlled by the funding program. The ratio to payroll is a relative index of condition where inflation is present in both components. The ratio is expected to decrease over time, but the basic trend may be interrupted by benefit improvements.

Funding Progress Indicators* - Historical Development (\$ amounts in thousands)

Valuation Date	Indicator (1)		Indicator (2)			Indicator (3)		
	Gain/(Loss)		Funding		Funded	Unfunded	Member	Ratio to
	Amount	% of AAL	Value of Assets	APVCPB^	Ratio	APVCPB^	Payroll	Payroll
10/1/1995 (a)	\$ 1,315	4.5 %	\$ 30,791	\$ 28,889	106.6 %	\$ (1,902)	\$ 10,601	(17.90) %
10/1/2000 (a)	1,142	4.4	32,832	24,230	135.5	(8,602)	7,975	(107.86)
10/1/2004	(2,817)	(8.4)	33,674	33,088	101.8	(586)	9,697	(6.04)
10/1/2005	(2,079)	(5.7)	34,445	36,504	94.4	2,059	10,714	19.22
10/1/2006	(314)	(0.8)	36,644	39,866	91.9	3,222	11,575	27.84
10/1/2007	819	1.9	39,424	42,244	93.3	2,820	11,700	24.11
10/1/2008	(796)	(1.7)	40,975	44,747	91.6	3,772	11,556	32.64
10/1/2009	(949)	(1.9)	41,538	46,829	88.7	5,291	11,677	45.31
10/1/2010	(961)	(1.9)	41,771	48,954	85.3	7,183	11,485	62.55
10/1/2011	(2,280)	(4.3)	40,809	51,068	79.9	10,259	11,449	89.61
10/1/2012	(156)	(0.3)	42,288	53,647	78.8	11,359	10,884	104.36
10/1/2013 (a)	602	1.1	45,066	53,927	83.6	8,861	10,714	82.70
10/1/2014	1,366	2.4	47,138	57,746	81.6	10,608	10,663	99.49
10/1/2015 (a)	1,659	2.9	49,153	60,403	81.4	11,250	11,196	100.48
10/1/2016 (a)	(562)	(0.9)	50,816	64,652	78.6	13,836	11,529	120.01
10/1/2017	(1,214)	(1.9)	52,342	67,352	77.7	15,010	13,291	112.94
10/1/2018 (a)	562	0.8	54,189	69,364	78.1	15,175	12,761	118.91

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

Prior to 1999 valuation, results include General, Police and Fire.

^ AAL starting with 2014.

* None of these funding progress indicators are appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

Comments and Conclusion

Comment A: For the fiscal year ended September 30, 2018, the General System had a \$562 thousand experience gain. The gain was primarily the result of lower than expected salary increases. Offsetting the gain was lower than expected recognized investment return on the funding value of assets (7.3% recognized vs. 7.9% assumed). Generally, an experience gain would decrease the City's contribution rate. However, the total payroll decreased by 4% since the last valuation, causing the rate to increase by approximately 1% of payroll. In addition, the decrease in the 10-year average payroll growth caused an increase in the City's contribution rate of approximately 0.30% in order to comply with Florida Statute 112.64(5). Additional experience information is reported on pages B-7, B-13, C-4, C-5 and C-6. The funded ratio increased from 77.7% to 78.2% from 2017 to 2018 on a funding value of assets basis and increased from 78.4% to 80.3% on a market value of assets basis.

Comment B: There was a change to actuarial assumptions during the year. The investment return assumption was lowered from 7.9% to 7.75%. This increased the City's contribution rate by 0.98% as a percentage of payroll and by \$128,455 as a dollar amount. The Board's plan to lower the assumed rate of return to 7.60% for the 2019 valuation and 7.50% for the 2020 valuation will temporarily slow funding progress and increase the City's contribution rate absent significant future gains.

Looking Forward: Due to the Board's use of a four-year smoothed market asset valuation method, greater than expected market returns during 2017 and 2018 and lower than expected market returns during 2015 and 2016 have been partially recognized in developing the funding value of assets as of September 30, 2018. The market value of assets currently exceeds the funding value of assets by \$1.5 million. If losses from investment returns or from other sources do not emerge, this will create an downward pressure on contribution requirements and a coinciding upward pressure on the funded ratios in subsequent valuation years.

Risks to Future Employer Contribution Requirements: There are ongoing risks to future employer contribution requirements to which the Retirement System is exposed, such as:

- Actual and Assumed Investment Rate of Return
- Actual and Assumed Mortality Rates
- Amortization Policy
- F.S. 112.64(5) Compliance Regarding Payroll Growth

Conclusion: It is the actuary's opinion that the required contribution rates determined by the most recent actuarial valuation are sufficient to meet the Retirement System's funding objective, presuming continued timely receipt of required contributions.

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 fully amortized; 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 though 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.

Limitations of Project Scope

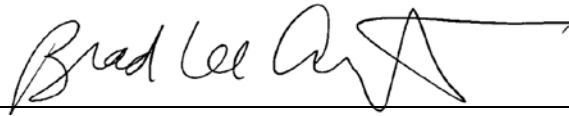
Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entities to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently,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

Statement by Enrolled Actuary

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

4/15/2019

Date



Brad Lee Armstrong, ASA, EA, FCA, MAAA [17-5614]

Risk Measures - Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the System's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

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

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

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

The computed contribution shown on page A-2 may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Risk Measures

(\$ in thousands)

Actuarial Valuation Date (9/30)	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability (AAL)	(3) Unfunded AAL (UAAL) (2) - (1)	(4) Payroll	(5) Funded Ratio (1) / (2)	(6) Retiree Liabilities (RetLiab)	(7) RetLiab / AAL (6)/(2)	(8) AAL / Payroll (2) / (4)	(9) Assets / Payroll (1) / (4)	(10) UAAL / Payroll (3) / (4)	(11) Non-Invest. Cash Flow (NICF)	(12) NICF / Assets (11)/(1)	(13) Market Rate of Return	(14) 5-year Trailing Average
2014 *	\$ 47,138	\$ 57,746	\$ 10,608	\$ 10,663	81.6%	\$ 33,807	58.5%	541.6%	442.1%	99.5%	\$ (2,085)	(4.4)%	10.2%	N/A
2015 *	49,153	60,403	11,250	11,196	81.4%	35,460	58.7%	539.5%	439.0%	100.5%	(2,180)	(4.4)%	(0.3)%	N/A
2016 *	50,816	64,652	13,836	11,529	78.6%	38,671	59.8%	560.8%	440.8%	120.0%	(1,947)	(3.8)%	8.2%	N/A
2017 *	52,342	67,352	15,010	13,291	77.7%	39,655	58.9%	506.8%	393.8%	112.9%	(2,193)	(4.2)%	12.1%	N/A
2018 *	54,189	69,364	15,174	12,761	78.1%	41,787	60.2%	543.5%	424.6%	118.9%	(1,887)	(3.5)%	9.2%	7.8%

* Revised actuarial assumptions.

(5). The funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

(6) and (7). The ratio of retiree liabilities to total accrued liabilities gives an indication of the maturity of the system. As the ratio increases, cash flow needs increase, and the liquidity needs of the portfolio change. A ratio on the order of 50% indicates a maturing system.

(8) and (9). The ratio of liabilities and assets to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.

(10) The ratio of unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A ratio above approximately 300% or 400% may indicate difficulty in discharging the unfunded liability within a reasonable time frame.

(11) and (12). The ratio of Non-Investment Cash Flow to assets is an important measure of sustainability. Negative ratios are common and expected for a maturing system. In the longer term, this ratio should be on the order of approximately (4)%. A ratio that is significantly more negative than that for an extended period could be a leading indicator of potential exhaustion of assets.

(13) and (14). Investment return is probably the largest single risk that most systems face. The year-by-year return and the five-year geometric average both give an indication of the reasonableness of the system's assumed return. Of course past performance is not a guarantee of future results. Market rate shown is based on actuarial estimation method and will differ modestly from figures reported by the investment consultant.

Experience Gain/(Loss) Year Ended October 1, 2018

DERIVATION

(1) UAAL* at start of year	\$15,009,880
(2) Normal cost for year (ER normal cost & expenses from the prior corresponding valuation x current valuation pay)	444,093
(3) Actual City contribution	1,898,689
(4) Interest accrual .079 x [(1) + 1/2 [(2)-(3)]]	1,128,324
(5) Expected UAAL before changes	14,683,608
(6) Effect of timing/accounting	0
(7) Effect of assumption/cost method changes	1,052,845
(8) Effect of benefit changes	0
(9) Expected UAAL after changes	15,736,453
(10) Actual UAAL at end of year	15,174,414
(11) Gain/(loss): (9) - (10)	\$ 562,039
(12) % of AAL at start of year	0.8%

* UAAL represents Unfunded Actuarial Accrued Liability.

Valuation Date October 1	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2009	(1.9)
2010	(1.9)
2011	(4.3)
2012	(0.3)
2013	1.1
2014	2.4
2015	2.9
2016	(0.9)
2017	(1.9)
2018	0.8

Sources and Financing of Unfunded Actuarial Accrued Liability

Source of Unfunded Act. Accrued Liab.	Unf'd. Act. Acc. Liab.		Current Amount	Remaining Financing Period 9/30/2018	Amort. Factor	Contribution		FS112.64(5) Compliance
	Initial Amount	Fin. Per.				Dollar	% of Payroll	
Initial Unf'd. Actuarial Accrued Liability								
			\$ (1,102,818)	4 yrs.	3.625726	\$ (304,165)	(2.38)%	(0.11)%
Changes from experience deviations.								
9/30/2002	830,757	25	825,639	9	7.248904	113,898	0.89%	0.09%
9/30/2003	3,620,586	25	3,750,185	10	7.871141	476,447	3.73%	0.42%
9/30/2004	2,816,885	25	3,011,970	11	8.463060	355,896	2.79%	0.34%
9/30/2005	2,079,169	25	2,277,205	12	9.026138	252,290	1.98%	0.26%
9/30/2006	313,554	25	349,508	13	9.561780	36,553	0.29%	0.04%
9/30/2007	(818,787)	25	(923,549)	14	10.071324	(91,701)	(0.72)%	(0.11)%
9/30/2008	796,288	25	904,583	15	10.556040	85,693	0.67%	0.11%
9/30/2009	949,402	25	1,081,858	16	11.017139	98,198	0.77%	0.13%
9/30/2010	960,943	25	1,060,261	17	11.455771	92,553	0.73%	0.13%
9/30/2011	2,280,449	25	2,431,589	18	11.873031	204,799	1.60%	0.31%
9/30/2012	155,825	25	161,334	19	12.269961	13,149	0.10%	0.02%
9/30/2013	(602,138)	25	(613,821)	20	12.647550	(48,533)	(0.38)%	(0.08)%
9/30/2014	(1,365,869)	25	(1,389,359)	21	13.006742	(106,818)	(0.84)%	(0.18)%
9/30/2015	(1,659,101)	25	(1,708,865)	22	13.348432	(128,020)	(1.00)%	(0.23)%
9/30/2016	561,707	25	573,217	23	13.673473	41,922	0.33%	0.08%
9/30/2017	1,214,470	25	1,221,334	24	13.982677	87,346	0.68%	0.17%
9/30/2018	(562,039)	25	(562,039)	25	14.276816	(39,367)	(0.31)%	(0.08)%
Changes from actuarial assumption and actuarial cost method revisions.								
9/30/1995	\$ (203,286)	25 yrs.	\$ (139,766)	4 yrs.	3.625726	\$ (38,548)	(0.30)%	(0.02)%
9/30/2002	306,659	25	304,769	9	7.248904	42,043	0.33%	0.03%
9/30/2015	2,519,513	25	2,595,085	22	13.348432	194,411	1.52%	0.35%
9/30/2016	2,044,097	25	2,085,985	23	13.673473	152,557	1.20%	0.27%
9/30/2018	1,052,845	25	1,052,845	25	14.276816	73,745	0.58%	0.14%
Changes from amendments to benefit provisions.								
9/30/1997	\$ 814,818	25 yrs.	\$ 508,417	4 yrs.	3.625726	\$ 140,225	1.10%	0.05%
9/30/2000	226,722	25	200,252	7	5.907185	33,900	0.27%	0.02%
9/30/2013	(2,728,463)	25	(2,781,405)	20	12.647550	(219,917)	(1.72)%	(0.36)%
Totals			\$15,174,414			\$ 1,518,556	11.91%	1.79%

Weighted average remaining financing period: 16.4

Unfunded Actuarial Accrued Liability

	<u>October 1, 2018</u>	<u>October 1, 2017</u>
A. Actuarial present value of future benefits	\$78,770,625	\$76,594,049
B. Actuarial present value of future normal costs	<u>9,407,028</u>	<u>9,241,925</u>
C. Actuarial accrued liability	69,363,597	67,352,124
D. Funding value of assets	<u>54,189,183</u>	<u>52,342,244</u>
E. Unfunded actuarial accrued liability	<u><u>\$15,174,414</u></u>	<u><u>\$15,009,880</u></u>

Unfunded actuarial accrued liability is not a good measure of the System's funded status because the amount is dependent upon the actuarial cost method (please refer to page C-1). The funding progress indicators (2) and (3) on pages A-4 and A-5 are less dependent of the actuarial cost method and are a better guide to funded status and funding progress. The funded status and the funding progress indicators would be different if based on the market value of assets instead of the funding value of assets.

Recommended and Actual Contributions Comparative Statement

Fiscal Year	Valuation Date	City/Chapter Dollar Contributions#		Recommended City % of Payroll Contributions
		Recommended	Actual	
95/96	10/1/1994	790,417	818,057	5.30 %
96/97	10/1/1995 (a)	612,267	618,521	3.95
97/98	10/1/1996	563,577	563,577	3.37
98/99	10/1/1997 (a)	200,563	200,562	2.56
99/00	10/1/1998	17,714	17,724	0.23
00/01	10/1/1999	0	87,641	0.00
01/02	10/1/2000 (a)	0	3	0.00
02/03	10/1/2001	0	22,268	0.00
03/04	10/1/2002 (a)	0	32,662	0.00
04/05	10/1/2003	82,709	82,709	0.52
05/06	10/1/2004	241,358	241,358	2.33
06/07	10/1/2005	389,150	389,150	3.40
07/08	10/1/2006	612,047	623,377	4.95
08/09	10/1/2007	612,416	612,416	4.90
09/10	10/1/2008	749,331	737,532	6.07
10/11	10/1/2009	971,717	971,717	7.79
11/12	10/1/2010	1,132,385	1,132,385	9.23
12/13	10/1/2011	1,490,902	1,490,902	12.19
13/14	10/1/2012 (a)	1,205,756	1,216,994	10.37
14/15	10/1/2013 (a)	1,387,165	1,387,165	12.12
15/16	10/1/2014	1,321,320	1,321,320	11.60
16/17	10/1/2015 (a)	1,591,545	1,591,545	13.50
17/18	10/1/2016 (a)	1,892,707	1,898,689	15.82
18/19	10/1/2017	2,097,788		15.21
19/20	10/1/2018 (a)	2,322,790		17.54

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

Prior to the fiscal year ending 9/30/99, results include General, Police and Fire.

Actuarial Balance Sheet - October 1, 2018

Present Resources and Expected Future Resources

A.	Funding value of System assets:	
	1. Net assets from System financial statements (market value)	\$55,646,916
	2. Funding value adjustment	<u>(1,457,733)</u>
	3. Funding value of assets	54,189,183
B.	Actuarial present value of expected future employer contributions:	
	1. For normal costs	2,413,345
	2. For unfunded actuarial accrued liability	<u>15,174,414</u>
	3. Totals	17,587,759
C.	Actuarial present value of expected future member contributions	<u>6,993,683</u>
D.	Total present and expected future resources	<u><u>\$78,770,625</u></u>

Actuarial Present Value of Expected Future Benefit Payments and Reserves

A.	To retired members and beneficiaries	\$41,786,913
B.	To vested terminated members	985,428
C.	To present active members:	
	1. Allocated to service rendered prior to valuation date	26,591,256
	2. Allocated to service likely to be rendered after valuation date	<u>9,407,028</u>
	3. Totals	35,998,284
D.	Total actuarial present value of expected future benefit payments	78,770,625
E.	Reserve for DROP balances	0
F.	Total actuarial present value of expected future payments and reserves	<u><u>\$78,770,625</u></u>

5-Year Projections of Funded Ratios and Future Employer Contributions

Year Ended 9/30	Active Count	Payroll	Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Funded Ratio	Estimated City's Contributions		
							Fiscal Year	% of Payroll	Dollar Amount
2018	240	\$ 12,761,296	\$ 4,241,782	\$ 69,363,597	\$ 54,189,183	78.1%	2020	17.54%	\$ 2,322,790
2019	240	13,060,632	4,521,404	71,517,226	57,457,516	80.3%	2021	17.31%	2,346,732
2020	240	13,369,384	4,724,536	73,660,088	61,086,594	82.9%	2022	17.11%	2,374,207
2021	240	13,633,059	4,982,560	75,732,039	64,304,433	84.9%	2023	17.17%	2,429,344
2022	240	13,895,854	5,291,186	77,674,600	67,354,676	86.7%	2024	17.31%	2,495,957
2023	240	14,239,187	5,482,085	79,603,128	70,508,251	88.6%	2025	17.46%	2,579,310

Uses 2.5% wage growth assumption.

We have reflected compliance with F.S. 112.64(5) to remain constant with year ended 9/30/2018.

We have not determined any additional possible impact due to F.S. 112.64(5).

Actuarial assumptions were those used for the 9/30/2018 valuation.

Future experience was assumed to be consistent with the actuarial assumptions. If experience differs from the actuarial assumptions, future results could be significantly different from the projected results above.

Existing schedule of unrecognized investment gains and losses are reflected in this projection.

SECTION B

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

Summary of Benefit Provisions (as of October 1, 2018)

Normal Retirement (no reduction factor for age):

Eligibility - 30 years of service regardless of age, or age 60 with 5 or more years of service for members with at least 10 years of service as of November 25, 2013. Age 55 with 30 or more years of service, or age 62 with 10 or more years of service for members with less than 10 years of service as of November 25, 2013.

Mandatory Retirement Age - None.

Pension Amount - Total credited service times 2.50% of final average compensation. Maximum pension is 75% of final average compensation or \$90,000, whichever is less.

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

Final Average Compensation - Highest 5 years out of the last 10. Compensation includes base pay plus longevity. Compensation excludes overtime, shift differential, incentive pay, leave payouts and all other compensation.

Early Retirement:

Eligibility - After completion of 20 years of service, but before the member's earliest projected normal retirement date.

Pension Amount - Computed as regular retirement, but reduced to take into account earlier commencement of retirement income payments, as follows:

7.5% per year reduction for the first five years prior to Normal Retirement
5.5% per year reduction for all years in excess of five years prior to Normal Retirement

Deferred Retirement (vested benefit):

Eligibility - 5 or more years of service with benefit beginning at regular retirement age of 60 for members with at least 10 years of service as of November 25, 2013. The vesting requirement is 10 years of service for members with less than 5 years of service as of November 25, 2013. Members with less than 10 years of service as of November 25, 2013 may commence benefits beginning at age 55 with 30 or more years of service, age 62 with 10 or more years of service, or age 65 with 5 or more years of service.

Pension Amount - Computed as a normal retirement but based upon service and final average compensation at time of termination.

Summary of Benefit Provisions (Continued)

Duty Disability Retirement:

Eligibility - No age or service requirements.

Pension Amount - Computed as a normal retirement to regular retirement age. Minimum benefit is not less than 50% of final average compensation. At regular retirement age the participant has the option to have the benefit re-computed as a normal retirement with additional service credit granted from date of retirement to the later of normal retirement age or five years after date of disability. Minimum benefit is not less than 42% of final average compensation.

Non-Duty Disability Retirement:

Eligibility - 10 or more years of service.

Pension Amount - Computed as a normal retirement. Minimum benefit is not less than 25% of final average compensation.

Duty Death Before Retirement:

Eligibility - No age or service requirements.

Pension Amount - To spouse: 100% of the normal retirement benefit. Minimum benefit is not less than 35% of final average compensation.

Non-Duty Death Before Retirement:

Eligibility - 10 or more years of service.

Pension Amount - To spouse: 100% of the normal retirement benefit.

Member Contributions: 7.95% of pay effective November 30, 2013.

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

Forfeiture of Retirement Benefits: Retirement benefits granted by the Retirement System are subject to forfeiture if an employee is convicted of an offense specified in Section 112.3173, Florida Statutes, pursuant to the procedures set forth in the cited statute.

Prior Service Purchases: A former member with credited service who wishes to return to city employment may restore the forfeited credited service to receive credit for prior service within ninety (90) days after return to city employment.

Summary of Benefit Provisions (Concluded)

Deferred Retirement Option Program (DROP): Any eligible member of the Retirement System who meets the requirements of retirement may elect to participate, deferring receipt of retirement benefits while continuing employment with the City. The deferred monthly benefits shall accrue in the reserve for pension payments fund on behalf of the participant, plus 3.5% annual interest compounded monthly less a service fee, for the specified period of the DROP participation not to exceed 36 consecutive months. Upon termination from the DROP, the participant shall receive all accrued DROP benefits either by lump sum, direct rollover or partial lump sum. The DROP was closed to new members on November 25, 2013.

Backwards Deferred Retirement Option Program (BackDROP):

Eligibility – Same as normal retirement. Member must not be participating in the DROP on November 25, 2013 and must continue employment beyond the normal retirement date. The member may elect a BackDROP period for the number of months worked beyond their normal retirement date, up to a maximum of 36 months.

Amount of Pension – Computed as if the member had chosen to terminate on a day chosen by the member but not before the member's normal retirement date, using credited service and final average salary at the BackDROP date. In addition to the pension, there will be a lump sum payment equal to the pension benefits the member would have received had he/she retired on the BackDROP date with interest at the rate of 3.0% per year.

Claims Procedure: Claims for benefits should be filed with the Human Resources Department. If a claim is denied, you will be notified and informed of the procedure to request a hearing before the Board of Trustees. An applicant for benefits must appeal said denial within 20 days of being informed of the denial by filing an appeal with the Board Secretary. If no appeal is filed within the time period then the denial shall be final.

Disclaimer: The preceding summary briefly describes the principle benefits of the Retirement System. Detailed benefit conditions and limitations are contained in the City of Jacksonville Beach General Employees' Retirement System Ordinance as amended, which establishes the System. The Internal Revenue Code, Florida Statutes, and the Ordinance all govern the operation of the System, and should be consulted before you take any action concerning your membership or benefits. In case of any conflict between this Summary and the Ordinance or other applicable law, the Ordinance or other applicable law will prevail. Copies of the Ordinance are available at the office of the City Clerk.

Accounting Information Submitted for Valuation

Revenues and Expenditures

	Year Ended September 30, 2018	Year Ended September 30, 2017
Revenues:		
a. Member contributions	\$ 1,029,762	\$ 1,018,627
b. City contributions	1,898,689	1,591,545
c. Total contributions to System	\$2,928,451	\$2,610,172
d. Investment income		
1. Interest and dividends	1,292,779	1,231,641
2. Realized gain on investments	1,616,085	1,420,777
3. Unrealized gain on investments	2,005,226	3,299,611
4. Investment expense	(152,506)	(124,450)
e. Total investment income	4,761,584	5,827,579
f. Total revenues	\$7,690,035	\$8,437,751
Expenditures:		
a. Refunds of member contributions	158,889	97,989
b. Benefits paid	4,555,656	4,599,574
c. Administrative expenses	100,429	105,804
d. Total expenditures	4,814,974	4,803,367
Reserve Increase:		
Total revenues minus total expenditures	\$2,875,061	\$3,634,384
Adjustment - Prior Period		

Summary of Assets (Market Value)

	September 30, 2018	September 30, 2017
Cash and equivalents	\$ 1,121,251	\$ 818,309
Receivables less payables	88,087	93,651
Certificates of deposit & savings	none	none
U.S. Government Securities	7,796,325	4,507,056
Bonds: - government	none	none
- corporate	6,427,889	9,849,629
Stocks: - common	none	none
- preferred	none	none
Real Estate Fund	2,990,664	2,826,639
Other (Equity, Mutual Funds)	37,222,700	34,676,571
Total Assets	\$55,646,916	\$52,771,855

Derivation of Funding Value of Retirement System Assets

	2017	2018	2019	2020	2021
<u>Beginning of Year Values</u>					
(1) Market Value	\$49,137,471	\$52,771,855			
(2) Funding Value	50,816,076	52,342,244			
<u>End of Year</u>					
(3) Market Value	52,771,855	55,646,916			
(4) Net Addition to Assets	(2,193,195)	(1,886,523)			
Excluding Investment Income#					
(5) Total Net Investment Income#	5,827,579	4,761,584			
=(3)-(1)-(4)					
(6) Projected Net Rate of Return#	7.90%	7.90%	7.75%	7.60%	7.50%
(7) Projected Investment Income	3,927,839	4,060,520			
=(6) x [(2)+0.5 x (4)]					
(8) Investment Income in Excess of Projected	1,899,740	701,064			
<u>Excess Investment Income Recognized</u>					
(9a) From Current Year = .25 x (8)	474,935	175,266			
(9b) From One Year Prior	(17,937)	474,935	\$175,266		
(9c) From Two Years Prior	(959,321)	(17,937)	474,935	\$175,266	
(9d) From Three Years Prior	293,847	(959,322)	(17,935)	474,935	\$175,266
(9e) Total Cap. Val. Change Recogn.	(208,476)	(327,058)	632,266	650,201	175,266
= (9a)+(9b)+(9c)+(9d)					
(10) Increase(Decr.) in Funding Value	1,526,168	1,846,939			
= (4) + (7) + (9e)					
<u>End of Year</u>					
(11) Market Value	52,771,855	55,646,916			
(12) Funding Value = (2)+(10)	52,342,244	54,189,183			
(13) Market Value Rate of Return	12.1%	9.2%			
(14) Funding Value Rate of Return	7.5%	7.3%			
(15) Ratio of Market to Funding Value	100.8%	102.7%			
<i># Net of expenses paid from investment income.</i>					

Retired Member and Beneficiary Data Historical Schedule

Year Ended	Added		Removed		Net Increase		End of Year		Expected Removals	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions	No.	Pensions
9/30/1975			3	\$ 5,238	(3)	(\$5,238)	38	\$ 96,998		
9/30/1980	4	12,535	2	6,322	2	6,213	43	126,043		
9/30/1985	6	38,897	3	9,338	3	29,559	54	206,265	1.7	\$ 4,085
9/30/1990	6	63,868	5	14,043	1	49,825	63	346,855	1.9	6,447
9/30/1994	12	187,409	2	14,164	10	173,245	83	855,174	2.1	12,465
9/30/1995	8	184,693	6	24,617	2	160,076	85	1,015,250	2.3	14,657
9/30/1996	14	247,257	7	33,348	7	213,909	92	1,229,159	1.9	14,218
9/30/1997	5	65,068	4	22,208	1	42,860	93	1,272,018	2	16,685
9/30/1998							76	800,890		
9/30/1999 #	10	172,208	1	6,329	9	165,878	85	966,768	2.2	14,706
9/30/2000	10	136,587	7	59,619	3	76,968	88	1,043,736	2.4	18,374
9/30/2001	4	24,217	2	11,788	2	12,429	90	1,056,165	2.4	19,964
9/30/2002	11	151,501	3	10,618	8	140,883	98	1,197,048	2.7	21,848
9/30/2003	8	172,085	1	10,667	7	161,418	105	1,358,466	2.7	24,633
9/30/2004	11	134,489	3	15,936	8	118,553	113	1,477,019	3.0	27,076
9/30/2005	6	49,379	5	62,667	1	(13,288)	114	1,463,731	2.9	29,309
9/30/2006	10	202,781	5	22,299	5	180,482	119	1,644,213	3.1	31,396
9/30/2007	14	322,021	5	65,654	9	256,367	128	1,900,580	3.2	34,413
9/30/2008	10	298,652	8	44,625	2	254,027	130	2,154,607	3.6	39,721
9/30/2009	9	195,633	4	63,680	5	131,953	135	2,286,560	3.7	43,533
9/30/2010	10	184,355	3	64,710	7	119,645	142	2,406,205	3.9	47,327
9/30/2011	16	363,208	7	119,896	9	243,312	151	2,649,517	4.3	51,034
9/30/2012	13	435,110	4	39,274	9	395,836	160	3,045,353	4.6	54,980
9/30/2013	13	323,154	3	15,400	10	307,754	170	3,353,107	4.9	62,669
9/30/2014	19	484,768	11	263,155	8	221,613	178	3,574,720	5.3	70,395
9/30/2015	9	181,304	5	68,058	4	113,246	182	3,687,966	5.7	76,746
9/30/2016	10	304,651	5	79,399	5	225,252	187	3,913,218	5.9	80,101
9/30/2017	9	181,804	7	69,064	2	112,740	189	4,025,958	5.7	78,887
9/30/2018	10	322,298	7	106,475	3	215,824	192	4,241,782	5.4	80,605
Expected for 9/30/2019									5.5	86,398

Prior to 1999 valuation, numbers include General, Police and Fire.

Normal (Age and Service) Retirements*

Valuation Year	No.	Average			Newly Retired During Year			
		Attained Age	Retirement Age	Annual Pensions	No.	Retirement Age	Service	Annual Pensions
2004	88	68.6 yrs.	60.9 yrs.	14,222	9	61.3 yrs.	14.4 yrs.	\$ 11,827
2005	87	69.0	61.1	13,996	4	63.6	12.1	7,197
2006	93	68.9	60.8	14,669	8	59.1	17.5	19,444
2007	100	68.6	60.1	15,822	12	59.6	19.2	23,639
2008	104	68.8	59.7	17,352	9	61.0	22.9	30,855
2009	109	69.1	60.4	17,871	4	55.8	23.9	36,241
2010	113	69.4	60.5	17,861	7	62.1	18.7	19,289
2011	120	69.1	60.3	18,762	13	60.8	20.4	26,434
2012	131	69.1	60.2	20,282	13	60.0	24.5	33,470
2013	143	69.2	60.1	21,008	13	59.1	19.0	24,858
2014	144	69.3	60.0	21,460	11	64.2	17.4	30,863
2015	148	69.7	60.1	21,767	8	59.6	18.8	22,159
2016	153	70.1	60.1	21,776	8	61.4	21.3	29,172
2017	155	70.0	59.9	22,266	8	59.3	19.1	20,232
2018	156	70.2	59.8	23,150	7	61.1	20.9	34,139

* Includes DROP members.

Retired Members and Beneficiaries Historical Comparison

Valuation Date	% Incr. in Annual Pensions	No. of Active Per Retired	Pension Payroll as % of Active Payroll	Average Pension
10/1/2004	8.7 %	2.2	15.2 %	\$ 13,071
10/1/2005	(0.9)	2.2	13.7	12,840
10/1/2006	12.3	2.1	14.2	13,817
10/1/2007	15.6	2.0	16.2	14,848
10/1/2008	13.4	1.8	18.6	16,574
10/1/2009	6.1	1.8	19.6	16,937
10/1/2010	5.2	1.6	21.0	16,945
10/1/2011	10.1	1.5	23.1	17,546
10/1/2012	14.9	1.3	28.0	19,033
10/1/2013	10.1	1.3	31.3	19,724
10/1/2014	6.6	1.2	33.5	20,083
10/1/2015	3.2	1.3	32.9	20,264
10/1/2016	6.1	1.2	33.9	20,926
10/1/2017	2.9	1.3	30.3	21,301
10/1/2018	5.4	1.3	33.2	22,093

Retired Members and Beneficiaries as of October 1, 2018 by Type of Pension Being Paid*

New Plan Pensions

Type of Pension Being Paid	No.	Annual Pension	Average Pension	Actuarial Liability
<i>Age and Service Pensions</i>				
Regular	80	\$1,808,610	\$22,608	\$ 17,011,139
Option I	12	212,173	17,681	1,926,993
Option II	37	848,432	22,931	9,646,649
Option III	24	691,201	28,800	7,369,518
Surviving Beneficiaries	19	310,577	16,346	2,442,151
DROP	0	0	0	0
Total Age and Service Pensions	172	3,870,993	22,506	38,396,450
<i>Death-in-Service</i>				
Surviving Beneficiaries	6	140,806	23,468	1,412,122
<i>Disability Pensions</i>				
Regular	3	62,829	20,943	503,360
Option I	0	0	0	0
Option II	3	64,977	21,659	762,557
Option III	1	22,402	22,402	194,505
Surviving Beneficiaries	3	26,416	8,805	251,313
Total Disability Pensions	10	176,624	17,662	1,711,735
Total New Plan Pensions	188	\$4,188,423	\$22,279	\$41,520,307

* Regular - benefit terminating upon death of retired member.

Option I - 10-year certain.

Option II - 100% joint and survivor benefit.

Option III - 50%/67%/75% joint and survivor benefit.

Surviving Beneficiaries - benefit terminating upon death of beneficiary.

Retired Members and Beneficiaries as of October 1, 2018 by Type of Pension Being Paid*

Old Plan Pensions

Type of Pension Being Paid	No.	Annual Pension	Average Pension	Actuarial Liability
<i>Age and Service Pensions</i>				
Regular	1	\$ 10,992	\$10,992	\$ 24,271
Option III	2	39,967	19,984	229,315
Survivor Beneficiaries	1	2,400	2,400	13,020
<i>Total Age and Service Pensions</i>	4	53,359	13,340	266,606
<i>Disability Pensions</i>				
Survivor Beneficiaries	0	0	0	0
<i>Total Disability Pensions</i>	0	0	0	0
<i>Total Old Plan Pensions</i>	4	\$ 53,359	\$13,340	\$ 266,606
<i>Total New & Old Plan Pensions Being Paid</i>	192	\$4,241,782	\$22,093	\$ 41,786,913

* Regular - benefit terminating upon death of retired member.
Automatic Spouse Benefit - 75% joint and survivor benefit.
Surviving Beneficiaries - benefit terminating upon death of beneficiary.

Retired Member and Beneficiary Data as of October 1, 2018 by Attained Ages

Attained Ages	New Plan		Old Plan		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
51	1	\$ 18,238			1	\$ 18,238
53	3	43,928			3	43,928
55	4	118,980			4	118,980
56	3	61,015			3	61,015
57	1	35,415			1	35,415
58	2	79,464			2	79,464
59	4	173,285			4	173,285
60	9	269,800			9	269,800
61	8	296,016			8	296,016
62	9	207,268			9	207,268
63	6	164,202			6	164,202
64	13	484,210			13	484,210
65	7	189,902			7	189,902
66	12	391,195			12	391,195
67	5	97,529			5	97,529
68	10	159,466			10	159,466
69	4	66,366			4	66,366
70	8	241,916			8	241,916
71	11	223,312			11	223,312
72	4	94,324			4	94,324
73	2	16,834			2	16,834
74	8	107,176			8	107,176
75	8	116,110			8	116,110
76	4	55,747			4	55,747
77	3	51,909			3	51,909
78	3	36,454			3	36,454
79	6	69,540			6	69,540
80	2	18,199			2	18,199
81	5	50,731			5	50,731
82	3	44,772			3	44,772
83	1	13,989			1	13,989
84	2	18,075			2	18,075
85	3	36,186	1	\$ 2,400	4	38,586
86	3	26,976			3	26,976
87	2	21,237	1	34,053	3	55,290
88	7	57,811			7	57,811
89	1	21,350			1	21,350
91	1	9,496	1	5,914	2	15,410
98			1	10,992	1	10,992
Totals	188	\$4,188,423	4	\$53,359	192	\$4,241,782

Vested Terminated Members as of October 1, 2018 by Attained Ages

Attained Ages	No.	Annual Benefits
43	1	\$ 11,774
47	1	16,356
48	1	5,996
49	1	7,327
50	1	37,774
52	1	17,401
56	1	12,705
57	1	29,199
58	1	8,535
60	1	4,643
Totals	10	\$151,708

Active and Vested Terminated Members Included in Valuation (Excluding DROP Members)

Valuation Date	Active Members	Vested Terminated Members	Valuation Payroll	Average		
				Age	Service	Pay
10/1/2009	239	11	\$ 11,676,911	47.0 yrs.	11.0 yrs.	\$48,857
10/1/2010	227	12	11,484,650	47.0	11.6	50,593
10/1/2011	219	11	11,449,082	47.3	11.7	52,279
10/1/2012	214	16	10,884,445	47.0	11.2	50,862
10/1/2013	213	16	10,713,988	47.2	11.1	50,300
10/1/2014	218	16	10,662,900	46.6	10.3	48,912
10/1/2015	233	13	11,196,298	46.1	9.8	48,053
10/1/2016	231	13	11,528,990	46.6	9.9	49,909
10/1/2017	249	11	13,290,665	46.3	9.3	53,376
10/1/2018	240 *	10	12,761,296 *	46.0	9.8	53,172

* In 2018 there were 0 DROP members.

Number Added to and Removed from Active Membership

Year Ended September 30	Number Added During Year		Terminations During Year										Active Members End of Year
			Normal Retirement		Disability Retirement		Died-in-Service		Withdrawal				
	A	E	A	E	A	E	A	E	A	A	A	E	
2009	16	16	4	10.3	0	0.3	0	0.2	0	12	12	15.7	239
2010	12	24	7	12.6	1	0.3	0	0.2	1	15	16	13.8	227
2011	18	26	12	11.0	0	0.3	0	0.2	1	13	14	12.2	219
2012	19	24	13	10.6	0	0.3	0	0.3	5	6	11	14.1	214
2013	15	16	11	9.5	0	0.3	0	0.2	1	4	5	14.5	213
2014	35	30	11	9.5	1	0.3	0	0.3	2	16	18	14.2	218
2015	35	20	5	7.1	0	0.3	0	0.2	1	14	15	19.9	233
2016	30	32	6	9.7	0	0.3	1	0.2	2	23	25	23.8	231
2017	38	20	6	7.2	0	0.3	0	0.4	1	13	14	21.7	249
2018	19	28	6	6.7	0	0.3	0	0.4	0	22	22	25.3	240
5-yr. Totals													
2014 - 2018	157	130	34	40	1	1	1	1	6	88	94	105	
Expected for 2019				7.5		0.3		0.4				21.2	

A Represents actual number.

E Represents expected number.

Active Members as of October 1, 2018 by Near Age and Years of Service (Excluding DROP Members)

Near 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
15-19	1							1	\$ 24,577
20-24	3							3	81,544
25-29	15	2						17	662,550
30-34	25	4	5	1				35	1,554,080
35-39	13	7	7	4				31	1,718,641
40-44	13	2	1	4				20	1,064,280
45-49	7	2	2	4	1	1		17	834,102
50-54	16	2	8	7	5	2	2	42	2,467,828
55-59	7	9	10	8	2	10	2	48	2,971,978
60	2		1			1		4	158,166
61	2				1	1		4	216,384
62	1	3			1		1	6	341,213
63	1	1		1		1		4	178,093
64				3				3	171,586
65	1	1						2	82,949
67	1		2					3	233,325
Totals	108	33	36	32	10	16	5	240	\$12,761,296

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

Age: 46.0 years

Service: 9.8 years

Annual Pay: \$53,172

SECTION C

ACTUARIAL COST METHOD, ACTUARIAL ASSUMPTIONS AND DEFINITIONS OF TECHNICAL TERMS

Actuarial Cost Method

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

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

The entry-age actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's pensionable compensation between the entry age of the member and the estimated active status exit ages. This was based on our understanding of the approach preferred by the Florida Division of Retirement.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called the actuarial accrued liability. Deducting accrued assets from the actuarial accrued liability determines the unfunded actuarial accrued liability. The unfunded actuarial accrued liability was financed as a level percent of member payroll. Please refer to page A-13 for a schedule of financing periods.

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

The sum of active member payroll was assumed to increase 2.5% a year for the purpose of determining the level percent contributions, except to the extent needed for FS 112.64(5) compliance. This assumption is consistent with the base rate of increase in salaries used to calculate actuarial present values.

Level Percent of Active Participant Payroll Amortization of Unfunded Actuarial Accrued Liability (amortization schedule \$ amounts in thousands)

Year Ended September 30	Payroll		Unfunded		Contribution	
	Inflated Dollars	Constant Value	Inflated Dollars	Constant Value	Inflated Dollars	Constant Value
2018	\$12,761	\$12,761	\$ 15,174	\$ 15,174	\$ 1,519	\$ 1,519
2019	13,080	12,761	14,754	14,395	1,557	1,519
2020	13,407	12,761	14,262	13,575	1,595	1,519
2021	13,743	12,761	13,690	12,713	1,635	1,519
2022	14,086	12,761	13,033	11,807	1,900	1,721
2027	15,937	12,761	6,810	5,453	1,912	1,531
2032	18,031	12,761	3,013	2,132	709	502
2037	20,401	12,761	1,582	990	12	7
2041	22,519	12,761	266	151	215	122
2042	23,082	12,761	61	34	62	34
2043	12,450	12,761	0	0	0	0
\$ 490,806	over 25 years		\$ 904,583	over 15 years		
1,221,334	over 24 years		(923,549)	over 14 years		
2,659,202	over 23 years		349,508	over 13 years		
886,220	over 22 years		2,277,205	over 12 years		
(1,389,359)	over 21 years		3,011,970	over 11 years		
(3,395,226)	over 20 years		3,750,185	over 10 years		
161,334	over 19 years		1,130,408	over 9 years		
2,431,589	over 18 years		200,252	over 7 years		
1,060,261	over 17 years		(734,167)	over 4 years		
1,081,858	over 16 years					
			\$15,174,414			

Level percent-of-payroll financing of unfunded actuarial accrued liability 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 participant payroll used to compute the level percent-of-payroll contribution is the same rate of payroll growth used to compute actuarial liability 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 liability will tend to decline.

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

Actuarial Assumptions Used for the Valuation

Funding objective contribution requirements and actuarial present values are calculated by applying estimates of future plan activities (actuarial assumptions) to the benefit provisions and people information of the system, using the actuarial cost method described on page C-1. All actuarial assumptions used in this report are estimates of future experience.

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

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

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

Actual activities of the System will not coincide exactly with estimated activities, due to their nature. Each valuation provides a complete recalculation of estimated future activities and takes into account the effect of differences between estimated and actual activity 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 assumptions are modified to reflect experience trends (but not random or temporary year-to-year fluctuations).

The actuarial assumptions are adopted by the Board of Trustees after consultation with the actuary. In general, the actuarial assumptions were based on the System's experience, as well as experience of plans similar in nature where the System's experience was insufficient. In addition, the mortality tables also reflect actual trends. The reasonableness of the economic assumptions was 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.

The actuarial assumptions regarding the INFLATION rate, the SALARY INCREASE rates, and REAL INVESTMENT RETURN were effective October 1, 2018. These actuarial assumptions are used, in combination with the other actuarial 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 covered payroll.

PRICE INFLATION. 2.5% 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	
	2018	2017	2016	2015	2014	3-Year	5-Year
Actual	2.3%	2.2%	1.5%	0.0%	1.7%	2.0%	1.5%
Assumed	2.5%	2.5%	3.0%	3.5%	3.5%	2.6%	3.0%

REAL INVESTMENT RETURN. 5.25% per annum, compounded annually. This is the rate of return estimated to be produced by investing a pool of assets in an inflation-free environment. Recent real investment return for the Retirement System has been:

	Year Ended September 30					Average	
	2018	2017	2016	2015	2014	3-Year	5-Year
Net Rate	7.3%	7.5%	7.5%	9.1%	9.4%	7.3%	8.2%
Less Inflation Rate	<u>2.3%</u>	<u>2.2%</u>	<u>1.5%</u>	<u>0.0%</u>	<u>1.7%</u>	<u>2.0%</u>	<u>1.5%</u>
Net Real Rate	5.0%	5.2%	6.0%	9.1%	7.8%	5.4%	6.6%
Target Real Rate	5.4%	5.4%	5.0%	4.5%	4.5%	5.2%	5.0%

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 funding asset value and B is the end of year funding value of assets.

The preceding investment return rates reflect the particular characteristics of this Retirement 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:

Attributable to:	Annual Rates for Salary Increase for Sample Ages				
	20	30	40	50	60
Merit & Seniority	3.8%	2.7%	2.1%	1.1%	0.2%
General Increase in Wage Level Due to:					
Price Inflation	2.5	2.5	2.5	2.5	2.5
Other Factors	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Total	6.3%	5.2%	4.6%	3.6%	2.7%

The valuation is based on a constant group size and total payroll increasing at the rate of the general increase in wage levels due to inflation and other causes, which in this case is 2.5% a year.

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

	Year Ended September 30					Average		
	2018	2017	2016	2015	2014	3-Year	5-Year	10-Year
% Change:								
Actual ⁽¹⁾	(0.3)%	10.1%	5.9%	0.2%	3.8%	5.2%	3.9%	3.5%
Assumed	3.9%	3.8%	4.8%	5.6%	5.5%	4.2%	4.7%	5.2%
% Change in Total Payroll ⁽²⁾	(4.0)%	13.2%	1.8%	(0.9)%	(1.1)%	3.4%	1.6%	0.1%

(1) Excluding terminations and new members.

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

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. The following schedule illustrates the recent history of the relationship between total investment return and average pay changes.

	Year Ended September 30					Average	
	2018	2017	2016	2015	2014	3-Year	5-Year
Net Investment Return Rate	7.3%	7.5%	7.5%	9.1%	9.4%	7.4%	8.2%
Rate of Change in Average Pay	(0.3)%	10.1%	5.9%	0.2%	3.8%	5.1%	3.9%
Difference: Actual	7.6%	(2.6)%	1.6%	8.9%	5.6%	2.1%	4.1%
Target	5.4%	5.4%	4.5%	4.5%	4.5%	5.0%	4.9%

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

- Male non-disabled pre-retirement mortality: 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.
- Female non-disabled pre-retirement mortality: fully generational mortality. 100% of the RP-2000 Annuitant White Collar Table, projected with scale BB.
- Male non-disabled post-retirement mortality: 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.
- Female non-disabled post-retirement mortality: fully generational mortality. 100% of the RP-2000 Annuitant White Collar Table, projected with scale BB.
- Male disabled mortality: 100% of the RP-2000 Disabled Male Table set back 4 years.
- Female disabled mortality: 100% of the RP-2000 Disabled Female Table, set forward 2 years.

Sample values follow:

Sample Ages in 2018	Value of \$1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
	50	\$140.51	\$145.85	34.73
55	135.26	140.64	30.10	33.34
60	127.63	133.69	25.44	28.44
65	117.55	124.53	20.91	23.70
70	105.00	113.15	16.65	19.23
75	90.22	99.67	12.78	15.15
80	74.13	84.44	9.43	11.51

The margin for future mortality improvements is included in the projection scales. 25% of pre-retirement deaths were assumed to be duty related.

RATES OF WITHDRAWAL FROM ACTIVE MEMBERSHIP. The rates do not apply to members eligible to retire and do not include separation on account of death or disability. This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating During Next Year
ALL	0	37.00%
	1	23.50%
	2	14.10%
	3	9.40%
	4	6.58%
25	5 & Over	11.01%
30		8.90%
35		6.15%
40		4.23%
45		2.98%
50		2.22%
55		1.78%
60		1.50%

These rates were first used for the October 1, 2002.

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

Sample Ages	% of Active Members Becoming Disabled During Next Year
20	0.0004
25	0.0004
30	0.0004
35	0.0008
40	0.0012
45	0.0016
50	0.0023
55	0.0042
60	0.0061
65	0.0077

The mortality table was set forward ten years from the age at disability for projecting disability costs, of which 25% were assumed to be duty related.

These rates were first used for the October 1, 1995 valuation.

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

Retirement Ages	Age Based		Yrs. of Service	Service Based	Early Retirement Ages	Early Retirement Rates
	With 10 Years of Service at 11/25/2013	With Less Than 10 Years of Service at 11/25/2013				
55		75%	30	75%	45	5%
56		75%	31	30%	46	5%
57		75%	32	30%	47	5%
58		75%	33	30%	48	5%
59		75%	34	30%	49	5%
60	40%	75%	35	30%	50	5%
61	10%	75%	36	30%	51	5%
62	20%	40%	37	30%	52	5%
63	20%	20%	38	30%	53	5%
64	20%	20%	39	30%	54	5%
65	20%	20%	40	100%	55-59	5%
66	20%	20%				
67	25%	25%				
68	25%	25%				
69	25%	25%				
70	100%	100%				

A General member with at least 10 years of service at November 25, 2013 is eligible for normal retirement after 30 years of service or after attaining age 60 with 5 years of service. Members with less than 10 years of service at November 25, 2013 are eligible for normal retirement at age 55 with 30 years of service or age 62 with 10 years of service.

A General member is eligible for early retirement after 20 years of service.

These rates were first used for the October 1, 2013 valuation.

ADMINISTRATIVE EXPENSES. Administrative expenses are projected to continue at the same percent-of-payroll as experienced during the preceding fiscal year.

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

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

VESTED MEMBERS who terminate with a benefit worth less than 100% of their own accumulated contributions were assumed to forfeit their vested benefit.

COMPENSATION reported for the actuarial valuation includes all amounts included in final average compensation for benefit purposes.

Summary of Assumptions Used September 30, 2018

Pensions in an Inflationary Environment

Value of \$1,000/month Retirement Benefit to an Individual Who Retires at Age 60 in an Environment of 2.5% Inflation

<u>Age</u>	<u>Value</u>
60	\$1,000
61	976
62	952
63	929
64	906
65	884
70	780
75	689
80	609
85	539
90	476
95	420

The life expectancy of a 60-year-old male retiree is age 85. The life expectancy for a 60-year-old female retiree is age 88. Half of the people will outlive their life expectancy. The effects of even moderate amounts of inflation can be significant for those who live to an advanced age.

Summary of Assumptions Used

Miscellaneous and Technical Assumptions

Marriage Assumption. 100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits.

Pay Increase Timing. Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.

Decrement Timing. Decrements of all types are assumed to occur mid-year.

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

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

Decrement Relativity. Decrement rates are used without adjustment for multiple decrement table effects.

Decrement Operation. Disability and mortality decrements do not operate during the first five years of service. Disability and withdrawal do not operate during retirement eligibility.

Normal Form of Benefit. The assumed normal form of benefit is the straight life form. Optional benefit forms are available on an actuarial equivalent basis.

Incidence of Contributions. Contributions are assumed to be received continuously throughout the year based upon the computed percent-of-payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

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

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

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

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

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

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

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

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

Definitions of Technical Terms

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

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

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

Most retirement systems have unfunded actuarial accrued liability. An amount arises each time new benefits are added and each time an experience loss occurs.

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

SECTION D

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.

Contributions Required and Contributions Made

The City's funding policy provides for periodic employer contributions at actuarially determined rates that, expressed as percentages of annual covered payroll, are designed to accumulate sufficient assets to pay benefits when due. The normal cost and actuarial accrued liability are determined using an entry-age actuarial funding method. Unfunded actuarial accrued liability is being amortized as a level percent-of-payroll over periods of 4 to 25 years.

During the year ended September 30, 2018 contributions totaling \$2,928,451 -- \$1,898,689 employer and \$1,029,762 employee -- were made in accordance with contribution requirements determined by an actuarial valuation of the plan as of October 1, 2016. The employer contributions consisted of \$444,093 for normal cost and administrative expenses and \$1,454,596 for amortization of the unfunded actuarial accrued liability. Employer contributions represented 14.88% of covered payroll.

Significant actuarial assumptions used to compute contribution requirements were the same as those used to compute the standardized measure of the actuarial accrued liability.

Computed Employer Contribution Comparative Schedule

Fiscal Year	Beginning Valuation October 1	Valuation Date	Contribution Rates as Percents of Valuation Payroll	Valuation Payroll	Dollar Contribution for Fiscal Year	
					Computed	Actual
2010		10/1/2009	7.8 %	\$ 11,676,911	\$ 971,717	\$ 971,717
2011		10/1/2010	9.2	11,484,650	1,132,385	1,132,385
2012		10/1/2011	12.2	11,449,082	1,490,901	1,490,902
2013		10/1/2012	10.4	10,884,445	1,205,756	1,216,994
2014		10/1/2013 *	12.1	10,713,988	1,387,166	1,387,166
2015		10/1/2014	11.6	10,662,900	1,321,320	1,321,320
2016		10/1/2015 *	13.5	11,196,298	1,591,545	1,591,545
2017		10/1/2016 *	15.8	11,528,990	1,892,707	1,898,689
2018		10/1/2017	15.2	13,290,665	2,097,788	
2019		10/1/2018 *	17.5	12,761,296	2,322,790	

* After changes in benefit provisions and/or actuarial assumptions.

Actuarial Accrued Liability

The actuarial accrued liability is a measure intended to help users assess (i) a pension fund's funded status on a going-concern basis, and (ii) progress being made toward accumulating the assets needed to pay benefits as due. Allocation of the actuarial present value of projected benefits between past and future service was based on service using the individual entry-age actuarial cost method. Assumptions, including projected pay increases, were the same as used to determine the Fund's level percent of payroll annual required contribution between entry-age and assumed exit age. Entry-age was established by subtracting credited service from current age on the valuation date.

The preceding methods comply with the financial reporting standards established by the Governmental Accounting Standards Board.

The entry age actuarial accrued liability was determined as part of an actuarial valuation of the plan as of October 1, 2018. Significant actuarial assumptions used in determining the entry age actuarial accrued liability include (a) a rate of return on the investment of present and future assets of 7.75% per year compounded annually, (b) projected salary increases of 2.5% per year compounded annually, 2.5% attributable to inflation, (c) additional projected salary increases of 3.8% to 0.0% per year, depending on age, attributable to seniority/merit, and (d) the assumption that benefits will not increase after retirement.

As of October 1, 2018, the unfunded actuarial accrued liability was \$15,174,414 determined as follows:

Actuarial Accrued Liability:	
Active participants (105 vested and 135 non-vested)	\$26,591,256
Retired participants and beneficiaries currently receiving benefits (192 vested)	41,786,913
Vested terminated participants not yet receiving benefits (10 vested)	985,428
DROP balances	0
Total Actuarial Accrued Liability	69,363,597
Actuarial Value of Assets (market value was \$55,646,916)	54,189,183
Unfunded Actuarial Accrued Liability	<u>\$15,174,414</u>

During the year ended September 30, 2018, the plan experienced a net change of \$2,011,473 in the actuarial accrued liability, of which 1,052,845 was due to changes in actuarial assumptions. There were no changes in benefit provisions or methods.

Supplementary Information Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets#	Actuarial Liability (AAL) Entry Age	Unfunded AAL	Funded Ratio	Active Participant Covered Payroll	Unfunded AAL as a Percentage of Active Member Covered Payroll
October 1	(a)	(b)	(b)-(a)	(a)/(b)	(c)	((b-a)/c)
1999 @	\$29,669	\$24,737	\$ (4,933)	119.9 %	\$ 7,408	(66.6) %
2000 *	32,832	27,040	(5,793)	121.4	7,975	(72.6)
2001	34,200	28,401	(5,799)	120.4	8,266	(70.2)
2002 *	34,361	30,057	(4,304)	114.3	8,405	(51.2)
2003	33,997	33,590	(407)	101.2	9,259	(4.4)
2004	33,674	36,614	2,940	92.0	9,697	30.3
2005	34,445	40,242	5,797	85.6	10,714	54.1
2006	36,644	43,650	7,006	83.9	11,575	60.5
2007	39,424	46,208	6,785	85.3	11,700	58.0
2008	40,975	49,110	8,135	83.4	11,556	70.4
2009	41,538	51,118	9,580	81.3	11,677	82.0
2010	41,771	53,050	11,279	78.7	11,485	98.2
2011	40,809	54,975	14,166	74.2	11,449	123.7
2012	42,288	57,220	14,932	73.9	10,884	137.2
2013 *	45,066	56,970	11,904	79.1	10,714	111.1
2014	47,138	57,746	10,608	81.6	10,663	99.5
2015 *	49,153	60,403	11,250	81.4	11,196	100.5
2016 *	50,816	64,652	13,836	78.6	11,529	120.0
2017	52,342	67,352	15,010	77.7	13,291	112.9
2018 *	54,189	69,364	15,175	78.1	12,761	118.9

Dollar amounts are in thousands.

* After changes in benefits and/or actuarial assumptions and/or actuarial cost methods.

The actuarial value of assets is four year smoothed market value.

Analysis of the dollar amounts of actuarial value of assets, actuarial accrued liability, or unfunded actuarial accrued liability in isolation can be misleading. Expressing the actuarial value of assets as a percentage of the actuarial accrued liability provides one indication of the System's funded status on a going-concern basis. Analysis of this percentage over time indicates whether the System is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. The unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial accrued liability as a percentage of covered payroll approximately adjusts for the effects of inflation and aids analysis of the progress being made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.

SECTION E

SUMMARY OF VALUATION RESULTS IN STATE FORMAT

Summary of Valuation Results in State Format (\$ amounts in thousands)

	October 1, 2018		October 1, 2017
	After	Before	
(a) Participant Data			
(i) Active members			
- number	240	240	249
- annual payroll	\$12,761	\$12,761	\$ 13,291
(ii) Retired members & beneficiaries (excl. disability)			
- number	182	182	179
- annualized benefit payroll	\$ 4,065	\$ 4,065	\$ 3,849
(iii) Disabled members & beneficiaries			
- number	10	10	10
- annualized benefit payroll	\$ 177	\$ 177	\$ 177
(iv) Terminated vested members			
- number	10	10	11
- annualized deferred benefit payroll	\$ 152	\$ 152	\$ 157
(b) Assets			
(i) Actuarial value for funding	54,189	54,189	52,342
(ii) Market value	55,647	55,647	52,772
(c) Actuarial Liability			
(i) Actuarial present value of active member benefits:			
service retirement	31,104	30,352	31,123
termination benefits - pension	2,368	2,282	2,350
disability retirement	669	655	669
survivor benefits (pre-retirement)	1,264	1,234	1,267
termination benefits - refunds	593	591	578
Total	35,998	35,114	35,987
(ii) Actuarial present value of terminated vested member benefits	985	965	952
(iii) Actuarial present value of retired member benefits:			
total service retirement & survivors	40,075	39,604	37,942
DROP reserve	0	0	0
disability retirement & survivors	1,712	1,692	1,713
Total	41,787	41,295	39,655
(iv) Total actuarial present value of future benefit payments	78,771	77,374	76,594
(v) Payables	0	0	0
(vi) Actuarial accrued liability	69,364	68,311	67,352
(vii) Unfunded actuarial accrued liability ⁽¹⁾	\$ 15,174	\$ 14,122	\$ 15,010

(1) Please refer to page A-12 for requested detail.

Summary of Valuation Results in State Format (\$ amounts in thousands)

		October 1, 2018		October 1, 2017
		After	Before	
(d)	Actuarial Present Value of Accrued Benefits (calculated in accordance with FASB Statement No. 35)			
	(i) Vested accrued benefits			
	Retired members and beneficiaries	\$41,787	\$ 41,295	\$ 39,655
	Terminated members	985	965	952
	Active members (includes non-forfeitable accum. member contributions of \$10,290 for 2018 and \$9,965 for 2017)	20,348	20,000	20,053
	Total	\$63,120	\$62,260	\$60,660
	(ii) Non-vested accrued benefits	2,299	2,206	2,123
	(iii) Total actuarial p.v. of accrued benefits	65,419	64,465	62,782
	(iv) Actuarial p.v. of accrued benefits at begin. of year	62,782	62,782	60,687
	(v) Changes attributable to:			
	Amendments	0	0	0
	Assumption change	954	0	0
	Operation of decrements	6,398	6,398	6,793
	Benefit payments	(4,715)	(4,715)	(4,698)
	Other	none	none	none
	(vi) Net change	2,637	1,683	2,095
	(vii) Actuarial p.v. of accr. benefits at end of year	\$65,419	\$ 64,465	\$62,782
(e)	Plan costs for fiscal year beginning October 1, 2019 and October 1, 2018 (EANC)			
	(i) Normal costs			
	Service pensions	7.56%	7.32%	7.27%
	Disability pensions	0.33%	0.31%	0.32%
	Survivor pensions (pre-retirement)	0.49%	0.47%	0.47%
	Deferred service pensions	1.27%	1.22%	1.22%
	Refunds of member contributions	1.35%	1.36%	1.35%
	Total normal cost	11.00%	10.68%	10.63%
	(ii) Payment to amortize unf'd. act. accr. liab.	11.91%	11.40%	10.41%
	(iii) FS112.64(5) Compliance	1.79%	1.67%	1.32%
	(iv) Administrative expenses	0.79%	0.79%	0.80%
	(v) Amount to be paid by members	7.95%	7.95%	7.95%
	(vi) Expected plan sponsor	17.54%	16.59%	15.21%
	- dollars	\$ 2,323	\$ 2,197	\$ 2,098

Summary of Valuation Results in State Format (\$ amounts in thousands)

		<u>October 1, 2018</u>		<u>October 1, 2017</u>
		<u>After</u>	<u>Before</u>	
(f)	Past Contributions (fiscal year ending 9/30/2018 & 2017)			
	(i) Required minimum:			
	Plan sponsor	\$ 1,893	\$ 1,893	\$ 1,592
	Members	951	951	937
	Total	<u>2,844</u>	<u>2,844</u>	<u>2,529</u>
	(ii) Actual:			
	Plan sponsor	1,899	1,899	1,592
	Members	1,030	1,030	1,019
	Total	<u>2,929</u>	<u>2,929</u>	<u>2,611</u>
(g)	Net Experience Gain (Loss)	562	562	(1,214)
(h)	Other Disclosures			
	(i) Present value of active member future salaries			
	from attained age	\$87,971	\$87,219	\$89,593
	from entry age		not applicable to individual EANC method	
	(ii) Present value of active member future contribs.			
	from attained age	\$ 6,994	\$6,934	\$ 7,123
	from entry age		not applicable to individual EANC method	

Reconciliation of Membership for the Plan Year Ended September 30, 2018

	Active Members	Vested Terminated Members	All		
			Service Retired	Disability Retired	Beneficiaries
No. at Start of Year	249	11	155	7	27
Increase (Decrease) From					
Service Retirement	(6)	(1)	7		
Disability Retirement					
Deaths			(6)		(1)
Other Pension Terminations					
Vested Terminations					
Non-Vested Terminations	(22)				
Transfer to another division					
New Entrants/Rehires	19				3
No. at End of Year	240	10	156	7	29