



## **City of Vero Beach General Employee Retirement Plan**

**Actuarial Valuation and Review as of  
October 1, 2019**

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February 19, 2020

Board of Trustees  
City of Vero Beach General Employee Retirement Plan  
1053 20th Place  
Vero Beach, FL 32960-5359

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of October 1, 2019. The census information on which our calculations were based was prepared by the City's Finance Department in conjunction with The Human Resources Department, and the financial information was provided by the City's Finance Department. That assistance is gratefully acknowledged .

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

The actuarial calculations were directed under the supervision of Malichi S. Waterman, FCA, MAAA, EA. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:   
Leon F. (Rocky) Joyner, Jr., FCA, ASA, MAAA, EA  
Vice President and National Public Sector  
Retirement Practice Leader

  
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Enrolled Actuary No. 20-7141

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# Section 1: Actuarial Valuation Summary

## Purpose and Basis

This report was prepared by Segal Consulting to present a valuation of the Plan as of October 1, 2019. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. 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; and changes in plan provisions or applicable law.

Certain disclosure information required by GASB Statements No 67 and 68 as of October 1, 2019 for the Plan is provided in a separate report.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Plan, as administered by the Board;
- The characteristics of covered active participants, inactive vested participants, and retired participants and beneficiaries as of September 30, 2019, provided by the City's Human Resources Department;
- The assets of the Plan as of September 30, 2019, provided by the City's Finance Department;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions regarding employee terminations, retirement, death, etc.

## Significant Issues

1. Segal Consulting (“Segal”) strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance.
2. Effective June 30, 2015, the accrued benefits of all participants of The Plan were frozen, with no future accruals and no new entrants and all eligible participants at that time became fully vested.
3. The total contributions made during the fiscal year ending September 30, 2019 were sufficient to reduce the unfunded actuarial accrued liability. The unfunded actuarial accrued liability is \$18,123,557, which is a decrease of \$9,854,014 since the prior valuation.
4. Actual contributions made during the fiscal year ending September 30, 2019 were \$12,002,990, 281% of the actuarially determined contribution. In the prior fiscal year, actual contributions were \$4,377,313, 100% of the prior year actuarially determined contribution. The large excess contribution made during the plan year was due to the sale of the City’s electric utility, which was finalized in December 2018.
5. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 83.94%, compared to the prior year funded ratio of 75.04%. This ratio is one measure of funding status, and its history is a measure of funding progress. Using the market value of assets, the funded ratio is 85.42%, compared to 78.39% as of the prior valuation date. These measurements are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan’s benefit obligation or the need for or the amount of future contributions.
6. The actuarially determined contribution for the upcoming year is \$3,069,174, a decrease of \$1,209,810 from last year. The contribution is based on an eight-year level dollar amortization of the unfunded actuarial accrued liability.
7. The actuarial loss from investment and other experience is \$2,590,635, or 2.26% of actuarial accrued liability.
8. The net experience loss from sources other than investment experience was 2.76% of the actuarial accrued liability. The loss was primarily due to a combination of cost-of-living adjustments in 2018 and 2019 greater than expected and more retirements than expected.
9. The rate of return on the market value of assets was 4.56% for the 2018 to 2019 plan year. The return on the actuarial value of assets was 7.18% for the same period due to the recognition of prior years’ investment gains and losses. This resulted in an actuarial gain when measured against the assumed rate of return of 6.50%. This actuarial investment gain decreased the employer contribution rate by \$96,917. Given the low fixed income interest rate environment, target asset allocation and expectations of future investment returns for various classes, we advise the Board to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments of 6.50%.
10. The mortality tables were updated to match the tables used by the Florida Retirement System Pension Plan, adherent to Florida Statute 112.63(f). The assumption change decreased accrued liability by -\$1,945,792, or 1.7%.

11. The administrative expense assumption of \$73,138, assumed to be payable monthly, was updated in accordance with Florida law to be the prior year's reported administrative expense of \$89,490. As a result of this assumption change, the employer normal cost increased by \$16,352. After adjusting for timing the total input was an increase in the actuarially determined contribution of \$16,922.
12. The Plan uses the Entry Age Cost Method with the normal cost determined on a "replacement life" basis. This methodology allows changes in the plan of benefits for new hires to be reflected in the normal cost for current employees even though the plan of benefits for current employees is unchanged. As a result, the actuarial accrued liability increases to offset the decrease in normal cost, and the actuarially determined contribution is less than it would be if the "replacement life" approach was not used.
13. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined contribution under the Plan's funding policy and measuring the progress of that funding policy. The Net Pension Liability (NPL) and Pension Expense under Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68, for inclusion in the plan and employer's financial statements as of September 30, 2019, will be provided separately. The accounting disclosures will utilize different methodologies from those employed in the funding valuation, as required by the GASB. However, the actuarially determined contribution in this valuation is expected to be used as the actuarially determined contribution (ADC) for GASB financial reporting.
14. This actuarial report as of October 1, 2019 is based on financial and demographic data as of that date. Changes subsequent to that date are not reflected and will affect future actuarial costs of the plan.
15. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition, but have included a brief discussion of some risks that may affect the Plan in Section 2. A more detailed assessment of the risks would provide the Board with a better understanding of the inherent risks.

## Summary of Key Valuation Results

		2019	2018
<b>Contributions for plan year beginning October 1:</b>	• Actuarially determined contributions (ADC)	\$3,069,174	\$4,278,984
	• Actual employer contributions	--	\$12,002,990
<b>Actuarial accrued liability for plan year beginning October 1:</b>	• Retired participants and beneficiaries	\$82,800,757	\$75,170,253
	• Inactive vested participants	4,712,291	3,838,160
	• Active participants	<u>25,369,309</u>	<u>33,070,195</u>
	• Total	112,882,357	112,078,608
<b>Normal cost (administrative expenses) for plan year beginning October 1:</b>		86,958	71,069
<b>Assets for plan year beginning October 1:</b>	• Market value of assets (MVA)	\$96,425,798	\$87,862,773
	• Actuarial value of assets (AVA)	94,758,800	84,101,037
	• Actuarial value of assets as a percentage of market value of assets	98.27%	95.72%
<b>Funded status for plan year beginning October 1:</b>	• Unfunded/(overfunded) actuarial accrued liability on market value of assets	\$16,456,559	\$24,215,835
	• Funded percentage on MVA basis	85.42%	78.39%
	• Unfunded/(overfunded) actuarial accrued liability on actuarial value of assets	\$18,123,557	\$27,977,571
	• Funded percentage on AVA basis	83.94%	75.04%
	• Amortization period on an AVA basis	8	9
<b>Demographic data for plan year beginning October 1</b>	• Number of retired participants and beneficiaries	414	395
	• Number of inactive vested participants	114	93
	• Number of active participants	196	255

## Important Information About Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:

<b>Plan of benefits</b>	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
<b>Participant data</b>	An actuarial valuation for a plan is based on data provided to the actuary by the City. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
<b>Assets</b>	The valuation is based on the market value of assets as of the valuation date, as provided by the City. The Plan uses an “actuarial value of assets” that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
<b>Actuarial assumptions</b>	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan’s assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal’s actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the City. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan’s assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- Actuarial results in this report are not rounded, but that does not imply precision.
- If the City is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal’s valuation is based on our understanding of applicable guidance in these areas and of the plan’s provisions, but they may be subject to alternative interpretations. The City should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

## Section 2: Actuarial Valuation Results

### Participant Data

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive vested participants, retired participants and beneficiaries. The Plan was closed to new entrants in 2015. Therefore, the number of active participants is declining and the ratio of non-actives to actives is increasing.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in *Section 3, Exhibits A, B, and C.*

#### PARTICIPANT POPULATION: 2010 – 2019

Year Ended September 30	Active Participants	Inactive Vested Participants*	Retired Participants and Beneficiaries	Total Non-Actives	Ratio of Non-Actives to Actives
2010	407	84	275	359	0.88
2011	405	88	281	369	0.91
2012	379	95	309	404	1.07
2013	350	91	324	415	1.19
2014	339	87	348	435	1.28
2015	323	92	356	448	1.39
2016	299	96	375	471	1.58
2017	272	95	386	481	1.77
2018	255	93	395	488	1.91
2019	196	114	414	528	2.69

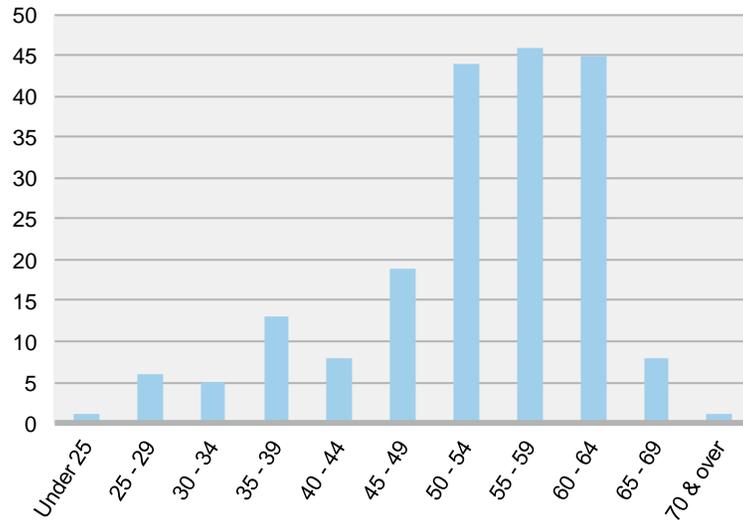
\*Includes beneficiaries entitled to deferred benefits.

## Active Participants

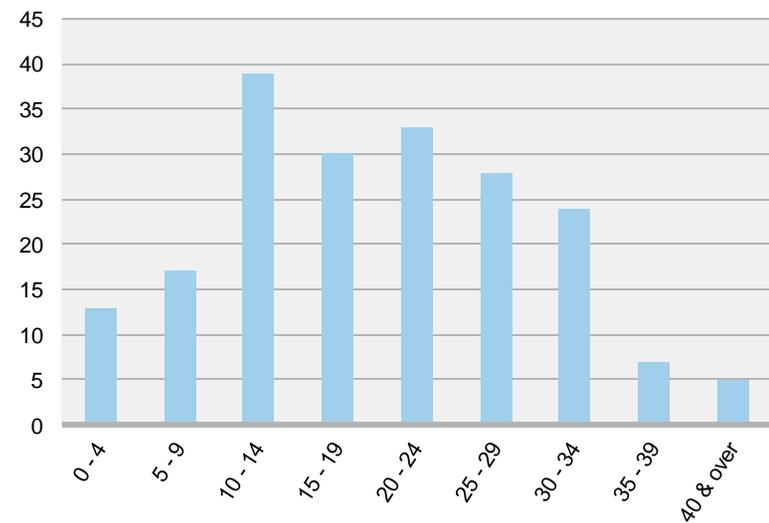
Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 196 active participants with an average age of 53.3, and average years of service of 20.2 years. The 255 active participants in the prior valuation had an average age of 52.2, and average service of 19.1 years.

### Distribution of Active Participants as of September 30, 2019

#### ACTIVES BY AGE



#### ACTIVES BY YEARS OF SERVICE



## Inactive Participants

In this year's valuation, there were 114 participants with a vested right to a deferred or immediate vested benefit.

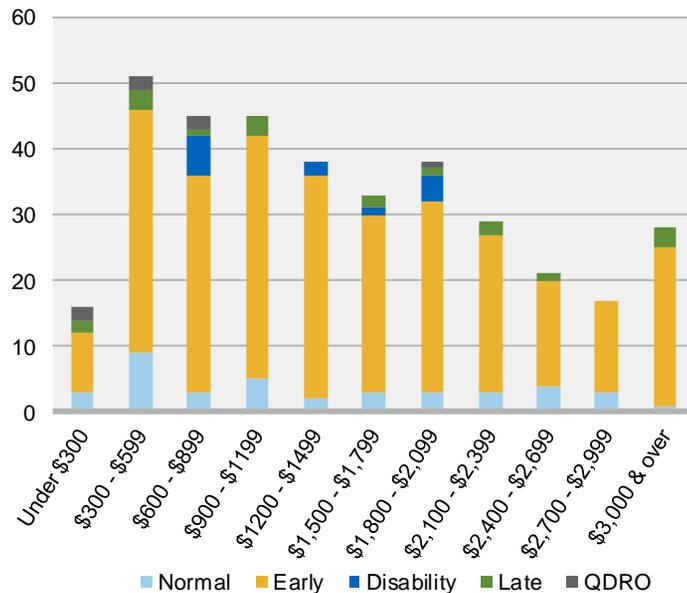
## Retired Participants and Beneficiaries

As of September 30, 2019, 361 retired participants and 53 beneficiaries were receiving total monthly benefits of \$629,027. For comparison, in the previous valuation, there were 342 retired participants and 53 beneficiaries receiving monthly benefits of \$567,253.

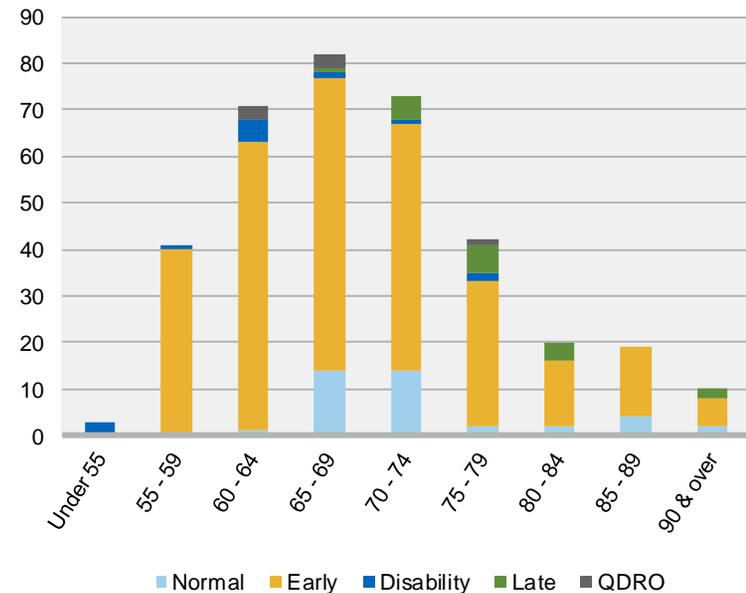
As of September 30, 2019, the average monthly benefit for retired participants is \$1,519, compared to \$1,436 in the previous valuation. The average age for retired participants is 69.8 in the current valuation, compared with 70.2 in the prior valuation.

### Distribution of Pensioners as of September 30, 2019

**PENSIONERS BY TYPE AND MONTHLY AMOUNT**



**PENSIONERS BY TYPE AND AGE**



## Historical Plan Population

The chart below demonstrates the progression of the active population over the last ten years. The chart also shows the growth among the retired population over the same time period.

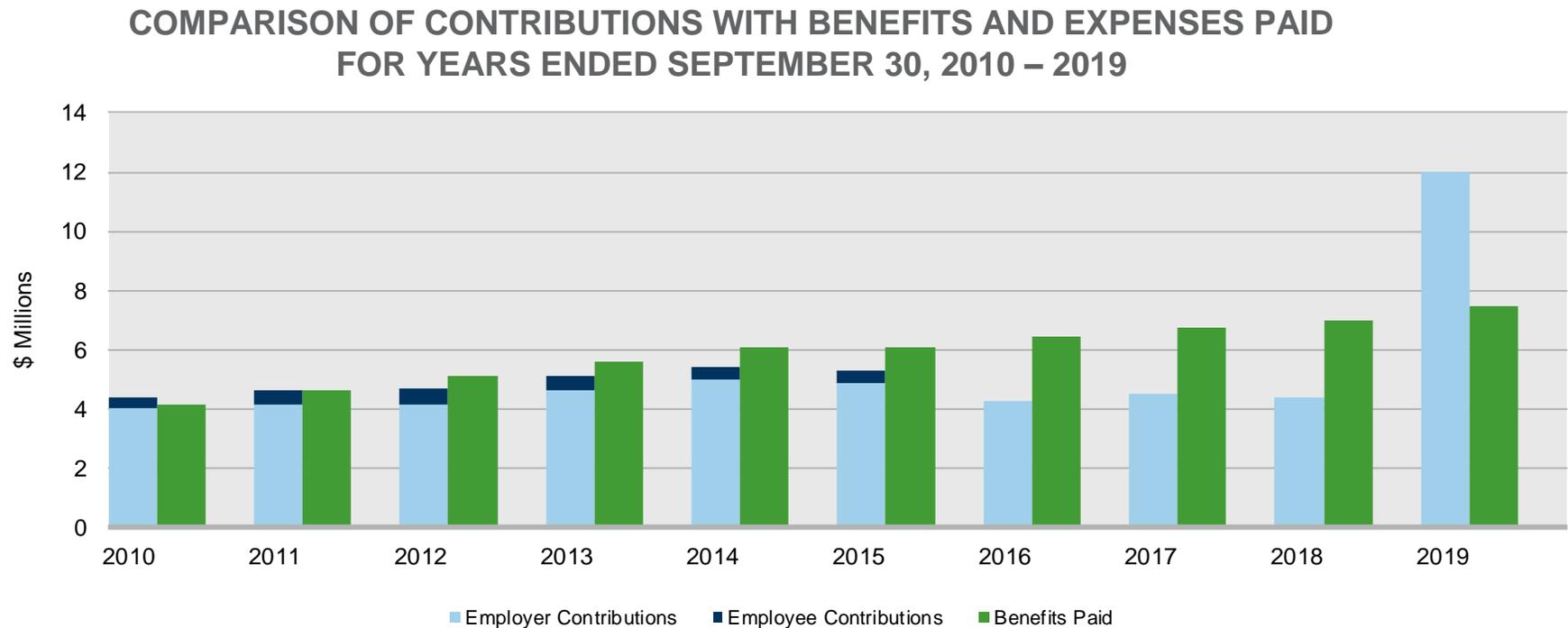
### PARTICIPANT DATA STATISTICS: 2010 – 2019

Year Ended September 30	Active Participants			Retired Participants and Beneficiaries		
	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2010	407	47.4	14.0	275	70.0	\$1,268
2011	405	48.0	14.0	281	70.0	1,279
2012	379	48.3	14.1	309	69.6	1,365
2013	350	49.2	15.1	324	69.6	1,382
2014	339	49.2	15.2	348	69.4	1,378
2015	323	49.5	15.8	356	69.8	1,410
2016	299	49.7	16.7	375	69.5	1,414
2017	272	51.2	18.0	386	69.9	1,423
2018	255	52.2	19.1	395	70.2	1,436
2019	196	53.3	20.2	414	69.8	1,519

## Financial Information

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components. Since June 30, 2015, employee contributions are no longer required.

Additional financial information, including a summary of transactions for the valuation year, is presented in *Section 3, Exhibits D, E and F*.



Note: 2019 contributions include proceeds from the sale of the City's electric utility.

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

## DETERMINATION OF ACTUARIAL VALUE OF ASSETS FOR YEAR ENDED SEPTEMBER 30, 2019

<b>1.</b> Market value of assets, September 30, 2019			\$96,425,798
<b>2.</b> Calculation of unrecognized return	<b>Original Amount *</b>	<b>Percent Deferred</b>	<b>Unrecognized Amount**</b>
(a) Year ended September 30, 2019	-\$1,749,148	80%	-\$1,399,318
(b) Year ended September 30, 2018	1,618,094	60	970,857
(c) Year ended September 30, 2017	3,937,441	40	1,574,976
(d) Year ended September 30, 2016	2,602,414	20	520,483
(e) Year ended September 30, 2015	-4,680,845	0	0
(f) Total unrecognized return			1,666,998
<b>3.</b> Preliminary actuarial value: <b>(1) - (2f)</b>			\$94,758,800
<b>4.</b> Adjustment to be within 20% corridor			0
<b>5.</b> Final actuarial value of assets as of September 30, 2019: <b>(3) + (4)</b>			<u>94,758,800</u>
<b>6.</b> Actuarial value as a percentage of market value: <b>(5) ÷ (1)</b>			98.3%
<b>7.</b> Amount deferred for future recognition: <b>(1) - (5)</b>			\$1,666,998

\*Total return minus expected return on a market value basis

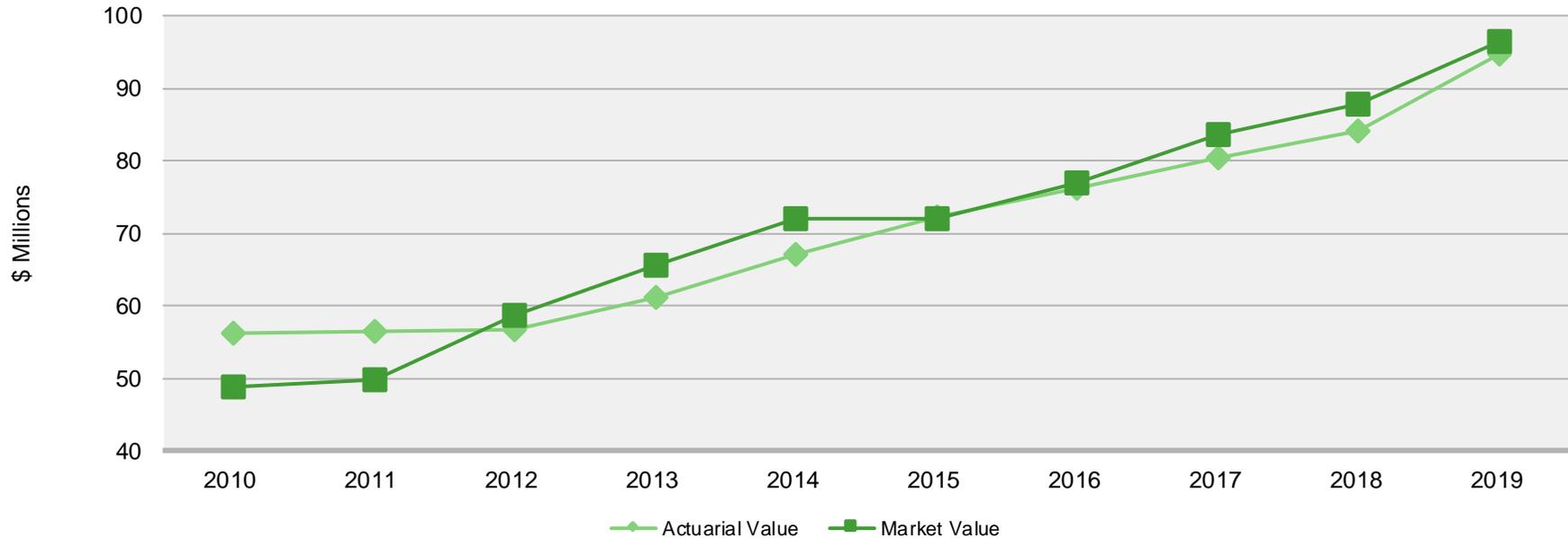
\*\*Recognition at 20% per year over five years

\*\*\*Deferred return as of September 30, 2019 recognized in each of the next four years:

(a) Amount recognized on September 30, 2020	\$1,281,761
(b) Amount recognized on September 30, 2021	761,278
(c) Amount recognized on September 30, 2022	-26,211
(d) Amount recognized on September 30, 2023	-349,830

Both the actuarial value and market value of assets are representations of the Plan’s financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Plan’s liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

### ACTUARIAL VALUE OF ASSETS VS. MARKET VALUE OF ASSETS AS OF SEPTEMBER 30, 2010 – 2019



## Actuarial Experience

To calculate any actuarially determined contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), any contribution requirement will decrease from the previous year. On the other hand, any contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss is \$2,590,635, which includes \$590,103 from investment gains and \$3,180,738 in losses from all other sources. The net experience variation from individual sources other than investments was 2.76% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

### ACTUARIAL EXPERIENCE FOR YEAR ENDED SEPTEMBER 30, 2019

<b>1</b>	Net gain from investments*	\$590,103
<b>2</b>	Net loss from administrative expenses	-13,802
<b>3</b>	Net loss from other experience	-3,166,936
<b>4</b>	Net experience gain/(loss): <b>1 + 2 + 3</b>	-\$2,590,635
* Details on next page.		

## Investment Experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Plan's investment policy. The rate of return on the market value of assets was 4.56% for the year ended September 30, 2019.

For valuation purposes, the assumed rate of return on the actuarial value of assets is 6.50%. The actual rate of return on an actuarial basis for the 2019 plan year was 7.18%. Since the actual return for the year was greater than the assumed return, the Plan experienced an actuarial gain during the year ended September 30, 2019 with regard to its investments.

### INVESTMENT EXPERIENCE

	Year Ended September 30, 2019		Year Ended September 30, 2018	
	Market Value	Actuarial Value	Market Value	Actuarial Value
<b>1</b> Net investment income	\$4,106,761	\$6,201,499	\$6,963,235	\$6,424,114
<b>2</b> Average value of assets	90,090,905	86,329,169	82,232,938	79,010,323
<b>3</b> Rate of return: <b>1 ÷ 2</b>	4.56%	7.18%	8.47%	8.13%
<b>4</b> Assumed rate of return	6.50%	6.50%	6.50%	6.50%
<b>5</b> Expected investment income: <b>2 x 4</b>	5,855,909	5,611,396	5,345,141	5,135,671
<b>6</b> Actuarial gain/(loss): <b>1 – 5</b>	<u>-\$1,749,148</u>	<u>\$590,103</u>	<u>\$1,618,094</u>	<u>\$1,288,443</u>

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the actual market value investment return for the last 20 years, including averages over select time periods.

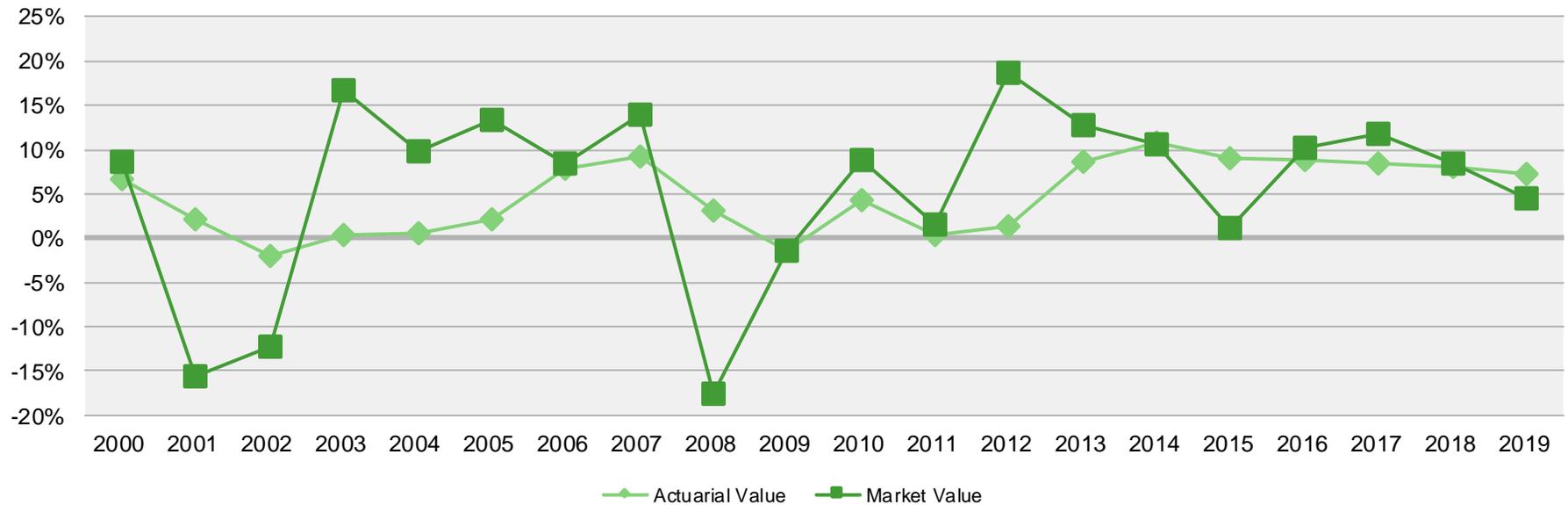
### INVESTMENT RETURN – ACTUARIAL VALUE VS. MARKET VALUE: 2000 - 2019

Year Ended September 30	Actuarial Value Investment Return		Market Value Investment Return		Year Ended September 30	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent
2000	\$2,275,185	6.71%	\$3,198,136	8.56%	2010	\$2,317,502	4.31%	\$3,965,519	8.85%
2001	761,703	2.12	-6,269,366	-15.58	2011	181,955	0.32	782,364	1.60
2002	-730,271	-2.01	-4,112,516	-12.18	2012	735,791	1.31	9,274,615	18.74
2003	104,196	0.29	4,982,098	16.78	2013	4,829,509	8.55	7,494,369	12.85
2004	216,706	0.60	3,444,832	9.86	2014	6,598,330	10.86	6,975,362	10.69
2005	810,587	2.21	5,187,288	13.38	2015	6,068,838	9.11	859,603	1.20
2006	2,992,573*	7.89	3,767,338	8.49	2016	6,253,914	8.79	7,205,701	10.17
2007	4,443,025	9.20	6,757,891	13.99	2017	6,278,471	8.35	8,865,531	11.69
2008	1,675,076	3.18	-9,681,175	-17.62	2018	6,424,114	8.13	6,963,235	8.47
2009	-719,568	-1.33	-614,363	-1.36	2019	6,201,499	7.18	4,106,761	4.56
Total	\$11,829,212		\$6,660,163			\$45,889,923		\$56,493,060	
							Most recent five-year average return	8.26%	7.17%
							Most recent ten-year average return	6.94%	8.60%
							Most recent 15-year average return	6.18%	6.96%
							Most recent 20-year average return	5.40%	5.93%

Note: Each year's yield is weighted by the average asset value in that year.  
 \*Does not include change in asset valuation method.

As described earlier in this section, the actuarial asset valuation method gradually recognizes fluctuations in the market value rate of return. The goal of this is to stabilize the actuarial rate of return and to produce more level pension plan costs.

### MARKET AND ACTUARIAL RATES OF RETURN FOR YEARS ENDED SEPTEMBER 30, 2000 - 2019



## Administrative Expenses

Administrative expenses for the year ended September 30, 2019 totaled \$89,490 compared to the assumption of \$71,069. This resulted in a loss of \$13,802 for the year. Because it is expected that these expenses will continue to increase, we have changed the assumption from \$71,069 to the prior year's reposted amount \$89,490, payable monthly, for the current year, in accordance with Florida law.

## Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among participants,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected), and
- the number of disability retirements (more or fewer than projected).

The net loss from this other experience for the year ended September 30, 2019 amounted to \$3,166,936, which is 2.8% of the actuarial accrued liability.

## LIABILITY CHANGES DUE TO DEMOGRAPHIC EXPERIENCE FOR YEAR ENDED SEPTEMBER 30, 2019

Turnover	\$405,442
Service	14,891
Disablement	-13,169
Pre-retirement Mortality	-54,064
Pay status experience	-441,438
Retirement	-1,145,528
COLA experience	-1,856,964
Miscellaneous	-76,106
<b>Total</b>	<b>-\$3,166,936</b>

## Changes in the Actuarial Accrued Liability

The actuarial accrued liability as of October 1, 2019 is \$112,882,357, an increase of \$803,749, or 0.7%, from the actuarial accrued liability as of the prior valuation date. The liability is expected to grow each year with normal cost and interest, and to decline due to benefit payments made. Additional fluctuations can occur due to actual experience that differs from expected (as discussed in the previous subsection).

## Actuarial Assumptions

- The assumption changes reflected in this report are:
- Administrative expenses increased from \$73,138, payable monthly, to \$89,490, payable monthly.
- The mortality assumption, was updated to the PUB-2010 base tables, set back one year for males, projected generationally using scale MP-2018 for healthy actives and inactive. For disabled retirees, the mortality table was updated to the PUB-2010 disabled table, set forward three years for both males and females, projected generationally using scale MP-2018.
- These changes decreased the actuarial accrued liability by 1.69%.
- Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

## Plan Provisions

- There were no changes in plan provisions since the prior valuation.
- A summary of plan provisions is in *Section 4, Exhibit II*.

## Development of Unfunded Actuarial Accrued Liability

### DEVELOPMENT FOR YEAR ENDED SEPTEMBER 30, 2019

<b>1</b>	Unfunded actuarial accrued liability at beginning of year		\$27,977,571
<b>2</b>	Normal cost at beginning of year		71,069
<b>3</b>	Total contributions		-12,002,990
<b>4</b>	Interest		
	• For whole year on <b>1 + 2</b>	\$1,823,162	
	• For half year on <b>3</b>	<u>-390,097</u>	
	Total interest		<u>1,433,065</u>
<b>5</b>	Expected unfunded actuarial accrued liability		\$17,478,714
<b>6</b>	Changes due to:		
	• (Gain)/loss	2,590,635	
	• Assumptions	-1,945,792	
	Total changes		<u>\$644,843</u>
<b>7</b>	Unfunded actuarial accrued liability at end of year		<u>\$18,123,557</u>

## Actuarially Determined Contribution

The actuarially determined contribution is equal to the employer normal cost payment and a payment on the unfunded actuarial accrued liability. There are eight years remaining on the amortization schedule for the unfunded liability. As of October 1, 2019, the actuarially determined contribution is \$3,069,174.

The contribution requirement as of October 1, 2019 are based on the data previously described, the actuarial assumptions and Plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

### ACTUARIALY DETERMINED CONTRIBUTION FOR YEAR BEGINNING OCTOBER 1

	2019	2018
	Amount	Amount
1. Total normal cost (administrative expenses)	\$86,958	\$71,069
2. Expected employee contributions	0	0
3. Employer normal cost: (1) - (2)	86,958	71,069
4. Actuarial accrued liability	112,882,357	112,078,608
5. Actuarial value of assets	94,758,800	84,101,037
6. Unfunded actuarial accrued liability: (4) - (5)	18,123,557	27,977,571
7. Payment on unfunded actuarial accrued liability	2,794,896	3,946,756
8. Total recommended contribution: (3) + (7), adjusted for timing*	<u>3,069,174</u>	<u>\$4,278,984</u>

\*Actuarially determined contributions are assumed to be paid at the end of the year.

## Reconciliation of Actuarially Determined Contribution

The chart below details the changes in the actuarially determined contribution from the prior valuation to the current year's valuation.

### RECONCILIATION OF ACTUARIALLY DETERMINED CONTRIBUTION FROM OCTOBER 1, 2018 TO OCTOBER 1, 2019

	Amount
Actuarially Determined Contribution as of October 1, 2018	\$4,278,984
• Effect of investment gain	-96,917
• Effect of change in administrative expense assumption	16,922
• Effect of change in other actuarial assumptions	-319,572
• Effect of contributions more than actuarially determined contribution	-1,332,638
• Effect of other gains and losses on accrued liability	522,396
Total change	-\$1,209,810
Actuarially Determined Contribution as of October 1, 2019	\$3,069,174

## History of Employer Contributions

A history of the most recent years of contributions is shown below.

### HISTORY OF EMPLOYER CONTRIBUTIONS: 2011 – 2020

Fiscal Year Ended September 30	Actuarially Determined Employer Contribution (ADEC)*	Actual Employer Contribution	Percent Contributed
2011	\$4,115,761	\$4,115,761	100.00%
2012	4,153,621	4,153,621	100.00%
2013	4,641,428	4,641,428	100.00%
2014	4,972,378	4,972,378	100.00%
2015	4,889,995	4,889,995	100.00%
2016	4,274,277	4,274,277	100.00%
2017	4,499,935	4,499,935	100.00%
2018	4,377,313	4,377,313	100.00%
2019	4,278,984	12,002,990	280.51%
2020	3,069,174	--	N/A

\*Prior to 2012, this amount was the Annual Required Contribution (ARC)

## Risk

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a brief discussion of some risks that may affect the Plan. We recommend a more detailed assessment of the risks would provide the Trustees with a better understanding of the risks inherent in the Plan.

- Investment Risk (the risk that returns will be different than expected)

The market value rate of return over the last 20 years has ranged from a low of -17.62% to a high of 18.74%.

- Longevity Risk (the risk that mortality experience will be different than expected)

The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the actuarially determined contribution.

- Contribution Risk (the risk that actual contributions will be different from actuarially determined contribution)

The Plan's funding policy requires payment of the actuarially determined contribution. As long as this policy is adhered to, contribution risk is negligible.

- Demographic Risk (the risk that participant experience will be different than assumed)

Examples of this risk include:

- Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
- More or less active participant turnover than assumed.
- Cost-of-living adjustments larger than assumed.

- Actual Experience Over the Last 20 years and Implications for the Future

Past experience can help demonstrate the sensitivity of key results to the Plan's actual experience. Over the past ten years:

The investment gain(loss) for a year has ranged from a loss of \$4,680,845 to a gain of \$5,438,661. If all investment returns were equal to the assumed return over the last ten years, the market value of assets as of the current valuation date would be approximately \$92,017,450 as opposed to the actual value of \$96,425,798.

The non-investment gain(loss) for a year has ranged from a loss of \$3,180,738 to a gain of \$4,664,693.

The funded percentage on the actuarial value of assets has ranged from a low of 59.0% to a high of 83.9% since 2010.

- Maturity Measures

As pension plans mature, the cash need to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities.

Currently the Plan has a non-active to active participant ratio of 2.69. For the prior year benefits paid were \$3,178,252 more than the recommended contribution. As the Plan matures, more cash will be needed from the investment portfolio to meet benefit payments.

## Actuarial Balance Sheet

An overview of the Plan’s funding is given by an Actuarial Balance Sheet. In this approach, first the amount and timing of all future payments that will be made by the Plan for current participants is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the “liability” of the Plan.

Second, this liability is compared to the assets. The “assets” for this purpose include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments for the unfunded actuarial accrued liability.

### ACTUARIAL BALANCE SHEET

	Year Ended	
	September 30, 2019	September 30, 2018
<b>Liabilities</b>		
• Present value of benefits for retired participants and beneficiaries	\$82,800,757	\$75,170,253
• Present value of benefits for inactive vested participants	4,712,291	3,838,160
• Present value of benefits for active participants	<u>25,369,309</u>	<u>33,070,195</u>
<b>Total liabilities</b>	<b>\$112,882,357</b>	<b>\$112,078,608</b>
<b>Assets</b>		
• Total valuation value of assets	\$94,758,800	\$84,101,037
• Present value of future contributions by members	0	0
• Present value of future employer contributions for:		
» Entry age cost	0	0
» Unfunded actuarial accrued liability	<u>18,123,557</u>	<u>27,977,571</u>
<b>Total of current and future assets</b>	<b><u>\$112,882,357</u></b>	<b><u>\$112,078,608</u></b>

## Section 3: Supplemental Information

### EXHIBIT A – TABLE OF PLAN COVERAGE

Category	Year Ended September 30		Change From Prior Year
	2019	2018	
<b>Active participants in valuation:</b>			
• Number	196	255	-23.1%
• Average age	53.3	52.2	1.1
• Average years of service	20.2	19.1	1.1
• Account balances	3,710,828	4,713,018	-21.3%
<b>Inactive vested participants</b>	113	92	22.8%
<b>Beneficiaries with rights to a deferred benefit</b>	1	1	0.0%
<b>Retired participants:</b>			
• Number in pay status	348	329	5.8%
• Average age	70.4	70.8	-0.4
• Average monthly benefit	\$1,566	\$1,484	5.5%
<b>Disabled participants:</b>			
• Number in pay status	13	13	0.0%
• Average age	63.8	64.1	-0.3
• Average monthly benefit	\$1,279	\$1,131	13.1%
<b>Beneficiaries:</b>			
• Number in pay status	53	53	0.0%
• Average age	76.8	77.0	-0.2
• Average monthly benefit	\$1,271	\$1,213	4.8%

**EXHIBIT B – PARTICIPANTS IN ACTIVE SERVICE AS OF SEPTEMBER 30, 2019  
BY AGE AND YEARS OF SERVICE**

Age	Years of Service											
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over	Unknown	
Under 25	1	1	--	--	--	--	--	--	--	--	--	--
25 - 29	6	6	--	--	--	--	--	--	--	--	--	--
30 - 34	5	1	1	3	--	--	--	--	--	--	--	--
35 - 39	13	--	4	6	3	--	--	--	--	--	--	--
40 - 44	8	1	1	2	2	2	--	--	--	--	--	--
45 - 49	19	--	--	7	6	2	3	1	--	--	--	--
50 - 54	44	1	3	4	8	16	4	8	--	--	--	--
55 - 59	46	1	4	10	4	5	10	7	4	1	--	--
60 - 64	45	1	4	5	7	6	8	8	2	4	--	--
65 - 69	8	--	--	2	--	2	3	--	1	--	--	--
70 & over	1	1	--	--	--	--	--	--	--	--	--	--
Total	196	13	17	39	30	33	28	24	7	5	--	--

## EXHIBIT C – RECONCILIATION OF PARTICIPANT DATA

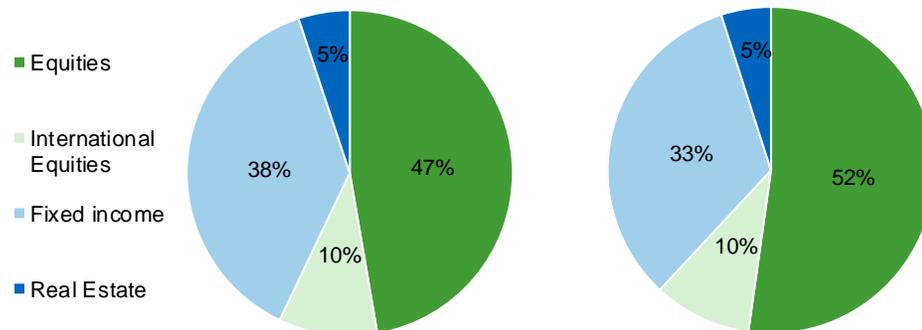
	Active Participants	Inactive Vested Participants	Disableds	Retired Participants	Beneficiaries	Total
<b>Number as of October 1, 2018</b>	<b>255</b>	<b>93</b>	<b>13</b>	<b>329</b>	<b>53</b>	<b>743</b>
• New participants	0	N/A	N/A	N/A	N/A	0
• Terminations – with vested rights	-24	24	0	0	0	0
• Terminations – without vested rights	0	N/A	N/A	N/A	N/A	0
• Retirements	-28	-3	N/A	31	N/A	0
• New disabilities	-1	0	1	N/A	N/A	0
• Died with beneficiary	0	0	0	-5	5	0
• Died without beneficiary	-1	0	-1	-7	-5	-14
• Lump sum cash-outs	-5	0	0	0	0	0
• Certain period expired	N/A	N/A	0	0	0	0
• Data adjustments	0	0	0	0	0	0
• New QDRO	0	0	0	0	0	0
<b>Number as of October 1, 2019</b>	<b>196</b>	<b>114</b>	<b>13</b>	<b>348</b>	<b>53</b>	<b>724</b>

## EXHIBIT D – SUMMARY STATEMENT OF INCOME AND EXPENSES ON A MARKET VALUE BASIS

	Year Ended September 30, 2019	Year Ended September 30, 2018
Net assets at market value at the beginning of the year	\$87,862,773	\$83,566,338
<b>Contribution income:</b>		
• Employer contributions	\$12,002,990	\$4,377,313
• Employee contributions	0	0
• Less administrative expenses	<u>-89,490</u>	<u>-73,138</u>
<i>Net contribution income</i>	\$11,913,500	\$4,304,175
<b>Investment income:</b>		
• Interest, dividends and other income	\$2,287,555	\$2,041,837
• Asset appreciation	2,264,277	5,376,687
• Less investment fees	<u>-445,071</u>	<u>-455,289</u>
<i>Net investment income</i>	<u>\$4,106,761</u>	<u>\$6,963,235</u>
<b>Total income available for benefits</b>	<b>\$16,020,261</b>	<b>\$11,267,410</b>
<b>Less benefit payments:</b>		
• Pension Payments	-\$7,435,503	-\$6,943,510
• Refunds	<u>-21,733</u>	<u>-27,465</u>
<i>Net benefit payments</i>	-\$7,457,236	-\$6,970,975
<b>Change in reserve for future benefits</b>	<b>\$8,563,025</b>	<b>\$4,296,435</b>
<b>Net assets at market value at the end of the year</b>	<b>\$96,425,798</b>	<b>\$87,862,773</b>

## EXHIBIT E – SUMMARY STATEMENT OF PLAN ASSETS

	September 30, 2019	September 30, 2018
Cash equivalents	\$0	\$0
Total accounts receivable	\$1,333	\$3,786
<b>Investments:</b>		
• Equities	\$45,604,067	\$45,881,698
• International Equities	9,442,127	8,525,519
• Fixed income	36,468,329	29,113,238
• Real Estate	4,909,942	4,338,532
Total investments at market value	\$96,424,465	\$87,858,987
<b>Total assets</b>	<b>\$96,425,798</b>	<b>\$87,862,773</b>
Total accounts payable	0	0
<b>Net assets at market value</b>	<b>\$96,425,798</b>	<b>\$87,862,773</b>
<b>Net assets at actuarial value</b>	<b>\$94,758,800</b>	<b>\$84,101,037</b>



## EXHIBIT F – DEVELOPMENT OF THE FUND THROUGH SEPTEMBER 30, 2019

Year Ended September 30	Employer Contributions	Employee Contributions	Net Investment Return*	Admin. Expenses	Benefit Payments	Market Value of Assets at Year-End	Actuarial Value of Assets at Year-End	Actuarial Value as a Percent of Market Value
2010	\$4,050,000	\$339,504	\$3,965,519	\$0	\$4,133,241	\$48,902,478	\$56,190,600	114.9%
2011	4,115,761	520,384	782,364	0	4,605,651	49,715,336	56,403,049	113.5%
2012	4,153,621	507,866	9,274,615	0	5,099,786	58,551,652	56,700,541	96.8%
2013	4,641,428	483,024	7,494,369	0	5,602,587	65,567,886	61,051,915	93.1%
2014	4,972,378	461,199	6,975,362	0	6,050,479	71,926,346	67,033,343	93.2%
2015	4,889,995	373,250	859,603	32,265	6,104,373	71,912,556	72,228,788	100.4%
2016	4,274,277	0	7,205,701	20,457	6,439,345	76,932,732	76,297,177	99.2%
2017	4,499,935	14,461**	8,865,531	27,102	6,719,219	83,566,338	80,343,723	96.1%
2018	4,377,313	0	6,963,235	73,138	6,970,975	87,862,773	84,101,037	95.7%
2019	12,002,990	0	4,106,761	89,490	7,457,236	96,425,798	94,758,800	98.3%

\* On a market basis, net of investment fees and administrative expenses prior to fiscal 2015.

\*\*Income from purchase of prior military service.

## EXHIBIT G – TABLE OF AMORTIZATION BASES

Type*	Date Established	Years Remaining	Outstanding Balance	Annual Payment*
Unfunded actuarial accrued liability	10/1/2019	8	\$18,123,557	\$2,794,896

*\*Effective October 1, 2015, as a result of the plan freeze, the unfunded actuarial accrued liability was amortized on a level dollar basis over twelve years to approximate the average future-working lifetime of the remaining active population. As of October 1, 2019, the remaining period has been reduced to eight years. The period will be evaluated annually and adjusted as necessary. New gains and losses are added to the outstanding balance each year.*

## EXHIBIT H – DEFINITION OF PENSION TERMS

The following list defines certain technical terms for the convenience of the reader:

<b>Actuarial Accrued Liability for Actives:</b>	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
<b>Actuarial Accrued Liability for Pensioners and Beneficiaries:</b>	The single-sum value of lifetime benefits to existing pensioners and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
<b>Actuarial Cost Method:</b>	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
<b>Actuarial Gain or Loss:</b>	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield in actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.
<b>Actuarially Equivalent:</b>	Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.
<b>Actuarial Present Value (APV):</b>	<p>The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is:</p> <p>Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)</p> <p>Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and</p> <p>Discounted according to an assumed rate (or rates) of return to reflect the time value of money.</p>

<b>Actuarial Present Value of Future Plan Benefits:</b>	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
<b>Actuarial Valuation:</b>	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability (NPL).
<b>Actuarial Value of Assets (AVA):</b>	The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.
<b>Actuarially Determined:</b>	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.
<b>Actuarially Determined Contribution (ADC):</b>	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
<b>Amortization Method:</b>	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
<b>Amortization Payment:</b>	The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
<b>Assumptions or Actuarial Assumptions:</b>	The estimates upon which the cost of the Fund is calculated, including: <u>Investment return</u> - the rate of investment yield that the Fund will earn over the long-term future;

	<p><u>Mortality rates</u> - the death rates of employees and pensioners; life expectancy is based on these rates;</p> <p><u>Retirement rates</u> - the rate or probability of retirement at a given age or service;</p> <p><u>Disability rates</u> – the probability of disability retirement at a given age;</p> <p><u>Withdrawal rates</u> - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement;</p> <p><u>Salary increase rates</u> - the rates of salary increase due to inflation and productivity growth.</p>
<b>Closed Amortization Period:</b>	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Open Amortization Period.
<b>Decrements:</b>	Those causes/events due to which a member’s status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
<b>Defined Benefit Plan:</b>	A retirement plan in which benefits are defined by a formula applied to the member’s compensation and/or years of service.
<b>Defined Contribution Plan:</b>	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan’s earnings are allocated to each account, and each member’s benefits are a direct function of the account balance.
<b>Employer Normal Cost:</b>	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
<b>Experience Study:</b>	A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.
<b>Funded Ratio:</b>	The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.
<b>GASB 67 and GASB 68:</b>	Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.

<b>Investment Return:</b>	The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
<b>Net Pension Liability (NPL):</b>	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
<b>Normal Cost:</b>	That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated.
<b>Open Amortization Period:</b>	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period with level percentage of payroll is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never decrease, but will become smaller each year, in relation to covered payroll, if the actuarial assumptions are realized.
<b>Plan Fiduciary Net Position:</b>	Market value of assets.
<b>Total Pension Liability (TPL):</b>	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
<b>Unfunded Actuarial Accrued Liability:</b>	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.
<b>Valuation Date or Actuarial Valuation Date:</b>	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

**EXHIBIT I – SUPPLEMENTARY STATE OF FLORIDA INFORMATION  
RECENT HISTORY OF RECOMMENDED AND ACTUAL CONTRIBUTIONS**

<b>Fiscal Year Ended September 30</b>	<b>Valuation Date September 30</b>	<b>Recommended Contribution</b>	<b>Actual Contribution</b>
2009	2008	\$3,347,010	\$3,347,010
2010	2009	4,028,814	4,050,000
2011	2010	4,115,761	4,115,761
2012	2011	4,153,621	4,153,621
2013	2012	4,641,428	4,641,428
2014	2013	4,972,378	4,972,378
2015	2014	4,889,995	4,889,995
2016	2015	4,274,277	4,274,277
2017	2016	4,499,935	4,499,935
2018	2017	4,377,313	4,377,313
2019	2018	4,278,984	12,002,990
2020	2019	3,069,174	--

**EXHIBIT I (CONTINUED) – SUPPLEMENTARY STATE OF FLORIDA INFORMATION  
COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS**

	Year Ended September 30, 2019		
	Old Plan New Assumptions	Old Plan Old Assumptions	Year Ended September 30, 2018
<b>Participant data</b>			
• Active members	196	196	255
• Retired members and beneficiaries (including x window participants)	414	414	395
• Total annualized benefit	\$7,548,324	\$7,548,324	\$6,807,036
• Terminated vested members	114	114	94
• Total annualized benefit	\$949,896	\$949,896	\$730,860
• DROP participants			
• Total current balance			
<b>Actuarial value of assets</b>	\$94,758,800	\$94,758,800	\$84,101,037
<b>Present value of all future expected benefit payments:</b>			
• Active members:			
» Retirement benefits	\$20,089,174	\$20,469,748	\$25,981,034
» Vesting benefits	305,517	312,833	514,099
» Disability benefits	894,040	833,524	1,172,656
» Death benefits	369,750	527,693	689,388
» Return of contributions	<u>3,710,828</u>	<u>3,710,828</u>	<u>4,713,018</u>
» Total	\$25,369,309	\$25,854,625	\$33,070,195
• Terminated vested members	4,712,291	4,776,465	3,835,963
• Retired members and beneficiaries	82,800,757	84,197,059	75,170,253
• DROP participants			
Total	\$112,882,357	\$114,828,149	\$112,078,608

**EXHIBIT I (CONTINUED) – SUPPLEMENTARY STATE OF FLORIDA INFORMATION  
COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS**

	Year Ended September 30, 2019		Year Ended September 30, 2018
	Old Plan New Assumptions	Old Plan Old Assumptions	
<b>Unfunded actuarial accrued liability</b>	\$18,123,557	\$20,069,349	\$27,977,571
<b>Actuarial present value of accrued benefits</b>			
Vested accrued benefits			
Active members	\$25,377,101	\$25,888,087	\$33,123,755
Inactive members	4,712,291	4,776,465	3,838,160
Pensioners and beneficiaries	<u>82,800,757</u>	<u>84,197,059</u>	<u>75,170,253</u>
Total	\$112,890,149	\$114,861,611	\$112,132,168
<b>Pension cost</b>			
Normal cost, including administrative expenses	\$86,958	\$71,069	\$71,069
Expected employee contributions	- -	- -	- -
Payment to amortize unfunded actuarial accrued liability	2,794,896	3,094,963	3,946,756
Total minimum annual cost payable monthly at valuation date	3,069,174	3,371,824	4,278,984

**EXHIBIT I (CONTINUED) – SUPPLEMENTARY STATE OF FLORIDA INFORMATION  
ACTUARIAL PRESENT VALUE OF ACCUMULATED PLAN BENEFITS**

Factors	Change in Actuarial Present Value of Accumulated Plan Benefits
	\$112,132,168
Benefits accumulated, net experience gain or loss, changes in data	\$3,140,448
Benefits paid	-7,457,236
Interest	-7,046,231
Changes in assumptions	-1,971,462
Plan changes	--
Net increase	\$757,981
<b>Actuarial present value of accumulated benefits as of October 1, 2019</b>	<b>\$112,890,149</b>

## Section 4: Actuarial Valuation Basis

### EXHIBIT I – ACTUARIAL ASSUMPTIONS AND ACTUARIAL COST METHOD

<b>Rationale for Assumptions</b>	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Actuarial Experience Study for the five year period ending September 30, 2008. Current data is reviewed in conjunction with each annual valuation. Based on professional judgment, no assumption changes are warranted at this time.	
<b>Net Investment Return:</b>	6.50%. The net investment return assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes as provided by Segal Marco Advisors, as well as the Plan's target asset allocation.	
<b>Payroll Growth:</b>	N/A	
<b>Cost-of-Living Adjustments:</b>	1.8% per year to all retirees and beneficiaries in 2019, 1% per year thereafter.	
<b>Mortality Rates:</b>	<i>Healthy pre-retirement:</i>	Pub-2010 Gender-specific, Headcount Weighted General Below Median Employee Table; set back one year for males; projected generationally with Scale MP-2018 mortality improvement
	<i>Healthy post-retirement:</i>	Pub-2010 Gender-specific, Headcount Weighted General Below Median Healthy Retiree Table; set back one year for males; projected generationally with Scale MP-2018 mortality improvement
	<i>Disabled:</i>	Pub-2010 Gender-specific, Headcount Weighted General Disabled Retiree Table; set forward three years for males and females; projected generationally with Scale MP-2018 mortality improvement

**Termination Rates before Retirement:**

Age	Rate (%)			
	Mortality*		Disability	Withdrawal**
	Male	Female		
20	0.03	0.02	0.03	15.57
25	0.04	0.02	0.04	11.44
30	0.05	0.03	0.05	10.27
35	0.08	0.05	0.07	8.06
40	0.11	0.06	0.10	5.59
45	0.16	0.10	0.16	3.38
50	0.22	0.16	0.27	1.43
55	0.37	0.26	0.45	0.65
60	0.69	0.47	0.73	0.00
65	1.13	0.87	0.00	0.00

\* Tabular rates do not include generational projection.

\*\* Withdrawal rates cut off at Early Retirement Age.

**Retirement Rates:**

Retirement Age	Rate (per year)
55	22.00%
56-57	2.50%
58	8.00
59-61	10.00%
62	40.00
63	10.00
64	17.50
65	25.00
66-69	35.00
70	100.00

<b>Retirement Age for Inactive Vested Participants:</b>	65
<b>Unknown Data for Participants:</b>	Same as those exhibited by Participants with similar known characteristics. If not specified, Participants are assumed to be male.
<b>Percent Married:</b>	80%
<b>Age of Spouse:</b>	Females three years younger than males
<b>Salary Increases:</b>	N/A
<b>Administration Expenses:</b>	\$89,490 paid monthly
<b>Actuarial Value of Assets:</b>	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period. The actuarial value of assets is further adjusted, if necessary, to be within 20% of the market value.
<b>Actuarial Cost Method:</b>	Entry Age Normal Cost Method. Entry Age is the age at the time the participant commenced employment. Normal Cost and Actuarial Accrued Liability is calculated on an individual basis and are allocated by service, with Normal Cost determined as if the current benefit accrual rate had always been in effect.
<b>Change in Actuarial Assumptions:</b>	<ul style="list-style-type: none"> <li>• The administrative expense assumption was increased to \$89,490, payable monthly.</li> <li>• The healthy mortality assumption was changed to PUB-2010 Headcount weighted General Below Median Employee Table, set back one-year for males; projected generationally with scale MP-2018. The disabled mortality assumption was changed to PUB-2010 Headcount Weighted General Disabled Retiree; set forward three years; and projected generationally with scale MP-2018.</li> </ul>

## EXHIBIT II – SUMMARY OF PLAN PROVISIONS

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

<b>Plan Year:</b>	October 1 through September 30	
<b>Plan Status:</b>	Frozen, with no future accruals as of July 1, 2015	
<b>Normal Retirement:</b>	<u>Participants with 25 years of service or vested participants who have reached age 65 by September 30, 2010:</u>	
	<i>Age Requirement</i>	65
	<i>Service Requirement</i>	5 years of continuous service
	<i>Amount</i>	2.25% of Average Basic Monthly Compensation for each of the first 25 years of continuous service plus 0.5% of Average Basic Monthly Compensation for each year thereafter
	<i>Basic Monthly Compensation</i>	The average salary of the Member's highest five consecutive years within the last 10 years of consecutive service preceding retirement. The salary in effect on each January 1 <sup>st</sup> shall be used as the basis for this computation.
	<i>Normal Annuity Form</i>	Single life
	<u>Participants with less than 25 years of service or employees younger than age 65 on October 1, 2010:</u>	
	<i>Age Requirement</i>	65
	<i>Service Requirement</i>	5 years of continuous service
	<i>Amount</i>	2.25% of Average Basic Monthly Compensation for each year of service accrued before October 1, 2010 plus 1.60% of Average Basic Monthly Compensation for each year of service accrued after September 30, 2010
	<i>Basic Monthly Compensation</i>	The average salary of the Member's highest five consecutive years within the last 10 years of consecutive service preceding retirement. The salary in effect on each January 1 <sup>st</sup> shall be used as the basis for this computation.
	<i>Normal Annuity Form</i>	Single life

<b>Early Retirement:</b>	<u>Participants with 25 years of service or vested participants who have reached age 65 by September 30, 2010:</u>	
	<i>Age Requirement</i>	55
	<i>Service Requirement</i>	5 years of continuous service
	<i>Amount</i>	Normal pension accrued reduced by 1.5% for each year preceding normal retirement.
	<u>Participants with less than 25 years of service or employees younger than age 65 on October 1, 2010:</u>	
	<i>Age Requirement</i>	55
	<i>Service Requirement</i>	5 years of continuous service
	<i>Amount</i>	Normal pension accrued reduced by 1.5% for each year preceding normal retirement for benefits accrued before October 1, 2010 and 3% for each year preceding normal retirement for benefits accrued after September 30, 2010.
<b>Disability:</b>	<i>Age Requirement</i>	None
	<i>Service Requirement</i>	5 years of continuous service
	<i>Amount</i>	Normal pension accrued, but not less than 25% of Basic Monthly Compensation at date of disability. The monthly benefit payable when combined with any benefit payable under workers compensation and social security, shall not exceed 100% of the participants final basic monthly salary at the time of disability.
<b>Vesting:</b>	All participants vested as of July 1, 2015.	
	<i>Age Requirement</i>	None
	<i>Service Requirement</i>	5 years of continuous service
	<i>Amount</i>	Refund of contributions or the Normal retirement benefit, payable at Normal retirement date. If participant elects an earlier commencement date, early retirement reduction factors apply.

<b>Pre-Retirement Death Benefit</b>	<i>Requirement Amount</i>	<p>Death while in active service or on total and permanent disability.</p> <p>a. <u>Before Vesting</u> If a member dies before becoming Vested, the spouse (or designated beneficiary, if not married) receives 100% of the member's contributions without interest.</p> <p>b. <u>After Vesting</u> A benefit payable to the spouse (or designated beneficiary, if not married) as though participant had retired on his date of death and chosen the 66 2/3% joint and survivor option; benefit begins when the participant would have reached age 55.</p>
<b>Participation:</b>	Effective October 1, 2010, an employee begins participation on the first day of the month following date of hire. For employees hired prior to October 1, 2010 who had not met the previous eligibility requirement for participation in the Plan, participation began on October 1, 2010.	
<b>Contributions:</b>	Members no longer pay contributions, but some have balances remaining in the plan.	
<b>Military Service Buy Back:</b>	Vested employees with prior military service may elect to purchase up to 4 years of retirement credit. The cost of purchase shall be determined by the employee's current contribution rate at the time of purchase, multiplied by the number of months being purchased.	
<b>Cost of Living Adjustment:</b>	Benefits will be increased 1% each year on October 1 <sup>st</sup> for all retirees and beneficiaries receiving benefits at the time of each increase and who retired on or after October 1, 1998. The Board may grant the COLA to annuitants who retired prior to October 1, 1998 at their discretion.	
<b>Changes in Plan Provisions:</b>	There were no changes in Plan provisions since the prior valuation.	

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# **City of Vero Beach General Employee Retirement Plan**

**Governmental Accounting Standards  
Board Statement 68 (GASB 68)  
Actuarial Valuation as of  
September 30, 2019**

This report has been prepared at the request of the Board of Trustees to assist the sponsors of the Fund in preparing their financial report for their liabilities associated with the the Plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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February 18, 2020

Ms. Cindy Lawson  
City of Vero Beach General Employee Retirement Plan  
1053 20th Place  
Vero Beach, FL 32960

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards Board Statement 68 (GASB 68) Actuarial Valuation based on a September 30, 2019 measurement date for employer reporting as of September 30, 2019. It contains various information that will need to be disclosed in order for the Plan employers to comply with GASB 68.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist the sponsors in preparing their financial report for their liabilities associated with the City of Vero Beach General Employee Retirement Plan. The census and financial information on which our calculations were based were provided by the Finance Department, in conjunction with the Human Resource Department. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Malichi S. Waterman, FCA, MAAA, Enrolled Actuary. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in my opinion, the assumptions as approved by the Board are reasonably related to the experience of and expectations for the Plan.

I look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By: Malichi Waterman  
Malichi S. Waterman, FCA, MAAA, EA  
Consulting Actuary



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# Section 1: Actuarial Valuation Summary

## Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standards Board Statement 68 (GASB 68) for employer reporting as of September 30, 2019. The results used in preparing this GASB 68 report are comparable to those used in preparing the Governmental Accounting Standards Board Statement 67 (GASB 67) report for the plan based on a reporting date and a measurement date as of September 30, 2019. This valuation is based on:

- The benefit provisions of the Plan, as administered by the Board;
- The characteristics of covered active members, terminated vested members, and retired members and beneficiaries as of October 1, 2019, provided by the City's Finance Department and Human Resources Department;
- The assets of the Plan as of September 30, 2019, provided by the City's Finance Department;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

## Significant Issues

- It is important to note that GASB 67 and 68 only define pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes. Employers and plans should develop and adopt funding policies under current practices, if no policy currently exists.
- The annual valuation results are based on an Entry Age cost method, on a "replacement life" basis. Because the Plan is closed and accruals are frozen, the service cost (normal cost) under this method is \$0, and the actuarially determined contribution is developed based on amortization of the remaining unfunded actuarial accrued liabilities. However, GASB 67 requires use of the "traditional" Entry Age cost method for the development of the net pension liability. This method generates a service cost from entry age to decrement. These results take into account the difference in cost method.
- The Net Pension Liability (NPL) is equal to the difference between the TPL and the Plan Fiduciary Net Position. The Plan Fiduciary Net Position is equal to the market value of assets and therefore, the NPL measure is very similar to an Unfunded Actuarial Accrued Liability (UAAL) on a market value basis.

- The NPL was measured as of September 30, 2019 and September 30, 2018 and determined based upon the results of the actuarial valuations as of October 1, 2019 and October 1, 2018, respectively.
- The NPL decreased from \$22.4 million as of September 30, 2018 to \$15.2 million as of September 30, 2019 primarily as a result of contributions larger than expected. Changes in these values during the last two fiscal years ending September 30, 2018 and September 30, 2019 can be found in Section 2.
- The discount rate used to measure the TPL and NPL as of September 30, 2019 and September 30, 2018 was 6.50%. However, there were changes in the other actuarial assumptions since the 2018 valuation and the financial impact of those changes has been reflected in the results for the 2019 valuation.

## Summary of Key Valuation Results

Reporting Date for Employer under GASB 68	September 30, 2019 <sup>(1)</sup>	September 30, 2018 <sup>(2)</sup>
Measurement Date for Employer under GASB 68	September 30, 2019	September 30, 2018
<b>Disclosure elements for fiscal year ending September 30:</b>		
Service cost	\$468,239	\$510,973
Total Pension Liability	111,587,866	110,232,181
Plan Fiduciary Net Position	96,425,798	87,862,773
Net Pension Liability	15,162,068	22,369,408
Pension expense	2,279,703	3,670,717
<b>Schedule of contributions for fiscal year ending September 30:</b>		
Actuarially determined contributions	\$4,278,984	\$4,377,313
Actual contributions	12,002,990	4,377,313
Contribution excess	7,724,006	- -
<b>Demographic data for plan year ending September 30:</b>		
Number of retired members and beneficiaries	414	395
Number of vested terminated members <sup>(3)</sup>	114	93
Number of active members	196	255
<b>Key assumptions as of September 30:</b>		
Investment rate of return	6.50%	6.50%
Inflation rate	N/A	N/A
Projected salary increases <sup>(4)</sup>	N/A	N/A

(1) The reporting date and measurement date for the plan are **September 30, 2019**.

(2) The reporting date and measurement date for the plan are **September 30, 2018**.

(3) Includes beneficiaries with rights to a deferred benefit.

## Important Information about Actuarial Valuations

In order to prepare an actuarial valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:

<b>Plan of benefits</b>	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan of benefits.
<b>Participant data</b>	An actuarial valuation for a plan is based on data provided to the actuary by the City. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
<b>Assets</b>	The valuation is based on the market value of assets as of the valuation date, as provided by the City.
<b>Actuarial assumptions</b>	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan’s assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal’s actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of the Board to assist the sponsors of the Fund in preparing items related to the pension plan in their financial reports. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan’s assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If the City is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal’s valuation is based on our understanding of applicable guidance in these areas and of the plan’s provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

## Section 2: GASB 68 Information

### General Information – “Financial Statements”, Note Disclosures and Required Supplementary Information for a Single Employer Pension Plan

#### Plan Description

*Plan membership:* All qualified participants of the General Employee Retirement Plan of Vero Beach, Florida

At October 1, 2019, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	414
Vested terminated members entitled to but not yet receiving benefits <sup>1</sup>	114
Active members	196
Total	724

*Benefits provided:* Please see a copy of the October 1, 2019 actuarial valuation for a summary of plan benefits.

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<sup>1</sup> Includes beneficiaries with rights to a deferred benefit.

## Net Pension Liability

Reporting Date for Employer under GASB 68	September 30, 2019	September 30, 2018
Measurement Date for Employer under GASB 68	September 30, 2019	September 30, 2018
<b>Components of the Net Pension Liability</b>		
Total Pension Liability	\$111,587,866	\$110,232,181
Plan Fiduciary Net Position	96,425,798	87,862,773
Net Pension Liability	15,162,068	22,369,408
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	86.41%	79.71%

The Net Pension Liability (NPL) for the plan was measured as of September 30, 2019 and 2018. Plan Fiduciary Net Position (plan assets) was valued as of the measurement dates and the Total Pension Liability (TPL) was determined based upon the TPL from actuarial valuations as of September 30, 2019 and 2018, respectively.

*Plan provisions.* The plan provisions used in the measurement of the NPL are the same as those used in the the Plan actuarial valuations as of October 1, 2019 and October 1, 2018, respectively.

*Actuarial assumptions.* The TPL as of September 30, 2019 and 2018, that were measured by actuarial valuations as of October 1, 2019 and 2018, respectively, used the following actuarial assumptions, applied to all periods included in the measurement:

<b>Inflation</b>	N/A
<b>Salary increases</b>	N/A
<b>Investment rate of return</b>	6.50%, net of pension plan investment expense, including inflation
<b>Other assumptions</b>	See Section 3 for a complete description of all actuarial assumptions.

## Target Asset Allocation

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	47.50%	6.41%
International equity	7.50%	6.96%
Fixed income	37.50%	1.96%
Real Estate	5.00%	4.76%
Emerging Market	2.50%	9.86%
Total	100.00%	4.79%

*Discount rate.* The discount rate used to measure the Total Pension Liability (TPL) was 6.50% as of both September 30, 2019 and September 30, 2018. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the Plan Fiduciary Net Position (FNP) was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the TPL as of both September 30, 2019 and September 30, 2018.

## Discount Rate Sensitivity

*Sensitivity of the Net Pension Liability to changes in the discount rate.* The following presents the Net Pension Liability (NPL) of the the Plan as of September 30, 2019, calculated using the discount rate of 6.50%, as well as what the the Plan’s NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (5.50%) or 1-percentage-point higher (7.50%) than the current rate.

Net Pension Liability	1% Decrease (5.50%)	Current Discount Rate (6.50%)	1% Increase (7.50%)
Net Pension Liability	\$27,201,656	\$15,162,068	\$5,025,399

## Schedule of Changes in Net Pension Liability – Last Two Fiscal Years

Reporting Date for Employer under GASB 68	September 30, 2019	September 30, 2018
Measurement Date for Employer under GASB 68	September 30, 2019	September 30, 2018
<b>Total Pension Liability</b>		
Service cost	\$468,239	\$510,973
Interest	6,953,167	6,960,909
Change of benefit terms	0	0
Differences between expected and actual experience	3,324,807	-334,153
Changes of assumptions	-1,933,292	0
Benefit payments, including refunds of member contributions	-7,457,236	-6,970,975
Net change in Total Pension Liability	\$1,355,685	\$166,754
Total Pension Liability – beginning	110,232,181	110,065,427
Total Pension Liability – ending	\$111,587,866	\$110,232,181
<b>Plan Fiduciary Net Position</b>		
Contributions – employer	\$12,002,990	\$4,377,313
Contributions – employee	0	0
Net investment income	4,106,761	6,963,235
Benefit payments, including refunds of member contributions	-7,457,236	-6,970,975
Administrative expense	-89,490	-73,138
Other	0	0
Net change in Plan Fiduciary Net Position	\$8,563,025	\$4,296,435
Plan Fiduciary Net Position – beginning	87,862,773	83,566,338
Plan Fiduciary Net Position – ending	\$96,425,798	\$87,862,773
Net Pension Liability – ending	\$15,162,068	\$22,369,408
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	86.41%	79.71%
Covered employee payroll <sup>(1)</sup>	TBD	TBD
Plan Net Pension Liability as percentage of covered employee payroll	TBD	TBD

<sup>(1)</sup> Effective June 30, 2015 the Plan was frozen with no new accruals; employer contributions are no longer related to payroll.

### Notes to Schedule:

*Benefit changes:* None

Section 2: GASB 68 Information as of September 30, 2019 for the City of Vero Beach General Employee Retirement Plan

## Schedule of Contributions – Last Ten Fiscal Years

Year Ended September 30	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered-Employee Payroll <sup>(1)</sup>	Contributions as a Percentage of Covered Employee Payroll
2010	\$4,028,814	\$4,050,000	-\$21,186	\$18,811,487	21.53%
2011	4,115,761	4,115,761	--	19,305,268	21.32%
2012	4,153,621	4,153,621	--	18,830,488	22.06%
2013	4,641,428	4,641,428	--	17,094,905	27.15%
2014	4,972,378	4,972,378	--	16,224,526	30.65%
2015	4,889,995	4,889,995	--	15,704,293	31.14%
2016	4,274,277	4,274,277	--	--	--
2017	4,499,935	4,499,935	--	--	--
2018	4,377,313	4,377,313	--	--	--
2019	4,278,984	12,002,990	-7,724,006	--	--

See accompanying notes to this schedule on next page.

<sup>(1)</sup> Effective June 30, 2015 the Plan was frozen with no new accruals; employer contributions are no longer related to payroll.

Methods and assumptions used to establish “actuarially determined contribution” rates:

<b>Valuation date</b>	Actuarially determined contribution rates are calculated using an October valuation date as of the beginning of the fiscal year in which contributions are reported.
<b>Actuarial cost method</b>	Entry Age Actuarial Cost Method
<b>Amortization method</b>	Level Dollar
<b>Remaining amortization period</b>	Effective period of 8 years remaining as of October 1, 2019
<b>Asset valuation method</b>	Market value of assets for GASB; five-year smoothing of market gains and losses for funding.
<b>Actuarial assumptions:</b>	
<b>Investment rate of return</b>	6.50%, net of pension plan investment expense, including inflation.
<b>Inflation rate</b>	N/A
<b>Real across-the-board salary increase</b>	N/A
<b>Projected salary increases</b>	N/A
<b>Cost of living adjustments</b>	2.0% AND 1.8% COLA for 2018 and 2019 respectively, 1.0% thereafter.
<b>Other assumptions</b>	Same as those used in the October 1, 2019 funding actuarial valuation.

## Pension Expense

Reporting Date for Employer under GASB 68	September 30, 2019	September 30, 2018
Measurement Date for Employer under GASB 68	September 30, 2019	September 30, 2018
<b>Components of Pension Expense</b>		
Service cost	\$468,239	\$510,973
Interest on the Total Pension Liability	6,953,167	6,960,909
Current-period benefit changes	--	--
Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	1,722,698	-128,028
Expensed portion of current-period changes of assumptions or other inputs	-1,001,706	--
Member contributions	--	--
Projected earnings on plan investments	-5,855,909	-5,345,141
Expensed portion of current-period differences between actual and projected earnings on plan investments	349,828	-323,618
Administrative expense	89,490	73,138
Other	--	--
Recognition of beginning of year deferred outflows of resources as pension expense	1,313,514	3,230,455
Recognition of beginning of year deferred inflows of resources as pension expense	-1,759,618	-1,307,971
Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	--	--
<b>Pension Expense</b>	<b>\$2,279,703</b>	<b>\$3,670,717</b>

## Deferred Outflows of Resources and Deferred Inflows of Resources

Reporting Date for Employer under GASB 68	September 30, 2019	September 30, 2018
Measurement Date for Employer under GASB 68	September 30, 2019	September 30, 2018
<b>Deferred Outflows of Resources</b>		
Changes of assumptions or other inputs	\$0	\$0
Net difference between projected and actual earnings on pension plan investments	0	0
Difference between expected and actual experience in the Total Pension Liability	<u>1,602,109</u>	<u>377,345</u>
Total Deferred Outflows of Resources	\$1,602,109	\$377,345
<b>Deferred Inflows of Resources</b>		
Changes of assumptions or other inputs	\$931,586	\$0
Net difference between projected and actual earnings on pension plan investments	1,666,996	3,761,737
Difference between expected and actual experience in the Total Pension Liability	<u>78,097</u>	<u>206,125</u>
Total Deferred Inflows of Resources	\$2,676,679	\$3,967,862
<b>Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:</b>		
Reporting Date for Employer under GASB 68 Year Ended September 30:		
2019	N/A	-\$446,104
2020	-\$689,334	-1,709,687
2021	-761,277	-1,111,107
2022	26,211	-323,619
2023	349,830	0
Thereafter	0	0

## Schedule of Reconciliation of Net Pension Liability

Reporting Date for Employer under GASB 68	September 30, 2019	September 30, 2018
Measurement Date for Employer under GASB 68	September 30, 2019	September 30, 2018
<b>Beginning Net Pension Liability</b>	\$22,369,408	\$26,499,089
Pension expense	2,279,703	3,670,717
Employer contributions	-12,002,990	-4,377,313
New net deferred inflows/outflows	2,069,843	-1,500,601
New net deferred inflows/outflows due to change in proportion	0	0
Recognition of prior deferred inflows/outflows	<u>446,104</u>	<u>-1,922,484</u>
<b>Ending Net Pension Liability</b>	\$15,162,068	\$22,369,408

## Schedule of Recognition of Changes in Total Net Pension Liability

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience on Total Pension Liability

Reporting Date for Employer under GASB 68 Year Ended September 1:

Reporting Date for Employer under GASB 68 Year Ended September 30	Differences between Expected and Actual Experience	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	Thereafter
2015	\$2,986,908	4.00	\$746,727	0	0	0	0	0	0	0
2016	358,687	3.00	119,562	0	0	0	0	0	0	0
2017	1,132,034	3.00	377,345	377,345	0	0	0	0	0	0
2018	-334,153	2.61	-128,028	-128,028	-78,097	0	0	0	0	0
2019	3,324,807	1.93	N/A	<u>1,722,698</u>	<u>1,602,109</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in pension expense			N/A	\$1,972,015	\$1,524,012	\$0	\$0	\$0	\$0	\$0

**Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Assumption Changes**

**Reporting Date for Employer under GASB 68 Year Ended September 30:**

Reporting Date for Employer under GASB 68 Year Ended September 30	Assumption Changes	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	Thereafter
2016	\$3,151,956	3.00	\$1,050,652	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2019	-1,933,292	1.93	N/A	<u>-1,001,706</u>	<u>-931,586</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in pension expense			N/A	-\$1,001,706	-\$931,586	\$0	\$0	\$0	\$0	\$0

As described in Exhibit 1 of Section 3, the average of the expected remaining service lives of all employees that are provided with pensions through the Plan (active and inactive employees) determined as of September 30, 2019 is 1.93 years.

**Increase (Decrease) in Pension Expense Arising from the Recognition of the  
Effects of Differences between Projected and Actual Earnings on Pension Plan Investments**

**Reporting Date for Employer under GASB 68 Year Ended September 30:**

Reporting Date for Employer under GASB 68 Year Ended September 30	Differences between Projected and Actual Earnings	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	Thereafter
2015	\$4,680,845	5.00	\$936,169	\$936,169	0	0	0	0	0	0
2016	-2,602,414	5.00	-520,483	-520,483	-\$520,483	0	0	0	0	0
2017	-3,937,441	5.00	-787,488	-787,488	-787,488	-\$787,488	0	0	0	0
2018	-1,618,094	5.00	-323,618	-323,619	-323,619	-323,619	-\$323,619	0	0	0
2019	1,749,148	5.00	N/A	<u>349,828</u>	<u>349,830</u>	<u>349,830</u>	<u>349,830</u>	<u>\$349,830</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in pension expense			N/A	-\$345,593	-\$1,281,760	-\$761,277	\$26,211	\$349,830	\$0	\$0

**Total Increase (Decrease) in Pension Expense**

**Reporting Date for Employer under GASB 68 Year Ended September 30:**

Reporting Date for Employer under GASB 68 Year Ended September 30	Total Increase (Decrease) in Pension Expense	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	Thereafter
2015	\$7,667,753		\$1,682,896	\$936,169	0	0	0	0	0	0
2016	908,229		649,731	-520,483	-\$520,483	0	0	0	0	0
2017	-2,805,407		-410,143	-410,143	-787,488	-\$787,488	0	0	0	0
2018	-1,952,247		-451,646	-451,647	-401,716	-323,619	-\$323,619	0	0	0
2019	3,140,663		N/A	<u>1,070,820</u>	<u>1,020,353</u>	<u>349,830</u>	<u>349,830</u>	<u>\$349,830</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in pension expense			N/A	\$624,716	-\$689,334	-\$761,277	\$26,211	\$349,830	\$0	\$0

# Section 3: Actuarial Assumptions and Methods and Appendices

## EXHIBIT I – ACTUARIAL ASSUMPTIONS AND ACTUARIAL COST METHOD

<b>Rationale for Assumptions</b>	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Actuarial Experience Study for the five year period ending September 30, 2008. Current data is reviewed in conjunction with each annual valuation. Based on professional judgment, no assumption changes are warranted at this time.	
<b>Mortality Rates:</b>	<i>Healthy pre-retirement:</i>	Pub-2010 Gender-specific, Headcount Weighted General Below Median Employee Table; set back one year for males; projected generationally with Scale MP-2018 mortality improvement
	<i>Healthy post-retirement:</i>	Pub-2010 Gender-specific, Headcount Weighted General Below Median Healthy Retiree Table; set back one year for males; projected generationally with Scale MP-2018 mortality improvement
	<i>Disabled:</i>	Pub-2010 Gender-specific, Headcount Weighted General Disabled Retiree Table; set forward three years for males and females; projected generationally with Scale MP-2018 mortality improvement

**Termination Rates before Retirement:**

Age	Rate (%)			
	Mortality*		Disability	Withdrawal**
	Male	Female		
20	0.03	0.02	0.03	15.57
25	0.04	0.02	0.04	11.44
30	0.05	0.03	0.05	10.27
35	0.08	0.05	0.07	8.06
40	0.11	0.06	0.10	5.59
45	0.16	0.10	0.16	3.38
50	0.22	0.16	0.27	1.43
55	0.37	0.26	0.45	0.65
60	0.69	0.47	0.73	0.00
65	1.13	0.87	0.00	0.00

\* Tabular rates do not include generational projection.

\*\* Withdrawal rates cut off at Early Retirement Age.

**Retirement Rates:**

Retirement Age	Rate (per year)
55	22.00%
56-57	2.50%
58	8.00
59-61	10.00%
62	40.00
63	10.00
64	17.50
65	25.00
66-69	35.00
70	100.00

<b>Retirement Age for Inactive Vested Participants:</b>	65
<b>Unknown Data for Participants:</b>	Same as those exhibited by Participants with similar known characteristics. If not specified, Participants are assumed to be male.
<b>Percent Married:</b>	80%
<b>Age of Spouse:</b>	Females three years younger than males
<b>Salary Increases:</b>	N/A
<b>Administration Expenses:</b>	\$89,490, paid monthly
<b>Actuarial Value of Assets:</b>	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period. The actuarial value of assets is further adjusted, if necessary, to be within 20% of the market value.
<b>Actuarial Cost Method:</b>	Entry Age Normal Cost Method. Entry Age is the age at the time the participant commenced employment. Normal Cost and Actuarial Accrued Liability is calculated on an individual basis and are allocated by service, with Normal Cost determined as if the current benefit accrual rate had always been in effect.
<b>Expected Remaining Service Lives:</b>	The average of the expected service lives of all employees is determined by: <ul style="list-style-type: none"> <li>• Calculating each active employee's expected remaining service life as the present value of \$1 per year of future service at zero percent interest.</li> <li>• Setting the remaining service life to zero for each nonactive or retired member.</li> <li>• Dividing the sum of the above amounts by the total number of active employee, nonactive, and retired members.</li> </ul>
<b>Changes in Actuarial Assumptions:</b>	The administrative expense assumption was increased to \$89,490, payable monthly. The mortality assumption was updated adherent to Florida Statute 112.63(f).

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