City of Miami Beach Employees' Retirement Plan

Actuarial Valuation Report as of October 1, 2019

Annual Employer Contribution for the Fiscal Year Ending September 30, 2021

GRS

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June 4, 2020

Board of Trustees
City of Miami Beach Employees'
Retirement Plan
Miami Beach, Florida

Dear Board Members:

The results of the October 1, 2019 Actuarial Valuation of the City of Miami Beach Employees' Retirement Plan are presented in this report. This report does not reflect the recent and still developing impact of COVID-19, which may significantly impact demographic and economic experience.

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

The purposes of the valuation are to measure the Plan's funding progress, to determine the employer contribution rate for the fiscal year ending September 30, 2021, and to determine the actuarial information for Governmental Accounting Standards Board (GASB) No. 67 for fiscal year ending September 30, 2019. This report also includes estimated GASB No. 67 information for the fiscal year ending September 30, 2020. This report should not be relied on for any purpose other than the purpose described above. Determinations of financial results associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section B of this report. This report includes risk metrics in Section A but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

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

The findings in this report are based on data or other information through September 30, 2019. The valuation was based upon information furnished by the Plan Administrator concerning Retirement Plan benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the Plan Administrator.

This report was prepared using certain assumptions adopted by the Board as authorized and prescribed by Florida Statutes as described in the section of this report entitled Actuarial Assumptions and Cost Method.

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The prescribed assumptions are the assumed mortality rates in accordance with Florida Statutes, Chapter 112.63. All actuarial assumptions used in this report are reasonable for purposes of this valuation. Additional information about the actuarial assumptions is detailed in the section of this report entitled Actuarial Assumptions and Cost Method.

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

Melissa R. Moskovitz and Travis Robinson are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

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

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

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY

By Melissa R. Moskovitz

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SECTION A

DISCUSSION OF VALUATION RESULTS

DISCUSSION OF VALUATION RESULTS

Comparison of Required Employer Contributions

A comparison of the required employer contribution developed in this and the last actuarial valuation is shown below.

	Required City Contribution				
	Amount	% of Non-DROP Payroll	% of Total Payroll	Non-DROP Covered Payroll	Total Covered Payroll
For FYE 9/30/21 Based on 10/1/19 Valuation	$ 30,699,942	34.83 %	31.89 %	$ 88,141,166	$ 96,256,273
For FYE 9/30/20 Based on 10/1/18 Valuation	$ 31,475,030	37.04 %	33.58 %	$ 84,980,438	$ 93,730,853
Increase (Decrease)	(775,088)	(2.21)	(1.69)	3,160,728	2,525,420

The contribution has been adjusted for interest on the basis that the employer contribution is made in a single payment on the first day of the fiscal year. The actual employer contribution for the year ending September 30, 2019 was $31,864,304. The minimum required contribution was $31,864,304.

Revisions in Benefits

There have been no revisions in benefits since the last valuation.

Revisions in Actuarial Assumptions and Methods

This valuation reflects the following changes in assumptions since the prior valuation:

- The investment return assumption was lowered from 7.5% to 7.4% effective October 1, 2019.
- The mortality tables were updated to the mortality tables for Regular Class Members of the Florida Retirement System (FRS) used in the July 1, 2019 actuarial valuation, in compliance with Chapter 112.63 of the Florida Statutes, which requires use of the same mortality tables from either of the two most recently published actuarial valuation reports of the Florida Retirement System (FRS). Please see the Actuarial Cost Methods and Assumptions subsection of this report for further details on the updated mortality tables.
- Effective October 1, 2019, the period over which changes to the Unfunded Actuarial Accrued Liability (UAAL) was reduced from 30 years to 29 years.

The above changes resulted in a decrease in the annual required contribution by approximately $717,000, or 0.81% of payroll.

Actuarial Experience

There was a net actuarial loss of $583,335 for the year which means actual experience was less favorable than expected. The actuarial loss was primarily due to a recognized investment return (on the smoothed actuarial value of assets) below the assumed rate of 7.5%. The return on the Actuarial Value of Assets

was 6.9%, and the return on the Market Value of Assets was 3.5%. The investment loss was partially offset by a net liability-related experience gain primarily due to more employment terminations than expected as well as lower than expected salary increases (3.6% actual versus 5.1% expected). The net actuarial loss translates into an increase in the employer contribution equal to approximately $50,000, or 0.06% of non-DROP payroll.

Funded Ratio

The funded ratio this year is 74.4% compared to 72.2% last year. The funded ratio was 73.8% before the changes in assumptions. The funded ratio is equal to the actuarial value of assets divided by the actuarial accrued (past service) liability.

Analysis of Change in Employer Contribution

The components of change in the required employer contribution as a percent of non-DROP payroll are as follows:

Contribution rate last year	37.04 %
Change in assumptions/methods	(0.81)
Payment on unfunded liability	(1.25)
Change in employer normal cost rate	(0.25)
Experience gain/loss	0.06
Change in administrative expense	0.04
Contribution rate this year	34.83 %

Variability of Future Contribution Rates

It is important to keep in mind that under the asset smoothing method, the difference between actual and expected return is recognized over five years. As of September 30, 2019, the actuarial value of assets exceeded the market value by $3,298,096. Once all the gains and losses through September 30, 2019 are fully recognized in the actuarial asset values, the contribution will increase by roughly $279,000 or 0.3% of non-DROP payroll (before reflecting any changes due to changing mortality rates) unless there are further gains or losses.

If we were not using an asset smoothing method, the City contribution rate would have been 35.15% and the funded ratio would have been 74.0%.

Projections of Required Contributions and Funded Ratio

Pages 7-9 show the estimated City contributions and funded ratios over the next ten years, and a projection of the unfunded accrued liability and amortization payments over the next thirty years. The projections are based on these assumptions:

- A 7.40% investment return
- Use of the same Mortality Tables from the July 1, 2019 actuarial valuation for Regular Class Members of the Florida Retirement System (FRS)
- Cash flow remains constant
- No future gains or losses other than the recognition of prior investment experience
- 2.5% payroll growth

The projections reflect the expiration of amortization bases. For example, for the 2032 valuation, the amortization payments will decrease by approximately $1.8 million.

Conclusions and Recommendations

For this valuation a long-term average annual future net investment return assumption of 7.40%, or about 7.80% before investment expenses, was used. Based on the Plan's asset allocation, an assumed net rate of return of 6.50% to 7.25% would be more in line with projected expected returns over the next several years. We recommend consideration be given to lowering the investment return assumption.

If the investment return assumption is lowered, the required City contribution will increase in the short term and there will be a higher probability the Plan will meet or exceed its assumed return in future years. In other words, there will be a lower probability the Plan will generate investment losses which will be funded by future tax payers.

If the actual experience matches the assumptions, including the actual returns equaling 7.40%, the Unfunded Actuarial Accrued Liability (UAAL) is expected to decrease over time. On the other hand, if actual investment returns are less than assumed each year, the UAAL will increase over time even if actuarially calculated contributions are made and there are no other actuarial gains or losses.

It is important to note that plan assets are barely sufficient to cover the liabilities for inactive members. As of October 1, 2019, the assets are $651.6 million and the liability for current inactive members is $644.7 million. Additionally, the funded ratio has dropped from over 100% in 2000 to the current level of 74.4%. Some steps have been taken to address these issues, such as strengthening the actuarial assumptions, shortening the amortization period, and lowering the investment return assumption in previous years. Given the low funded ratio, it is advisable to consider further steps, such as further shortening of the amortization period and further lowering of the investment return assumption. Any of these steps would result in higher contributions in the short-term for the City. For each additional $5 million contributed, the funded ratio will increase by 0.57%.

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

RISKS ASSOCIATED WITH MEASURING THE ACCRUED LIABILITY AND ACTUARIALLY DETERMINED CONTRIBUTION

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

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

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

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

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

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

Plan Maturity Measures

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

	10/1/2019	10/1/2018
Ratio of the market value of assets to covered payroll	7.39	7.54
Ratio of actuarial accrued liability to payroll	9.99	10.15
Ratio of actives to retirees and beneficiaries	1.05	1.03
Ratio of net cash flow to market value of assets	(1.96) %	(1.78) %

Ratio of Market Value of Assets to Payroll

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

Ratio of Actuarial Accrued Liability to Payroll

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

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

Ratio of Actives to Retirees and Beneficiaries

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

Ratio of Net Cash Flow to Market Value of Assets

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

Additional Risk Assessment

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

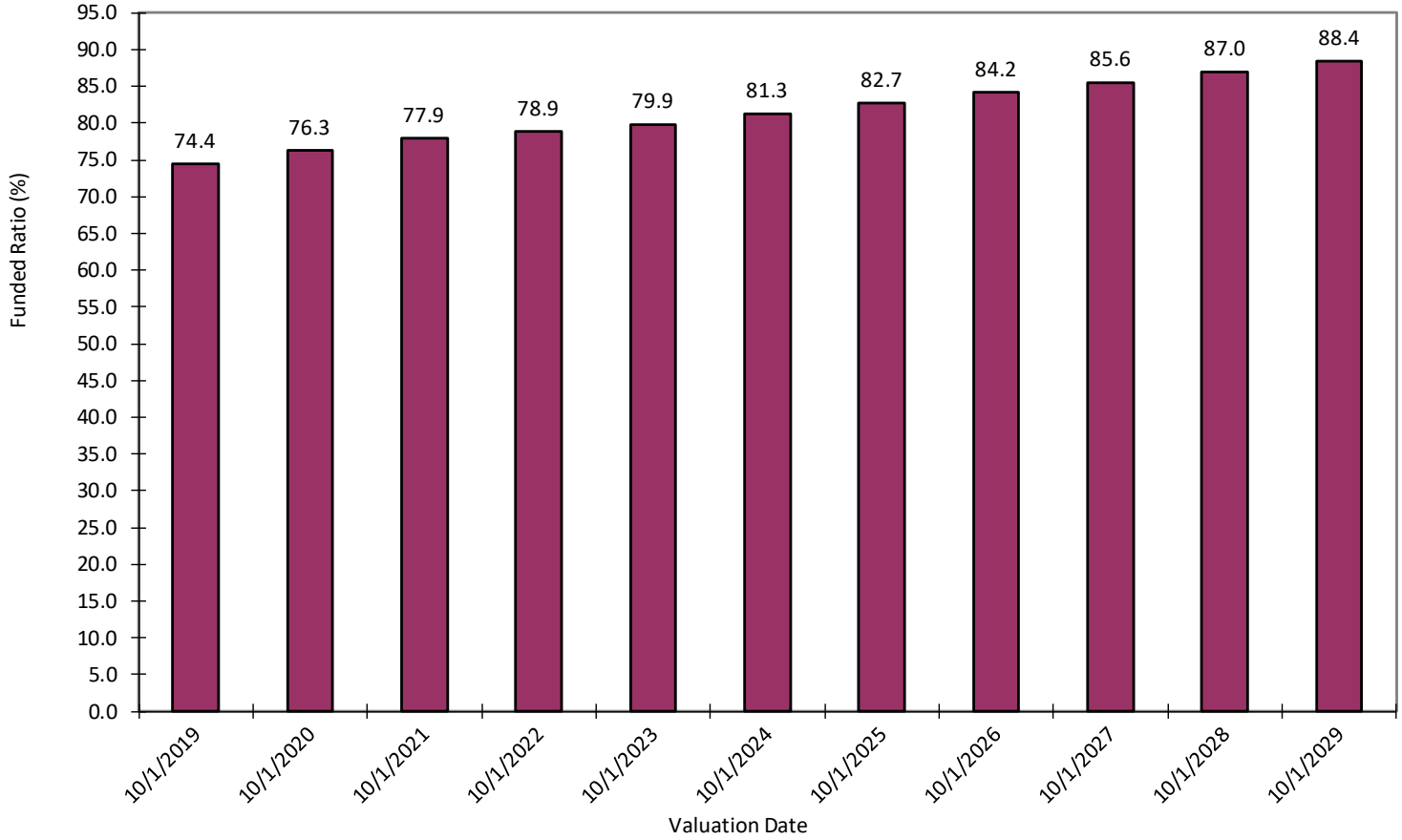
10-Year Projection of Actuarially Determined Contribution (ADC)

Total ADC		
Fiscal Year Ending 9/30	Dollar Amount (thousands)	% of Payroll
2021	$ 30,700	34.83 %
2022	30,309	33.55
2023	30,189	32.60
2024	30,537	32.17
2025	30,991	31.85
2026	31,063	31.15
2027	31,109	30.43
2028	31,154	29.74
2029	31,141	29.00
2030	31,132	28.28
2031	31,162	27.62

Assumptions

- *7.40% investment return assumption*
- *Same mortality tables from the July 1, 2019 actuarial valuation for regular class members of the Florida Retirement System (FRS).*
- *No gains or losses other than recognition of prior investment experience*
- *Constant cash flow*
- *2.5% payroll growth*

City of Miami Beach Employees' Retirement Plan
10-Year Projection of Funded Ratio



Assumptions

7.40% investment return assumption

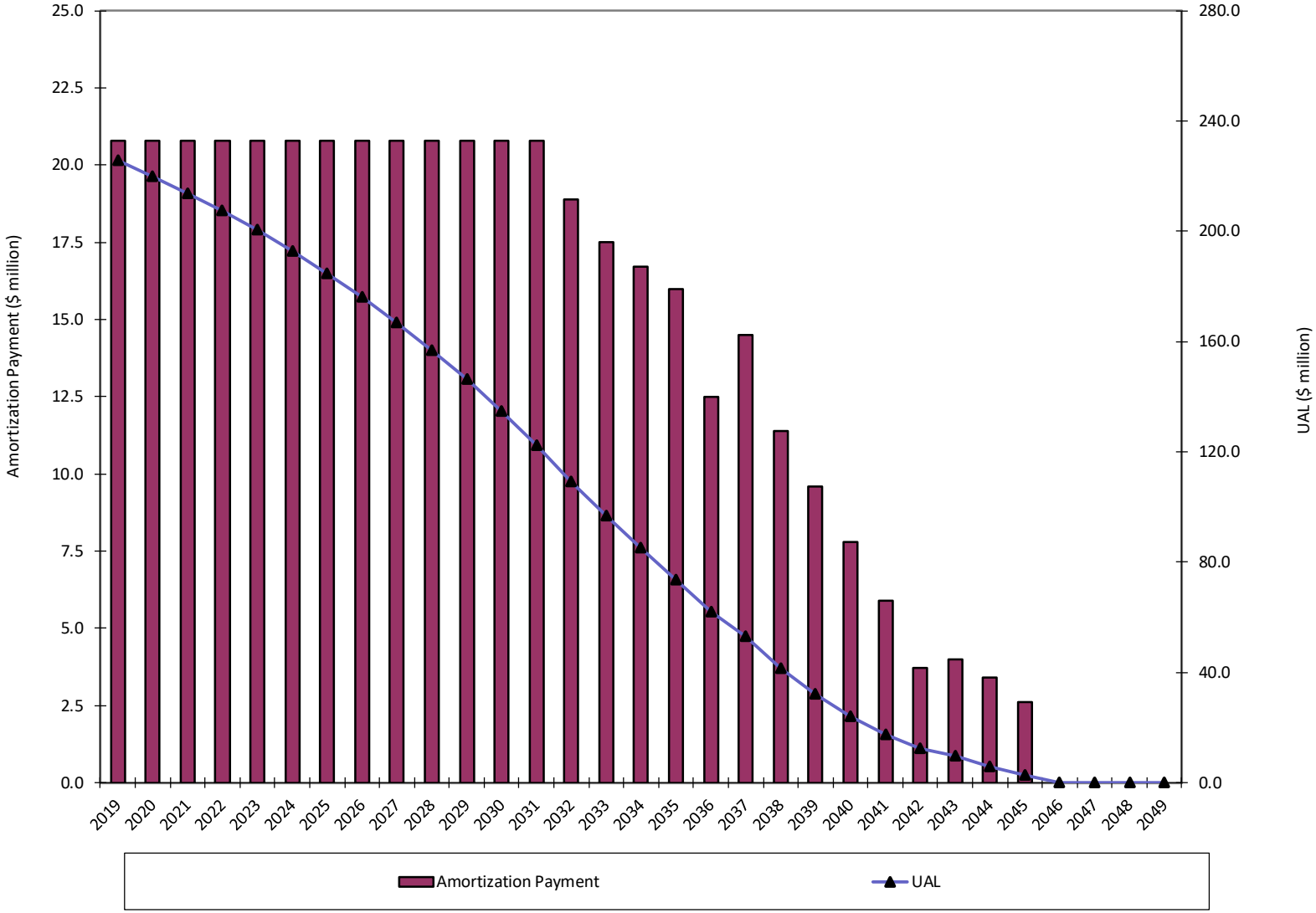
Use of the same mortality tables from the July 1, 2019 actuarial valuation for regular class employees of the Florida Retirement System (FRS).

No gains or losses other than recognition of prior investment experience.

Constant cash flow

2.5% payroll growth

30-Year Projection of Unfunded Actuarial Accrued Liability (UAL) and Amortization Payments
Reflecting only Current UAL Bases



SECTION B

VALUATION RESULTS

PARTICIPANT DATA			
	October 1, 2019 *After Assumption Changes*	**October 1, 2019** *Before Assumption Changes*	**October 1, 2018**
ACTIVE MEMBERS			
Number (Non-DROP)	1,254	1,254	1,231
Covered Annual Non-DROP Payroll	$ 88,141,166	$ 88,141,166	$ 84,980,438
Average Annual Non-DROP Pay	$ 70,288	$ 70,288	$ 69,034
Total Covered Annual Payroll	$ 96,256,273	$ 96,256,273	$ 93,730,853
Average Total Annual Pay	$ 70,881	$ 70,881	$ 70,474
Average Age (Non-DROP)	44.0	44.0	43.9
Average Past Service (Non-DROP)	8.5	8.5	8.5
Average Age at Hire (Non-DROP)	35.5	35.5	35.4
DROP PARTICIPANTS			
Number	104	104	99
Annual Benefits	$ 4,924,203	$ 4,924,203	$ 4,499,056
Average Annual Benefit	$ 47,348	$ 47,348	$ 45,445
Average Age	60.7	60.7	60.1
RETIREES & BENEFICIARIES			
Number	1,057	1,057	1,061
Annual Benefits	$ 44,986,042	$ 44,986,042	$ 43,888,729
Average Annual Benefit	$ 42,560	$ 42,560	$ 41,365
Average Age	71.2	71.2	71.1
DISABILITY RETIREES			
Number	29	29	32
Annual Benefits	$ 934,894	$ 934,894	$ 1,030,830
Average Annual Benefit	$ 32,238	$ 32,238	$ 32,213
Average Age	65.0	65.0	65.2
TERMINATED VESTED MEMBERS			
Number	104	104	94
Annual Benefits	$ 2,721,035	$ 2,721,035	$ 2,431,704
Average Annual Benefit	$ 26,164	$ 26,164	$ 25,869
Average Age	46.5	46.5	46.1

ACTUARIALLY DETERMINED CONTRIBUTION (ADC)			
A. Valuation Date	October 1, 2019 *After Assumption Changes*	October 1, 2019 *Before Assumption Changes*	October 1, 2018
B. ADC to Be Paid During Fiscal Year Ending	9/30/2021	9/30/2021	9/30/2020
C. Assumed Date of Employer Contrib.	10/1/2020	10/1/2020	10/1/2019
D. Annual Payment to Amortize Unfunded Actuarial Liability	$ 20,782,944	$ 21,498,116	$ 21,651,668
E. Employer Normal Cost	7,801,732	7,727,182	7,627,430
F. ADC if Paid on the Valuation Date: D+E	28,584,676	29,225,298	29,279,098
G. ADC Adjusted for Frequency of Payments	30,699,942	31,417,195	31,475,030
H. ADC as % of Covered Payroll			
- Non-DROP Payroll	34.83 %	35.64 %	37.04 %
- Total Payroll	31.89 %	32.64 %	33.58 %
I. Expected Covered Payroll			
- Non-DROP Payroll	88,141,166	88,141,166	84,980,438
- Total Payroll	96,256,273	96,256,273	93,730,853

ACTUARIAL VALUE OF BENEFITS AND ASSETS			
A. Valuation Date	October 1, 2019 *After Assumption Changes*	October 1, 2019 *Before Assumption Changes*	October 1, 2018
B. Actuarial Present Value of All Projected Benefits for			
1. Active Members			
a. Service Retirement Benefits	$ 316,181,786	$ 314,749,568	$ 306,489,600
b. Vesting Benefits	34,268,197	34,287,111	34,251,449
c. Disability Benefits	8,418,567	8,149,047	7,873,000
d. Preretirement Death Benefits	3,456,079	4,439,153	4,350,830
e. Return of Member Contributions	1,962,762	2,056,868	2,103,904
f. Total	364,287,391	363,681,747	355,068,783
2. Inactive Members			
a. Service Retirees & Beneficiaries	606,662,369	612,415,587	596,408,680
b. Disability Retirees	10,036,783	10,089,597	11,055,284
c. Terminated Vested Members	28,041,133	28,379,130	24,775,845
d. Total	644,740,285	650,884,314	632,239,809
3. Total for All Members	1,009,027,676	1,014,566,061	987,308,592
C. Actuarial Accrued (Past Service) Liability (under Entry Age Normal)	880,393,953	887,662,713	862,708,251
D. Actuarial Value of Accumulated Plan Benefits per FASB No. 35	850,565,607	856,761,550	830,341,853
E. Plan Assets			
1. Market Value	651,574,236	651,574,236	640,885,726
2. Actuarial Value	654,872,332	654,872,332	623,041,219
F. Unfunded Actuarial Accrued Liability: C-E2	225,521,621	232,790,381	239,667,032
G. Actuarial Present Value of Projected Covered Payroll	777,399,638	770,854,891	742,807,028
H. Actuarial Present Value of Projected Member Contributions	71,909,573	71,349,024	68,979,063
I. Accumulated Contributions of Active Members	71,596,490	71,596,490	68,918,458

CALCULATION OF EMPLOYER NORMAL COST			
A. Valuation Date	October 1, 2019 *After Assumption Changes*	October 1, 2019 *Before Assumption Changes*	October 1, 2018
B. Normal Cost for			
1. Service Retirement Benefits	$ 11,888,408	$ 11,771,369	$ 11,543,943
2. Vesting Benefits	2,390,787	2,388,768	2,362,378
3. Disability Benefits	651,199	631,533	609,552
4. Preretirement Death Benefits	231,049	285,978	282,575
5. Return of Member Contributions	490,353	499,598	480,095
6. Total for Future Benefits	15,651,796	15,577,246	15,278,543
7. Assumed Amount for Administrative Expenses	779,019	779,019	716,829
8. Total Normal Cost	16,430,815	16,356,265	15,995,372
% of Covered Payroll			
- Non-DROP Payroll	18.64 %	18.56 %	18.82 %
- Total Payroll	17.07 %	16.99 %	17.07 %
C. Expected Member Contribution	8,629,083	8,629,083	8,367,942
% of Covered Payroll			
- Non-DROP Payroll	9.79 %	9.79 %	9.85 %
- Total Payroll	8.96 %	8.96 %	8.93 %
D. Employer Normal Cost: B8-C	7,801,732	7,727,182	7,627,430
% of Covered Payroll			
- Non-DROP Payroll	8.85 %	8.77 %	8.98 %
- Total Payroll	8.11 %	8.03 %	8.14 %

LIQUIDATION OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY

A. Derivation of the Current UAAL	
1. Last Year's UAAL	$ 239,667,032
2. Employer Normal Cost for Contribution Year	8,203,827
3. Last Year's Contributions	31,864,304
4. Interest at the Assumed Rate on:	
a. 1 and 2 for one year	18,590,314
b. 3 from dates paid	2,389,823
c. a - b	16,200,491
5. This Year's Expected UAAL Prior to Revision: 1 + 2 - 3 + 4c	232,207,046
6. Change in UAAL Due to Plan Amendments and/or Changes in Actuarial Assumptions	(7,268,760)
7. This Year's Expected UAAL After Revisions: 5 + 6	224,938,286
8. This Year's Actual UAAL After Revisions	225,521,621
9. This Year's Gain (Loss): 7 - 8	(583,335)
10. Gain (Loss) Due to Investments	(4,111,777)
11. Gain (Loss) Due to Other Causes	3,528,442

B. UAAL Amortization Period and Payments

Original UAAL				Current UAAL			
						Payment	
Date Established	Source	Amortization Period (Years)	Amount	Years Remaining	Amount	*After Assumption Changes*	*Before Assumption Changes*
10/1/02	(Gain) Loss	30	$ 24,017,296	13	$ 16,228,300	$ 1,849,149	$ 1,857,789
10/1/03	(Gain) Loss	30	16,972,622	14	13,061,366	1,424,140	1,431,251
10/1/04	(Gain) Loss	30	9,682,048	15	7,441,420	780,065	784,203
10/1/05	(Gain) Loss and Assum. Change*	30	9,377,578	16	7,136,319	722,139	726,186
10/1/06	(Gain) Loss	30	11,796,972	17	9,139,049	895,871	901,153
10/1/06	(Gain) Loss	30	34,747,408	17	26,918,630	2,638,744	2,654,303
10/1/07	(Gain) Loss	30	(14,036,710)	18	(11,157,720)	(1,062,800)	(1,069,366)
10/1/07	Assum. and Method Change**	30	(12,143,754)	18	(9,653,020)	(919,473)	(925,154)
10/1/08	(Gain) Loss	30	29,844,325	19	25,437,786	2,360,801	2,376,029
10/1/08	Assum. Change	30	8,228,994	19	7,013,976	650,945	655,144
10/1/09	(Gain) Loss	30	28,291,986	20	24,285,468	2,201,236	2,216,014
10/1/09	Assum. Change	30	8,975,372	20	7,704,340	698,322	703,010
10/1/09	Assum. Change	30	(7,968,884)	20	(6,840,384)	(620,013)	(624,175)
10/1/09	Plan Change	30	(6,161,412)	20	(5,288,877)	(479,384)	(482,602)
10/1/10	(Gain) Loss	30	15,123,488	21	13,487,604	1,196,507	1,204,843
10/1/10	Assum. Change	30	8,061,915	21	7,189,870	637,825	642,269
10/1/11	(Gain) Loss	30	22,163,141	22	19,929,910	1,733,669	1,746,173
10/1/11	Assum. Change	30	1,658,668	22	1,491,535	129,746	130,682
10/1/12	***	29	869,791	22	773,088	67,250	67,735
10/1/12	(Gain) Loss	30	23,859,099	23	21,373,199	1,826,188	1,839,791
10/1/12	Assum. Change	30	10,160,600	23	9,101,957	777,698	783,490
10/1/12	Plan Change	30	(5,160,035)	23	(4,622,407)	(394,952)	(397,894)
10/1/13	(Gain) Loss	30	(3,358,961)	24	(3,017,008)	(253,587)	(255,534)
10/1/13	Plan Change	30	(1,053,975)	24	(946,681)	(79,571)	(80,182)
10/1/14	(Gain) Loss	30	(3,236,333)	25	(2,962,066)	(245,253)	(247,190)
10/1/14	Assum. Change	30	10,779,808	25	9,866,263	816,907	823,357
10/1/15	(Gain) Loss	30	(664,417)	26	(617,821)	(50,453)	(50,862)
10/1/15	Assum. Change	30	11,414,118	26	10,613,669	866,746	873,773
10/1/16	(Gain) Loss	30	(13,413,330)	27	(12,683,041)	(1,022,686)	(1,031,185)
10/1/16	Assum. Change	30	48,004,064	27	45,390,482	3,660,023	3,690,438
10/1/17	(Gain) Loss	30	(6,212,497)	28	(5,962,257)	(475,186)	(479,228)
10/1/17	Assum. Change	30	4,642,076	28	4,455,090	355,066	358,086
10/1/18	(Gain) Loss	30	(2,942,624)	29	(2,887,314)	(227,658)	(229,637)
10/1/18	Assum. Change	30	11,013,329	29	10,806,321	852,053	859,460
10/1/19	(Gain) Loss****	29	583,335	29	583,335	45,995	45,946
10/1/19	Assum. Change	29	(7,268,760)	29	(7,268,760)	(573,125)	N/A
			266,646,341		225,521,621	20,782,944	21,498,116

* Loss of 7,060,041 plus assumption change of 2,317,537.

** Assumption change of 5,311,398 plus method change of (17,455,152).

*** Charge Base established to reflect excess contribution for fiscal year ending 9/30/11 that was included in assets. This base is established as of 10/1/12

**** The amortization payment on the 10/1/19 Loss "Before Assumption Changes" Loss is based on a 30-year amortization period.

C. Amortization Schedule

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

Amortization Schedule	
Year	**Expected UAAL**
2019	$ 225,521,621
2020	219,889,363
2021	213,840,294
2022	207,343,594
2023	200,366,138
2024	192,872,351
2029	146,217,674
2034	85,198,263
2039	32,125,715
2044	5,923,815
2048	-

ACTUARIAL GAINS AND LOSSES

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

Net actuarial gains in previous years are as follows:

Year Ended	Gain (Loss)
9/30/1990	$ (9,106,524)
9/30/1991	2,727,904
9/30/1992	4,954,823
9/30/1993	5,370,894
9/30/1994	(1,696,061)
9/30/1995	6,661,918
9/30/1996	7,568,621
9/30/1997	13,539,264
9/30/1998	6,894,790
9/30/1999	16,168,137
9/30/2000	6,540,306
9/30/2001	(6,572,791)
9/30/2002	(32,586,068)
9/30/2003	(18,414,901)
9/30/2004	(9,682,048)
9/30/2005	(7,060,041)
9/30/2006	(11,796,971)
9/30/2007	14,036,710
9/30/2008	(29,844,325)
9/30/2009	(28,291,986)
9/30/2010	(15,123,488)
9/30/2011	(22,163,141)
9/30/2012	(23,859,099)
9/30/2013	3,358,961
9/30/2014	3,236,333
9/30/2015	664,417
9/30/2016	13,413,330
9/30/2017	6,212,497
9/30/2018	2,942,624
9/30/2019	(583,335)

HISTORY OF INVESTMENT RETURNS AND SALARY INCREASES

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

	General Plan				Unclassified Plan			
	Investment Return		Salary Increases		Investment Return		Salary Increases	
Year Ending	Actual	Assumed	Actual	Assumed	Actual	Assumed	Actual	Assumed
9/30/1989	11.6 %	8.0 %	1.9 %	6.0 %	14.6 %	8.0 %	3.2 %	6.0 %
9/30/1990	7.3	8.5	7.5	6.0	(2.3)	8.0	12.3	6.0
9/30/1991	8.1	8.5	3.0	6.0	21.6	8.5	3.4	6.0
9/30/1992	13.7	8.5	2.0 *	6.0	5.8	9.0	2.4	6.0
9/30/1993	11.4	8.5	3.1	6.0	14.1	9.0	6.3	6.0
9/30/1994	6.8	8.5	3.9	6.0	4.8	9.0	6.0	6.0
9/30/1995	11.4	8.5	8.8	6.0	24.1	9.0	7.6	6.0
9/30/1996	15.3	8.5	4.2	6.0	13.9	9.0	8.6	6.0
9/30/1997	13.8	8.5	6.0	6.0	19.1	9.0	7.4	6.0
9/30/1998	12.5	8.5	5.0	6.0	4.3	9.0	4.1	6.0
9/30/1999	14.4	8.5	7.3	6.0	18.8	9.0	7.1	6.0
9/30/2000	10.7	8.5	6.7	6.0	16.5	9.0	6.7	6.0
9/30/2001	7.2	8.5	9.3	6.0	9.7	9.0	7.0	6.0
9/30/2002	0.3	8.5	8.9	6.0	1.7	9.0	9.2	6.0
9/30/2003	4.3	8.5	8.1	6.0	4.6	9.0	7.5	6.0
9/30/2004	4.1	8.5	3.1	6.0	9.7	9.0	5.7	6.0
9/30/2005	4.4	8.5	4.7	6.0	10.7	9.0	6.8	6.0
9/30/2006	7.7	8.5	11.9	6.0	10.2	8.75	7.9	6.0
9/30/2007 **	12.0	8.75	(3.6)	6.0	NA	NA	NA	NA
9/30/2008 **	5.2	8.65	11.3	6.0	NA	NA	NA	NA
9/30/2009 **	1.1	8.50	4.8	6.0	NA	NA	NA	NA
9/30/2010 **	5.0	8.35	2.5	6.0	NA	NA	NA	NA
9/30/2011 **	1.1	8.25	0.8	6.8	NA	NA	NA	NA
9/30/2012 **	2.1	8.15	1.7	5.7	NA	NA	NA	NA
9/30/2013 **	7.4	8.00	2.3	5.6	NA	NA	NA	NA
9/30/2014 **	9.9	8.00	3.6	5.6	NA	NA	NA	NA
9/30/2015 **	7.7	7.85	6.0	5.7	NA	NA	NA	NA
9/30/2016 **	9.6	7.70	4.5	5.8	NA	NA	NA	NA
9/30/2017 **	9.0	7.65	5.1	5.8	NA	NA	NA	NA
9/30/2018 **	8.3	7.60	5.8	5.9	NA	NA	NA	NA
9/30/2019 **	6.9	7.50	3.6	5.1	NA	NA	NA	NA
Averages	8.0 %	---	4.9 %	---	11.0 %	---	6.6 %	---

* Approximate rate

** Represents salary increases and investment return for the total group

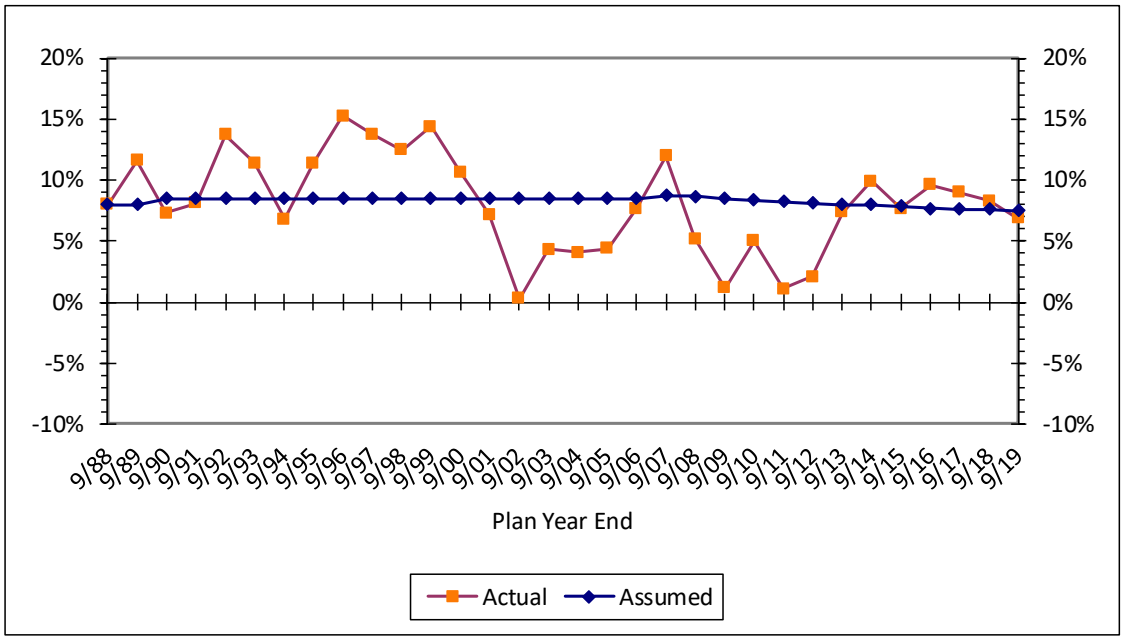
Note: Figures before 1992 were taken from Reports of Buck Consultants.

The actual investment return rates shown above are based on the actuarial value of assets. The actual salary increase rates shown above are the increases received by those active members who were included in the actuarial valuation both at the beginning and the end of each period. The exhibits that follow illustrate the table above in graphic form.

History of Investment Return Based

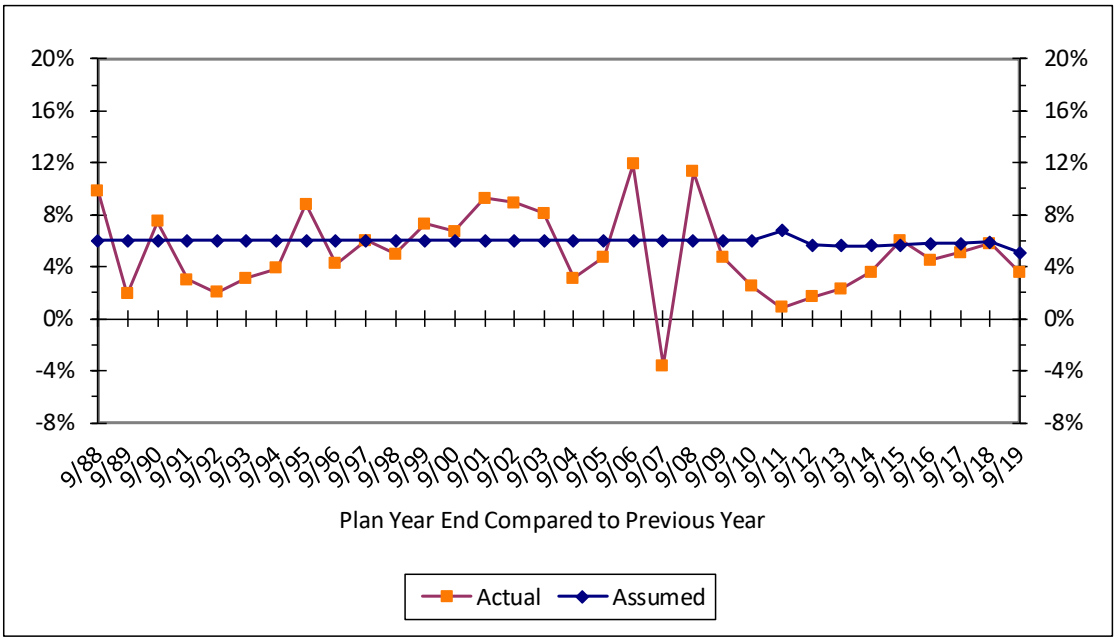
on Actuarial Value of Assets – General Plan

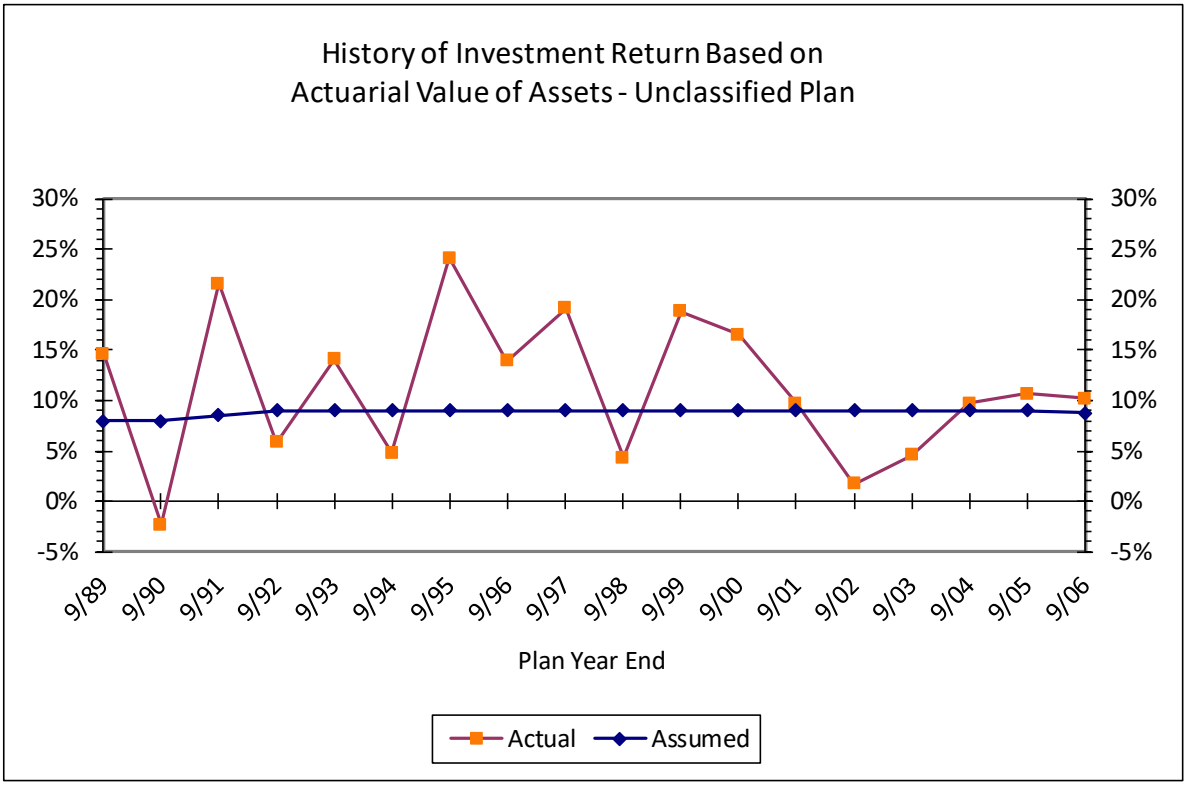
and Combined Plan after 2006

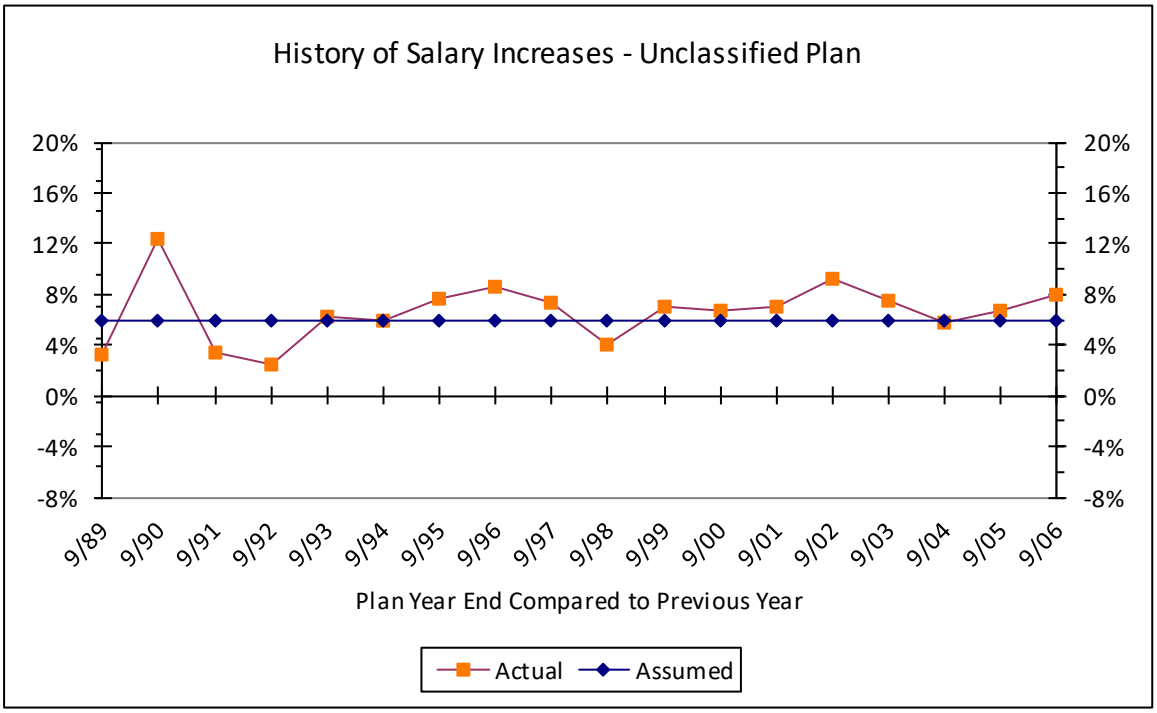


History of Salary Increases – General Plan

and Combined Plan after 2006




History of Investment Return Based on
Actuarial Value of Assets - Unclassified Plan
30%
25%
20%
15%
10%
5%
0%
-5%
9/89
9/90
9/91
9/92
9/93
9/94
9/95
9/96
9/97
9/98
9/99
9/00
9/01
9/02
9/03
9/04
9/05
9/06
Plan Year End
Actual
Assumed


History of Salary Increases - Unclassified Plan
20%
16%
12%
8%
4%
0%
-4%
-8%
9/89
9/90
9/91
9/92
9/93
9/94
9/95
9/96
9/97
9/98
9/99
9/00
9/01
9/02
9/03
9/04
9/05
9/06
Plan Year End Compared to Previous Year
Actual
Assumed

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

Year Ended	Number Added During Year		Service & DROP Retirement		Disability Retirement		Death		Terminations				Active Members End of Year
									Vested	Other	Totals		
	A	E	A	E	A	E	A	E	A	A	A	E	
9/30/2003	109	46	20	40	0	3	2	1	15	9	24	33	**714**
9/30/2004	65	54	24	37	2	3	1	1	18	9	27	35	**725**
9/30/2005	73	62	16	43	2	3	2	1	23	19	42	37	**736**
9/30/2006 *	357	75	40	40	0	3	1	1	21	13	34	37	**1018**
9/30/2007	149	106	40	86	2	3	1	2	17	46	63	49	**1061**
9/30/2008	182	85	29	92	1	3	1	2	24	30	54	61	**1158**
9/30/2009	78	29	55	123	2	3	1	2	12	12	24	64	**1154**
9/30/2010	35	72	31	114	0	3	1	2	10	30	40	69	**1117**
9/30/2011	37	82	27	38	3	1	3	2	9	40	49	43	**1072**
9/30/2012	60	83	41	46	2	1	1	2	16	23	39	39	**1049**
9/30/2013	52	87	37	45	2	1	1	2	21	26	47	38	**1014**
9/30/2014	113	116	62	41	0	1	1	2	34	19	53	37	**1011**
9/30/2015	180	109	49	30	0	1	1	1	21	38	59	42	**1082**
9/30/2016	186	102	38	25	1	1	1	1	22	40	62	48	**1166**
9/30/2017	119	110	38	27	0	1	2	2	15	55	70	55	**1175**
9/30/2018	167	111	41	28	0	1	0	2	20	50	70	53	**1231**
9/30/2019	146	123	32	32	0	1	1	2	21	69	90	73	**1254**
9/30/2020				38		1		1				72	
17 Yr Totals **	2108	1452	620	887	17	33	21	28	319	528	847	813	

* Includes 401a transfers

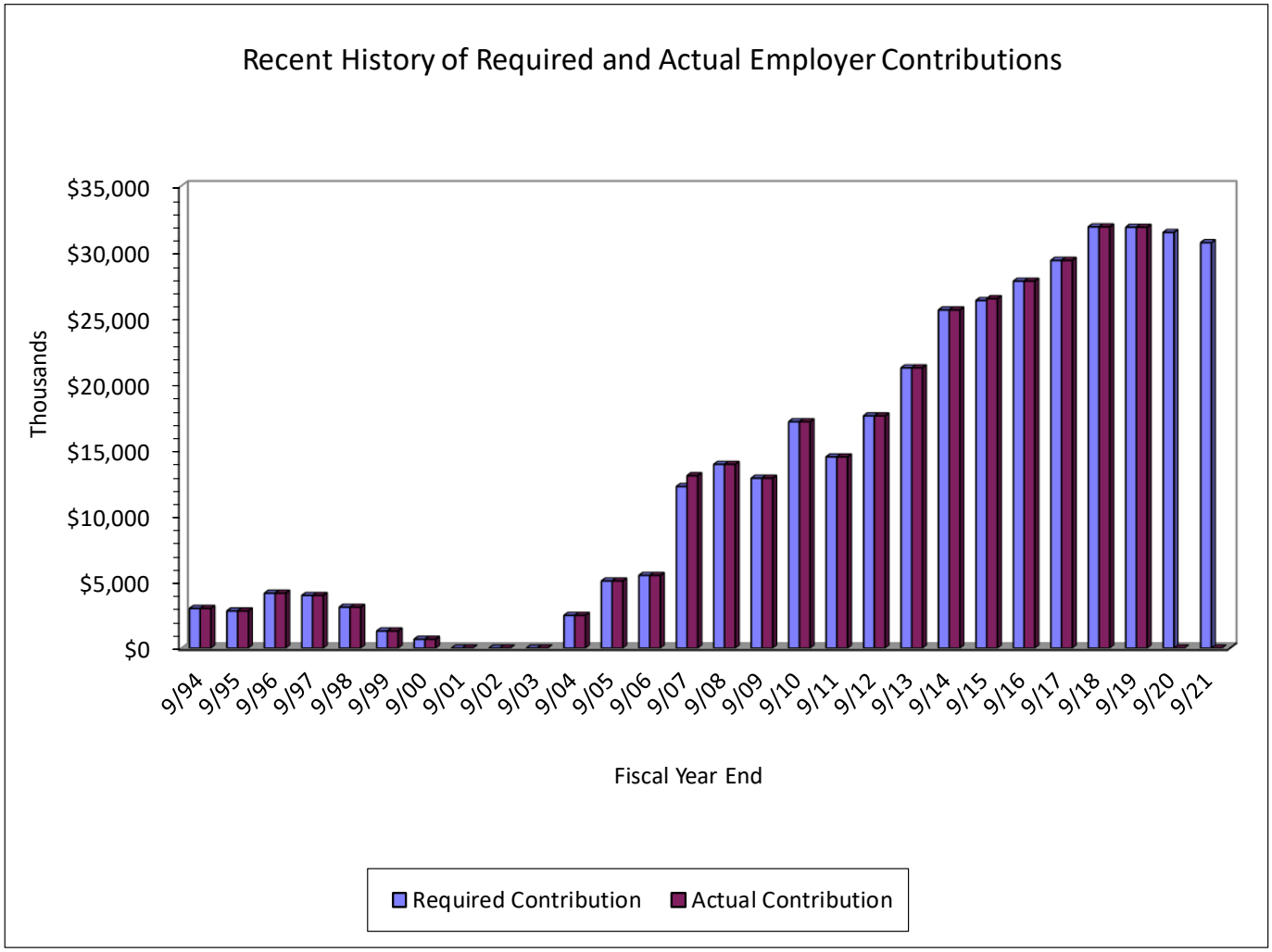
** Totals are through current Plan Year only

RECENT HISTORY OF REQUIRED AND ACTUAL CONTRIBUTIONS									
Valuation Date	End of Year To Which Valuation Applies	Required Employer Contribution			Actual Employer Contribution		Expected Employee Contribution		
		Amount		% of Payroll [1]	Amount		Amount		% of Payroll
10/1/92	9/30/94	$ 3,004,556		13.59 %	$ 3,004,556		2,210,760		10.00 %
10/1/93	9/30/95	2,809,509		13.32	2,809,509		2,109,411		10.00
10/1/94	9/30/96	4,151,807		18.92	4,151,807		2,194,453		10.00
10/1/95	9/30/97	3,982,477		16.97	3,982,477		2,346,131		10.00
10/1/96	9/30/98	3,091,359		12.29	3,091,359		2,514,836		10.00
10/1/97	9/30/99	1,293,920		4.99	1,293,920		2,593,998		10.00
10/1/98	9/30/00	666,897		2.66	666,897		2,507,033		10.00
10/1/99	9/30/01	-		-	-		2,541,861		10.00
10/1/00	9/30/02	-		-	-		2,588,940		10.00
10/1/01	9/30/03	-		-	-		2,766,409		10.00
10/1/02	9/30/04	2,476,702		8.16	2,476,702		3,035,064		10.00
10/1/03	9/30/05	5,082,595		14.74	5,082,595		3,448,863		10.00
10/1/04	9/30/06	5,500,329		15.89	5,500,329		3,461,920		10.00
10/1/05	9/30/07	12,234,519	*	23.11	13,053,231		4,550,013	*	8.59
10/1/06	9/30/08	13,911,545		24.24	13,911,545		4,901,855		8.54
10/1/07	9/30/09	12,863,823		21.57	12,863,823		4,987,739		8.36
10/1/08	9/30/10	17,137,394		25.20	17,137,394		5,627,519		8.27
10/1/09	9/30/11	14,474,678		20.65	14,474,678		7,146,837		10.20
10/1/10	9/30/12	17,583,191		25.54	17,583,191	**	6,995,774		10.16
10/1/11	9/30/13	21,222,051		31.99	21,222,051		6,613,338		9.97
10/1/12	9/30/14	25,602,030	***	39.36	25,602,030		6,504,355	***	10.00
10/1/13	9/30/15	26,317,983		41.43	26,456,580		6,363,367		10.02
10/1/14	9/30/16	27,783,852		43.33	27,783,852		6,399,516		9.98
10/1/15	9/30/17	29,358,098		40.85	29,358,098		7,168,968		9.98
10/1/16	9/30/18	31,892,485		41.41	31,892,485		7,656,543		9.94
10/1/17	9/30/19	31,864,304		39.93	31,864,304		7,894,424		9.89
10/1/18	9/30/20	31,475,030		37.04	NA		8,367,942		9.85
10/1/19	9/30/21	30,699,942		34.83	NA		8,629,083		9.79
Average % of Payroll				21.86 %					9.77 %

* From February 28, 2006 Actuarial Impact Statement.

** Reflects use of $1,271,123 prepaid contribution

*** From September 6, 2013 Actuarial Impact Statement.


Recent History of Required and Actual Employer Contributions
Thousands
$35,000
$30,000
$25,000
$20,000
$15,000
$10,000
$5,000
$0
9/94
9/95
9/96
9/97
9/98
9/99
9/00
9/01
9/02
9/03
9/04
9/05
9/06
9/07
9/08
9/09
9/10
9/11
9/12
9/13
9/14
9/15
9/16
9/17
9/18
9/19
9/20
9/21
Fiscal Year End
Required Contribution
Actual Contribution

RECENT HISTORY OF UAAL AND FUNDED RATIO

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) - Entry Age (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL As % of Covered Payroll (b - a) / c
10/1/1993	$ 185,721,855	$ 187,130,465	$ 1,408,610	99.2 %	$ 21,094,111	6.7 %
10/1/1994	188,997,087	202,078,377	13,081,290	93.5	21,944,531	59.6
10/1/1995	208,877,297	213,844,465	4,967,168	97.7	23,461,309	21.2
10/1/1996	226,633,680	222,221,064	(4,412,616)	102.0	25,148,361	(17.5)
10/1/1997	251,171,973	232,871,332	(18,300,641)	107.9	25,939,981	(70.5)
10/1/1998	266,716,007	240,760,472	(25,955,535)	110.8	25,070,334	(103.5)
10/1/1999	305,344,213	263,462,059	(41,882,154)	115.9	25,418,614	(164.8)
10/1/2000	326,816,322	277,933,325	(48,882,997)	117.6	25,889,403	(188.8)
10/1/2001	336,024,366	292,748,088	(43,276,278)	114.8	27,664,085	(156.4)
10/1/2002	322,181,146	319,831,292	(2,349,854)	100.7	30,350,644	(7.7)
10/1/2003	320,053,468	338,904,200	18,850,732	94.4	34,488,630	54.7
10/1/2004	320,735,755	352,105,058	31,369,303	91.1	34,619,199	90.6
10/1/2005	325,727,087	368,096,409	42,369,322	88.5	36,680,110	115.5
10/1/2006	358,458,949	448,933,278	90,474,329	79.8	57,390,894	157.6
10/1/2007	412,824,235	478,067,829	65,243,594	86.4	59,632,425	109.4
10/1/2008	425,714,565	526,481,586	100,767,021	80.9	68,009,550	148.2
10/1/2009	420,520,122	545,536,965	125,016,843	77.1	70,097,549	178.3
10/1/2010	431,479,305	580,246,165	148,766,860	74.4	68,844,264	216.1
10/1/2011	425,781,050	602,577,503	176,796,453	70.7	66,346,904	266.5
10/1/2012	421,376,041	632,203,739	210,827,698	66.7	65,053,945	324.1
10/1/2013	440,912,751	648,743,246	207,830,495	68.0	63,526,903	327.2
10/1/2014	475,203,581	687,011,560	211,807,979	69.2	64,115,083	330.4
10/1/2015	504,716,897	722,488,087	217,771,190	69.9	71,863,150	303.0
10/1/2016	543,448,708	789,615,932	246,167,224	68.8	77,013,213	319.6
10/1/2017	583,169,004	822,363,516	239,194,512	70.9	79,797,583	299.8
10/1/2018	623,041,219	862,708,251	239,667,032	72.2	84,980,438	282.0
10/1/2019 (b)	654,872,332	887,662,713	232,790,381	73.8	88,141,166	264.1
10/1/2019 (a)	654,872,332	880,393,953	225,521,621	74.4	88,141,166	255.9

(a) After Changes
(b) Before Changes

ACTUARIAL ASSUMPTIONS AND COST METHOD

Both the economic and decrement assumptions were established following the Experience Investigation for the Seven Years Ended September 30, 2017. The investment return and salary increase assumptions have been adjusted in accordance with subsequent analyses. The covered group is too small to provide statistically significant experience on which to base the mortality assumption. Mortality is based on a commonly used mortality table and projection scale.

Valuation Methods

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

(i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement;

(ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

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

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

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

Valuation Assumptions

The actuarial assumptions used in the valuation are shown in this Section. Both the economic and decrement assumptions were established following the Experience Investigation for the Seven Years Ended September 30, 2017, dated March 11, 2019. The mortality assumption is mandated by Chapter 112.63, Florida Statutes.

Economic Assumptions

The investment return rate assumed in the valuation is 7.40% per year, compounded annually (net after investment expenses). The reduction in the assumed investment return rate from 8.00% to 7.40% has been phased-in over a six-year period starting October 1, 2014.

The Wage Inflation Rate assumed in this valuation is 2.5% per year. The Wage Inflation Rate is defined to be the portion of total pay increases for an individual that are due to macroeconomic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes related to individual merit and seniority effects.

The ***Price Inflation Rate*** assumed this year is 2.5% per year. The Price Inflation Rate is defined to be the long-term rate of annual increases in goods and services.

The assumed ***real rate of return*** over inflation is defined to be the portion of total investment return that is more than the assumed inflation rate. Considering other economic assumptions, the 7.40% investment return rate translates to an assumed real rate of return over inflation of 4.90%.

Rates of salary increases used are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

	% Increase in Salary		
Years of Service	**Merit and Seniority**	**Wage Inflation**	**Total Increase**
1 - 5	3.60%	2.5%	6.10%
6 - 10	2.50%	2.5%	5.00%
11 - 15	2.00%	2.5%	4.50%
16 - 20	1.75%	2.5%	4.25%
21+	1.25%	2.5%	3.75%

Demographic Assumptions

The ***mortality rates*** used in the valuation are based on the PUB-2010 Headcount Weighted Mortality Tables described below, with mortality improvements projected to all future years after 2010 using Scale MP-2018. No mortality improvements are projected for disabled lives:

	Pre-Retirement PUB-2010 Table	Post-Retirement PUB-2010 Table
Female Healthy	Headcount Weighted General Below Median Employee Female Table	Headcount Weighted General Below Median Healthy Retiree Female Table
Male Healthy	Headcount Weighted General Below Median Employee Male Table, set back 1 year	Headcount Weighted General Below Median Healthy Retiree Male Table, set back 1 year
Female Disabled	N/A	Headcount Weighted General Disabled Retiree Female Table, set forward 3 years
Male Disabled	N/A	Headcount Weighted General Disabled Retiree Male Table, set forward 3 years

These are the same rates as used by the Florida Retirement System (FRS) in their July 1, 2019 Actuarial Valuation Report for Regular Class Members (other than K-12 School Instructional Personnel). Florida Statutes Chapter 112.63(1)(f) mandates the use of the same mortality tables from either of the two most recently published actuarial valuation reports of FRS.

The following table presents post-retirement mortality rates and life expectancies at illustrative ages. These assumptions are used to measure the probabilities of each benefit payment being made after retirement:

FRS Healthy Post-Retirement Mortality for Regular Class Members

Sample Attained Ages (in 2019)	Probability of Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	0.19 %	0.58 %	32.93	36.77
55	0.98	0.58	28.57	32.33
60	1.15	0.60	24.50	27.81
65	1.30	0.69	20.48	23.25
70	1.81	1.10	16.49	18.78
75	2.90	1.92	12.79	14.60
80	4.91	3.47	9.52	10.87

The following table presents pre-retirement mortality rates and life expectancies at illustrative ages. These assumptions are used to measure the probabilities of active members dying prior to retirement (25% of deaths are assumed to be service-connected).

FRS Healthy Pre-Retirement Mortality for Regular Class Members

Sample Attained Ages (in 2019)	Probability of Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	0.19 %	0.11 %	37.55	40.11
55	0.30	0.18	32.54	34.99
60	0.47	0.26	27.70	29.98
65	0.65	0.37	23.04	25.06
70	0.90	0.57	18.50	20.24
75	1.37	0.95	14.07	15.56
80	2.17	1.60	9.78	11.07

The following table presents disabled post-retirement mortality rates and life expectancies at illustrative ages:

FRS Disabled Mortality for Regular Class Members

Sample Attained Ages (in 2019)	Probability of Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	2.02 %	1.64 %	20.99	23.92
55	2.53	1.91	18.18	20.88
60	3.08	2.27	15.50	17.88
65	3.93	2.83	12.94	14.91
70	5.08	3.79	10.53	12.07
75	6.98	5.46	8.29	9.45
80	10.12	8.31	6.33	7.19

The rates of retirement used to measure the probability of eligible members retiring during the next year are shown in the table below.

Normal Retirement Rates

Years of Service	Age	Assumed Rate of
5-9	50-54	5.0 %
	55-59	7.0
	60-64	10.0
	65-69	20.0
	70-74	50.0
	75+	100.0
10-14	50-54	5.0
	55-59	10.0
	60-64	20.0
	65-69	20.0
	70-74	50.0
	75+	100.0
15-19	50-54	20.0
	55-59	15.0
	60-64	20.0
	65-69	25.0
	70-74	50.0
	75+	100.0
20-24	50-54	30.0
	55-59	30.0
	60-64	25.0
	65-69	50.0
	70-74	50.0
	75+	100.0
25-29	50-54	70.0
	55-59	60.0
	60-64	50.0
	65-69	50.0
	70-74	50.0
	75+	100.0
30+	50-54	100.0
	55-59	100.0
	60-64	100.0
	65-69	100.0
	70-74	100.0
	75+	100.0

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

It is assumed that 80% of retirees will enter the DROP and those that do will remain in the DROP for 5 years. For this reason, we assume the COLA will be delayed 4 years from retirement.

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

Sample Ages	Years of Service	% of Active Members Separating Within Next Year
ALL	0	12.50 %
	1	12.00
	2	10.00
	3	8.50
	4	6.00
20	5 & Over	6.75
25		6.75
30		4.75
35		4.75
40		3.25
45		2.50
50		2.50
55		2.50

Rates of disability among active members are shown in the table below (50% of disabilities are assumed to be service connected).

Sample Ages	% Becoming Disabled Within Next Year
25	0.03 %
30	0.03
35	0.05
40	0.07
45	0.11
50	0.17
55	0.23
60	0.37
65	0.56

Changes Since Previous Valuation

- The investment return assumption was lowered from 7.5% to 7.4%.
- The mortality tables were updated to the mortality tables for Regular Class Members of the Florida Retirement System (FRS) used in the July 1, 2019 actuarial valuation, in compliance with Chapter 112.63 of the Florida Statutes, which requires use of the same mortality tables from either of the two most recently published actuarial valuation reports of the Florida Retirement System (FRS).
- Effective October 1, 2019, the period over which changes to the Unfunded Actuarial Accrued Liability (UAAL) was reduced from 30 years to 29 years.

Miscellaneous and Technical Assumptions

Administrative & Investment Expenses	The investment return assumption is intended to be the return net of investment expenses. Annual administrative expenses are assumed to be the average of non-investment related expenses averaged over the last two years. Assumed administrative expenses are added to the Normal Cost.
Benefit Service	Service rounded to the nearest month is used to determine the amount of benefit payable.
Decrement Operation	Disability and mortality decrements operate during retirement eligibility.
Decrement Timing	Decrements of all types are assumed to occur at the beginning of the year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Forfeitures	For vested separations from service, it is assumed that 0% of members separating will withdraw their contributions and forfeit an employer financed benefit. It was further assumed that the liability at termination is the greater of the vested deferred benefit (if any) or the member's accumulated contributions.
Incidence of Contributions	Employer contributions are assumed to be made in full on the first day of the fiscal year. Member contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
Marriage Assumption	85% of males and 85% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Normal Form of Benefit	50% joint and survivor annuity; life annuity for members hired after September 30, 2010.
Pay Increase Timing	Middle of fiscal year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Cost of Living Increase	2.5% per year for Tier A and Tier B members; 1.5% per year for Tier C members. Increases are assumed to begin 4 years after retirement. This assumption reflects the COLA delay for DROP members.
Maximum Benefits	The maximum accrued benefit payable as a life annuity reflects the 415(b) limit ($225,000 for 2019 for ages 62 through 65). The limitation is projected to increase by 3% per year and is adjusted for other commencement ages based on IRS regulations.

GLOSSARY

Actuarial Accrued Liability (AAL)	The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.
Actuarial Assumptions	Assumptions about future plan experience that affect costs or liabilities, such as: mortality, withdrawal, disablement, and retirement; future increases in salary; future rates of investment earnings; future investment and administrative expenses; characteristics of members not specified in the data, such as marital status; characteristics of future members; future elections made by members; and other items.
Actuarial Cost Method	A procedure for allocating the Actuarial Present Value of Future Benefits between the Actuarial Present Value of Future Normal Costs and the Actuarial Accrued Liability.
Actuarial Equivalent	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV)	The amount of funds required to provide a payment or series of payments in the future. It is determined by discounting the future payments with an assumed interest rate and with the assumed probability each payment will be made.
Actuarial Present Value of Future Benefits (APVFB)	The Actuarial Present Value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB No. 67.
Actuarial Value of Assets	The value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined contribution (ADC).

Amortization Method	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the rate at which total covered payroll of all active members is assumed to increase.
Amortization Payment	That portion of the plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
Amortization Period	The period used in calculating the Amortization Payment.
Actuarially Determined Contribution (ADC)	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADC consists of the Employer Normal Cost and Amortization Payment.
Closed Amortization Period	A specific number of years that is reduced by one each year, and declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc.
Employer Normal Cost	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Equivalent Single Amortization Period	For plans that do not establish separate amortization bases (separate components of the UAAL), this is the same as the Amortization Period. For plans that do establish separate amortization bases, this is the period over which the UAAL would be amortized if all amortization bases were combined upon the current UAAL payment.
Experience Gain/Loss	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two actuarial valuations. To the extent that actual experience differs from that assumed, Unfunded Actuarial Accrued Liabilities emerge which may be larger or smaller than projected. Gains are due to favorable experience, e.g., the assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, losses are the result of unfavorable experience, i.e., actual results that produce Unfunded Actuarial Accrued Liabilities which are larger than projected.

Funded Ratio	The ratio of the Actuarial Value of Assets to the Actuarial Accrued Liability.
GASB	Governmental Accounting Standards Board.
GASB No. 67 and GASB No. 68	These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.
Normal Cost	The annual cost assigned, under the Actuarial Cost Method, to the current plan year.
Open Amortization Period	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.
Unfunded Actuarial Accrued Liability	The difference between the Actuarial Accrued Liability and Actuarial Value of Assets.
Valuation Date	The date as of which the Actuarial Present Value of Future Benefits are determined. The benefits expected to be paid in the future are discounted to this date.

SECTION C

PENSION FUND INFORMATION

STATEMENT OF PLAN ASSETS AT MARKET VALUE

Item	September 30 2019	September 30 2018
A. Cash and Cash Equivalents (Operating Cash)	$ -	$ -
B. Receivables		
1. Member Contributions	$ -	$ -
2. Employer Contributions	-	-
3. Investment Income and Other Receivables	-	-
4. Total Receivables	$ -	$ -
C. Investments		
1. Short Term Investments	$ 6,099,983	$ 6,202,975
2. Domestic Equities	252,685,391	247,364,914
3. International Equities	100,746,994	103,600,400
4. Domestic Fixed Income*	181,425,654	176,886,136
5. International Fixed Income	-	-
6. Real Estate	68,307,129	66,286,956
7. Infrastructure Investments	42,593,026	40,805,491
8. ICMA Account (for DROP)**	14,925,383	15,321,885
9. Total Investments	$ 666,783,560	$ 656,468,757
D. Liabilities		
1. Benefits	$ -	$ -
2. Prepaid Employer Contribution	-	-
3. Expenses	(283,941)	(261,146)
4. Other	-	-
5. Total Liabilities	$ (283,941)	$ (261,146)
E. Total Market Value of Assets Available for Benefits	$ 666,499,619	$ 656,207,611
F. Reserves		
1. DROP Accounts**	$ (14,925,383)	$ (15,321,885)
2. Total Reserves	$ (14,925,383)	$ (15,321,885)
G. Market Value Net of Reserves and Adjustments	$ 651,574,236	$ 640,885,726
H. Allocation of Investments		
1. Short Term Investments	0.91%	0.94%
2. Domestic Equities	37.90%	37.68%
3. International Equities	15.11%	15.78%
4. Domestic Fixed Income*	27.21%	26.95%
5. International Fixed Income	0.00%	0.00%
6. Real Estate	10.24%	10.10%
7. Infrastructure Investments	6.39%	6.22%
8. ICMA Account (for DROP)	2.24%	2.33%
9. Total Investments	100.00%	100.00%

* The breakdown of this amount between domestic and international fixed income was not provided.
** Includes outstanding loan balances.

RECONCILIATION OF PLAN ASSETS

Item	September 30 2019	September 30 2018
A. Market Value of Assets at Beginning of Year	$ 656,207,611	$ 616,624,226
B. Revenues and Expenditures		
1. Contributions		
a. Employee Contributions (Including Buybacks)	$ 8,512,207	$ 8,242,590
b. Employer Contributions	31,864,304	31,892,485
c. Other	-	-
d. Total	$ 40,376,511	$ 40,135,075
2. Investment Income		
a. Interest, Dividends, and Other Income	$ 9,323,051	$ 8,768,807
b. Net Realized and Unrealized Gains/(Losses)*	16,449,374	44,693,992
c. Investment Expenses	(2,443,544)	(2,176,906)
d. Net Investment Income	$ 23,328,881	$ 51,285,893
3. Benefits and Refunds		
a. Refunds	$ (1,571,361)	$ (1,381,297)
b. Regular Monthly Benefits	(45,210,015)	(43,233,281)
c. DROP Disbursements	(5,804,089)	(6,492,887)
d. Total	$ (52,585,465)	$ (51,107,465)
4. Administrative and Miscellaneous Expenses	$ (827,919)	$ (730,118)
C. Market Value of Assets at End of Year	$ 666,499,619	$ 656,207,611
D. Reserves		
1. DROP Accounts**	$ (14,925,383)	$ (15,321,885)
2. Total Reserves	$ (14,925,383)	$ (15,321,885)
E. Market Value Net of Reserves and Adjustments	$ 651,574,236	$ 640,885,726

* We were not provided with the breakdown of this amount between realized gains/(losses) and unrealized gains/(losses).

** Includes outstanding loan balances.

Reconciliation of DROP Accounts

Value at Beginning of Year	$	15,321,885
Adjustment to Beginning of Year		(15,566)
Payments Credited to Accounts		5,083,185
Investment Earnings Credited to Accounts		339,968
Withdrawals from Accounts*		(5,804,089)
Value at End of Year		14,925,383

*Reflects change in outstanding loan balance.

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

Valuation Date – September 30	2018	2019	2020	2021	2022	2023
A. Actuarial Value of Assets Beginning of Year	$ 599,512,641	$ 638,363,104				
B. Market Value End of Year	656,207,611	666,499,619				
C. Market Value Beginning of Year	616,624,226	656,207,611				
D. Non-Investment/Administrative Net Cash Flow	(11,702,508)	(13,036,873)				
E. Investment Income						
E1. Actual Market Total: B-C-D	51,285,893	23,328,881				
E2. Assumed Rate of Return	7.60%	7.50%	7.40%	7.40%	7.40%	7.40%
E3. Assumed Amount of Return	46,330,180	48,583,261				
E4. Amount Subject to Phase-In: E1–E3	4,955,713	(25,254,380)				
F. Phase-In Recognition of Investment Income						
F1. Current Year: 0.20 x E4	991,143	(5,050,876)				
F2. First Prior Year	5,428,708	991,143	$ (5,050,876)			
F3. Second Prior Year	3,074,565	5,428,708	991,143	$ (5,050,876)		
F4. Third Prior Year	(8,555,317)	3,074,565	5,428,708	991,143	$ (5,050,876)	
F5. Fourth Prior Year	3,283,692	(8,555,317)	3,074,565	5,428,708	991,143	$ (5,050,876)
F6. Total Phase-Ins	4,222,791	(4,111,777)	4,443,540	1,368,975	(4,059,733)	(5,050,876)
G. Actuarial Value of Assets End of Year						
G1. Preliminary Actuarial Value of Assets	$ 638,363,104	$ 669,797,715				
G2. Upper Corridor Limit: 120%*B	787,449,133	799,799,543				
G3. Lower Corridor Limit: 80%*B	524,966,089	533,199,695				
G4. Funding Value End of Year	638,363,104	669,797,715				
G5. Less: DROP Account Balances	15,321,885	14,925,383				
G6. Final Funding Value End of Year	623,041,219	654,872,332				
H. Difference between Market & Actuarial Value	$ 17,844,507	$ (3,298,096)				
I. Actuarial Rate of Return	8.29%	6.87%				
J. Market Value Rate of Return	8.18%	3.50%				
K. Ratio of Actuarial Value to Market Value	97.28%	100.49%				

INVESTMENT RATE OF RETURN

Year Ended	General Plan **		Unclassified Plan	
	Market Value	Actuarial Value	Market Value	Actuarial Value
9/30/89	NA %	11.6 %	14.6 %	14.6 %
9/30/90	NA	7.3	(2.3)	(2.3)
9/30/91	NA	8.1	21.6	21.6
9/30/92	12.2	13.7	5.8	5.8
9/30/93	14.6	11.4	14.6	14.1
9/30/94	1.4	6.8	5.3	4.8
9/30/95	20.0	11.4	25.9	24.1
9/30/96	9.8	15.3	22.7	13.9
9/30/97	23.0	13.8	35.2	19.1
9/30/98	8.4	12.5	(0.3)	4.3
9/30/99	13.1	14.4	19.1	18.8
9/30/00	10.8	10.7	11.5	16.5
9/30/01	(7.4)	7.2	(8.1)	9.7
9/30/02	(5.9)	0.3	(9.8)	1.7
9/30/03	17.4	4.3	16.9	4.6
9/30/04	11.4	4.1	13.0	9.7
9/30/05	12.8	4.4	13.8	10.7
9/30/06	7.4 *	7.7	7.5 *	10.2 *
9/30/07	15.3	12.0	NA	NA
9/30/08	(13.6)	5.2	NA	NA
9/30/09	(0.8)	1.1	NA	NA
9/30/10	11.3	5.0	NA	NA
9/30/11	(0.9)	1.1	NA	NA
9/30/12	20.5	2.1	NA	NA
9/30/13	13.0	7.4	NA	NA
9/30/14	11.1	9.9	NA	NA
9/30/15	(1.0)	7.7	NA	NA
9/30/16	10.8	9.6	NA	NA
9/30/17	12.5	9.0	NA	NA
9/30/18	8.2	8.3	NA	NA
9/30/19	3.5	6.9	NA	NA
Average Returns:				
Last 5 Years	6.7 %	8.3 %	NA %	NA %
Last 10 Years	8.7 %	6.7 %	NA %	NA %
All Years	8.2 %	8.0 %	10.9 %	11.0 %

* Note: Effective 10/1/06, the former General and Unclassified Plans were merged and assets were combined. Investment returns after this date are for the total group.

** Combined Plan after 2006

SECTION D

FINANCIAL ACCOUNTING INFORMATION

FASB NO. 35 INFORMATION		
A. Valuation Date	October 1, 2019	October 1, 2018
B. Actuarial Present Value of Accumulated Plan Benefits		
1. Vested Benefits		
a. Members Currently Receiving Payments	$ 616,699,152	$ 607,463,964
b. Terminated Vested Members	28,041,133	24,775,845
c. Other Members	184,725,355	177,630,178
d. Total	829,465,640	809,869,987
2. Non-Vested Benefits	21,099,967	20,471,866
3. Total Actuarial Present Value of Accumulated Plan Benefits: 1d + 2	850,565,607	830,341,853
4. Accumulated Contributions of Active Members	71,596,490	68,918,458
C. Changes in the Actuarial Present Value of Accumulated Plan Benefits		
1. Total Value at Beginning of Year	830,341,853	786,431,862
2. Increase (Decrease) During the Period Attributable to:		
a. Plan Amendment	0	0
b. Change in Actuarial Assumptions	(6,195,943)	10,804,026
c. Latest Member Data, Benefits Accumulated and Decrease in the Discount Period	78,284,258	82,434,970
d. Benefits Paid (Net Basis)	(51,864,561)	(49,329,005)
e. Net Increase	20,223,754	43,909,991
3. Total Value at End of Period	850,565,607	830,341,853
D. Market Value of Assets	651,574,236	640,885,726
E. Actuarial Assumptions - See page entitled Actuarial Assumptions and Methods		

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

Fiscal year ending September 30,	2020*	2019	2018	2017	2016	2015	2014
Total Pension Liability							
Service Cost	$ 15,577,246	$ 16,171,537	$ 15,232,372	$ 13,720,496	$ 12,906,811	$ 11,795,411	$ 12,306,795
Interest	67,108,298	65,045,122	63,015,047	57,800,541	56,164,518	53,832,182	51,809,378
Benefit Changes	-	-	-	-	-	(1,277,929)	-
Difference between actual & expected experience	(3,398,414)	1,117,690	18,961	(4,242,257)	(2,210,692)	5,603,144	(278,357)
Assumption Changes	(8,618,213)	10,022,465	4,771,684	52,573,659	11,676,037	11,026,357	-
Benefit Payments	(52,436,174)	(51,014,104)	(49,726,168)	(44,576,144)	(41,900,843)	(35,874,016)	(37,501,400)
Refunds	(662,540)	(1,571,361)	(1,381,297)	(905,574)	(948,535)	(941,310)	(1,143,866)
Other (Change in Receivable from Excess Benefit Plan)	-	-	-	-	-	311,076	311,077
Net Change in Total Pension Liability	17,570,203	39,771,349	31,930,599	74,370,721	35,687,296	44,474,915	25,503,627
Total Pension Liability - Beginning	905,749,411	865,978,062	834,047,463	759,676,742	723,989,446	679,514,531	654,010,904
Total Pension Liability - Ending (a)	$ 923,319,614	$ 905,749,411	$ 865,978,062	$ 834,047,463	$ 759,676,742	$ 723,989,446	$ 679,514,531
Plan Fiduciary Net Position							
Contributions - Employer	$ 31,475,030	$ 31,864,304	$ 31,892,485	$ 29,358,098	$ 27,783,852	$ 26,456,580	$ 25,602,030
Contributions - Non-Employer Contributing Entity	-	-	-	-	-	-	-
Contributions - Member (includes buybacks)	8,629,083	8,512,207	8,242,590	7,871,072	7,341,533	7,310,183	7,373,407
Net Investment Income	49,975,924	23,328,881	51,285,893	70,646,599	55,818,905	(5,048,406)	51,773,646
Benefit Payments	(52,436,174)	(51,014,104)	(49,726,168)	(44,576,144)	(41,900,843)	(35,874,016)	(37,501,400)
Refunds	(662,540)	(1,571,361)	(1,381,297)	(905,574)	(948,535)	(941,310)	(1,143,866)
Administrative Expense	(779,019)	(827,919)	(730,118)	(703,539)	(677,509)	(706,283)	(668,851)
Other (Adjustment)	-	-	-	(68,222)	-	-	-
Net Change in Plan Fiduciary Net Position	36,202,304	10,292,008	39,583,385	61,622,290	47,417,403	(8,803,252)	45,434,966
Plan Fiduciary Net Position - Beginning	666,499,619	656,207,611	616,624,226	555,001,936	507,584,533	516,387,785	470,952,819
Plan Fiduciary Net Position - Ending (b)	$ 702,701,923	$ 666,499,619	$ 656,207,611	$ 616,624,226	$ 555,001,936	$ 507,584,533	$ 516,387,785
Net Pension Liability - Ending (a) - (b)	220,617,691	239,249,792	209,770,451	217,423,237	204,674,806	216,404,913	163,126,746
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	76.11 %	73.59 %	75.78 %	73.93 %	73.06 %	70.11 %	75.99 %
Covered Payroll	$ 88,141,166	$ 84,980,438	$ 79,797,583	$ 77,013,213	$ 71,863,150	$ 82,359,302	$ 76,362,960
Net Pension Liability as a Percentage of Covered Payroll	250.30 %	281.54 %	262.88 %	282.32 %	284.81 %	262.76 %	213.62 %

Note: Covered Payroll for the fiscal years ending on or after September 30, 2016 was estimated using the expected pensionable payroll from the Actuarial Valuation as of October 1 of the preceding year.

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

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

FY Ending September 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2014	$ 679,514,531	$ 516,387,785	$ 163,126,746	75.99%	$ 76,362,960	213.62%
2015	723,989,446	507,584,533	216,404,913	70.11%	82,359,302	262.76%
2016	759,676,742	555,001,936	204,674,806	73.06%	71,863,150	284.81%
2017	834,047,463	616,624,226	217,423,237	73.93%	77,013,213	282.32%
2018	865,978,062	656,207,611	209,770,451	75.78%	79,797,583	262.88%
2019	905,749,411	666,499,619	239,249,792	73.59%	84,980,438	281.54%
2020*	923,319,614	702,701,923	220,617,691	76.11%	88,141,166	250.30%

Note: Covered Payroll for the fiscal years ending on or after September 30, 2016 was estimated using the expected pensionable payroll from the Actuarial Valuation as of October 1 of the preceding year.

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

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

Valuation Date:	October 1, 2019
Measurement Date:	September 30, 2020

Methods and Assumptions Used to Determine Net Pension Liability:

Actuarial Cost Method	Entry Age Normal
Inflation	2.5%
Salary Increases	3.75% to 6.10% depending on service, including inflation
Investment Rate of Return	7.40%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition
Mortality	- Pre-retirement (Healthy) - PUB-2010 Headcount Weighted General Below Median Employee Male and Female Tables, with a 1-year setback for males - Post-Retirement (Healthy) - PUB-2010 Headcount Weighted General Below Median Healthy Retiree Male and Female Tables, with a 1-year setback for males - Post-Retirement (Disabled) - PUB-2010 Headcount Weighted General Disabled Retiree Male and Female Tables with a 3-year set-forward for both males and females Mortality improvements for healthy members are projected to all future years after 2010 using Scale MP-2018. There is no provision for mortality improvments for disabled members. These are the same tables used for Regular Class Members (other than K-12 School Instructional Personnel) of the Florida Retirement System (FRS) in the July 1, 2019 actuarial valuation, in compliance with Florida Statutes, which requires use of the same mortality tables from either of the most recently published actuarial valuation reports of FRS.

Other Information:

Notes	See Discussion of Valuation Results on page 1.

SCHEDULE OF CONTRIBUTIONS
GASB Statement No. 67

FY Ending September 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2014	$ 25,602,030	$ 25,602,030	$ -	$ 76,362,960	33.53%
2015	26,317,983	26,456,580	(138,597)	82,359,302	32.12%
2016	27,783,852	27,783,852	-	71,863,150	38.66%
2017	29,358,098	29,358,098	-	77,013,213	38.12%
2018	31,892,485	31,892,485	-	79,797,583	39.97%
2019	31,864,304	31,864,304	-	84,980,438	37.50%
2020*	31,475,030	31,475,030	-	88,141,166	35.71%

Note: Covered Payroll for the fiscal years ending on or after September 30, 2016 was estimated using the expected pensionable payroll from the Actuarial Valuation as of October 1 of the preceding year.

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

NOTES TO SCHEDULE OF CONTRIBUTIONS
GASB Statement No. 67

Valuation Date:	October 1, 2018
Notes	Actuarially determined contributions are calculated as of October 1, which is two years prior to the end of the fiscal year in which contributions are reported.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Dollar, Closed
Remaining Amortization Period	30 years
Asset Valuation Method	5-year smoothed market
Inflation	2.5%
Salary Increases	3.75% to 6.10% depending on service, including inflation
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	The healthy post-retirement mortality table is the RP-2000 Mortality Table for annuitants with future improvements in mortality projected to all future years using Scale BB. For females, the base mortality rates include a 100% white collar adjustment. For males, the base mortality rates include a 50% blue collar adjustment and a 50% white collar adjustment. The pre-retirement mortality table is the RP-2000 Combined Healthy Participant Mortality Table with the same white and blue collar adjustments and the same mortality improvement projection scales. For disabled retirees, the mortality table is the RP-2000 Mortality Table for disabled annuitants, set-back 4 years for males and set-forward 2 years for females, with no provision made for future mortality improvements. These are the same rates used for Regular Class members of the Florida Retirement System (FRS) in their Actuarial Valuation as of July 1, 2017.

Other Information:

Notes	See Discussion of Valuation Results in the October 1, 2018 and the October 1, 2019 Actuarial Valuation Reports; effective as of October 1, 2019 the investment return assumption was lowered from 7.5% to 7.4% and the mortality table was updated.

SINGLE DISCOUNT RATE
GASB Statement No. 67

A single discount rate of 7.4% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.4%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between the total actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments (7.4%) was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the plan's net pension liability, calculated using a single discount rate of 7.4%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

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

1% Decrease 6.40%	Current Single Discount Rate Assumption 7.40%	1% Increase 8.40%
$331,718,176	$220,617,691	$128,467,597

*** These figures are estimates projected to September 30, 2020. Actual figures will be provided after the end of the fiscal year.**

SECTION E

MISCELLANEOUS INFORMATION

RECONCILIATION OF MEMBERSHIP DATA		
	From 10/1/17 To 10/1/18	From 10/1/17 To 10/1/18
A. Active Members		
1. Number Included in Last Valuation	1,231	1,175
2. New Members and Rehires	146	167
3. Employment Terminations and Transfers Out	(87)	(70)
4. Service Retirements	(9)	(13)
5. DROP Retirements	(23)	(28)
6. Disability Retirements	0	0
7. Deaths	(1)	0
8. Other - Data Adjustments	(3)	0
9. Number Included in This Valuation	1,254	1,231
B. Terminated Vested Members		
1. Number Included in Last Valuation	96	90
2. Additions from Active Members	21	20
3. Lump Sum Payments/Refund of Contributions	(6)	(5)
4. Payments Commenced	(3)	(9)
5. Deaths	0	0
6. Other - Data Adjustments/Rehires	(4)	0
7. Number Included in This Valuation	104	96
C. DROP Plan Members		
1. Number Included in Last Valuation	99	105
2. Additions from Active Members	23	28
3. Retirements	(17)	(34)
4. Deaths	(1)	0
5. Other	0	0
6. Number Included in This Valuation	104	99
D. Service Retirees, Disability Retirees and Beneficiaries		
1. Number Included in Last Valuation	1,093	1,065
2. Additions from Active Members	9	13
3. Additions from Terminated Vested Members	3	9
4. Additions from DROP Plan	17	34
5. Deaths Resulting in No Further Payments	(37)	(28)
6. Deaths Resulting in New Survivor Benefits	1	0
7. End of Certain Period - No Further Payments	0	0
8. Other - Data Adjustments	0	0
9. Number Included in This Valuation	1,086	1,093

ACTIVE MEMBERS ON OCTOBER 1, 2019

Age Group	Years of Service 0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	Totals
15-19								
Total Pay								
Avg Pay								
20-24	15							15
Total Pay	646,350							646,350
Avg Pay	43,090							43,090
25-29	97	1						98
Total Pay	4,899,333	61,152						4,960,485
Avg Pay	50,509	61,152						50,617
30-34	132	34	17					183
Total Pay	7,580,336	2,435,245	865,700					10,881,281
Avg Pay	57,427	71,625	50,924					59,461
35-39	84	31	52	11				178
Total Pay	4,967,536	2,079,931	3,166,380	670,904				10,884,751
Avg Pay	59,137	67,095	60,892	60,991				61,150
40-44	67	23	42	24	9			165
Total Pay	4,108,182	1,638,730	2,760,976	1,746,380	705,193			10,959,461
Avg Pay	61,316	71,249	65,738	72,766	78,355			66,421
45-49	70	20	38	40	23	6		197
Total Pay	4,530,720	1,917,215	2,529,819	3,074,595	1,913,880	533,181		14,499,410
Avg Pay	64,725	95,861	66,574	76,865	83,212	88,864		73,601
50-54	56	17	28	37	29	10	1	178
Total Pay	3,716,005	1,716,796	1,777,142	3,093,810	2,364,298	1,113,435	74,407	13,855,893
Avg Pay	66,357	100,988	63,469	83,616	81,528	111,344	74,407	77,842
55-59	45	28	23	31	23	7		157
Total Pay	3,264,354	3,491,804	1,517,243	2,297,111	1,814,435	582,802		12,967,749
Avg Pay	72,541	124,707	65,967	74,100	78,888	83,257		82,597
60-64	24	8	6	10	5	2		55
Total Pay	1,831,334	707,656	354,770	614,033	462,717	160,734		4,131,244
Avg Pay	76,306	88,457	59,128	61,403	92,543	80,367		75,114
65-99	11	3	4	5	4		1	28
Total Pay	776,277	257,647	212,125	579,151	268,468		72,675	2,166,343
Avg Pay	70,571	85,882	53,031	115,830	67,117		72,675	77,369
Total No.	601	165	210	158	93	25	2	1,254
Total Pay	36,320,427	14,306,176	13,184,155	12,075,984	7,528,991	2,390,152	147,082	85,952,967
Avg Pay	60,433	86,704	62,782	76,430	80,957	95,606	73,541	68,543

INACTIVE MEMBERS ON OCTOBER 1, 2019

	Terminated Vested		Disabled		Retirees, Beneficiaries & DROP		Grand Total	
Age	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	43	$ 766,760	0	$ -	5	55,109	48	$ 821,869
45-49	24	632,106	1	25,900	4	101,359	29	759,365
50-54	34	1,274,229	3	57,185	27	1,383,076	64	2,714,490
55-59	3	47,940	7	226,586	184	8,820,328	194	9,094,854
60-64	0	-	4	156,434	181	9,283,173	185	9,439,607
65-69	0	-	6	172,004	216	9,601,850	222	9,773,854
70-74	0	-	5	230,858	185	8,764,740	190	8,995,598
75-79	0	-	1	44,183	122	4,918,492	123	4,962,675
80-84	0	-	1	9,385	105	3,370,912	106	3,380,297
85-89	0	-	0	-	79	2,365,931	79	2,365,931
90 & Up	0	-	1	12,359	53	1,245,275	54	1,257,634
Total	**104**	**$ 2,721,035**	**29**	**$ 934,894**	**1,161**	**$ 49,910,245**	**1,294**	**$ 53,566,174**

SECTION F

SUMMARY OF PLAN PROVISIONS

SUMMARY OF PLAN PROVISIONS

Effective Date

September 30, 2010 under Ordinance No. 2010-3693 and Ordinance No. 2010-3706. Most recent amendments were Ordinance No. 2015-3946 effective June 10, 2015 and Ordinance No. 2014-3864 effective May 21, 2014.

Eligibility

Each general employee who works more than 30 hours per week is eligible for membership on his date of employment

Creditable Service

Service credited under the predecessor system plus service after such date with respect to which member contributions are made.

Tiers of Employees

Tier C – All members hired on or after September 30, 2010 (October 27, 2010 for members of CWA)
Tier B – Members of AFSCME hired on or after April 30, 1993; members classified as GSA or "Other" hired on or after August 1, 1993; members of CWA hired on or after February 21, 1994; and Unclassified members hired on or after October 18, 1992.
Tier A – All other members

Earnings

For Tier B and C members, base pay including longevity, but excluding overtime, shift differential or extra compensation allowances. For Tier A members, actual salary or wages received. Earnings do not include lump sum payments of unused sick or vacation time. Overtime pay for Classified Tier A members is limited to 10% of regular pay.

Final Average Monthly Earnings (FAME)

One-twelfth of average annual Earnings during the two highest paid years of Creditable Service, not less than the average monthly earnings for the 12 months as of March 8, 2006 for Unclassified Tier A members

Effective September 30, 2010 averaging period is five years except for members who are less than five years away from normal retirement eligibility. Members who are eligible for normal retirement within two years or less as of September 30, 2010 will have average earnings of two years. Members who are eligible for normal retirement in within three years as of September 30, 2010 will have average earnings of three years. Members who are eligible for normal retirement within four years as of September 30, 2010 will have average earnings of four years.

Normal Retirement

Eligibility	Age 50 and five years of Creditable Service for those in Tier A Age 55 and five years of Creditable Service for those in Tier B Age 55 with 30 years of service or age 62 with 5 years of service for those in Tier C
Benefit	3% of FAME multiplied years of Creditable Service with the total not to exceed 80% of FAME. There is a 90% cap for certain Tier A members. 2.5% of FAME multiplied years of Creditable Service with the total not to exceed 80% of FAME for Tier C members.
Form of Benefit	50% joint and survivor annuity payable only to the spouse or, if no spouse, to the surviving children until age 21; other options are also available. Spouse's benefits cease upon remarriage. Life annuity for Tier C members
COLA	2.5% for Tier A and Tier B members; 1.5% for Tier C members

Early Retirement

Eligibility	Tier B members of the General Plan whose total of age plus service is 75, not earlier than age 50 Tier C members whose total of age plus service is 75, not earlier than age 55
Benefit	Accrued pension actuarially reduced for number of years by which Early Retirement Date precedes Normal Retirement Date.
Form of Benefit	50% joint and survivor annuity payable only to the spouse or, if no spouse, to the surviving children until age 21; other options are also available. Spouse's benefits cease upon remarriage. Life annuity for Tier C members
COLA	2.5% for Tier A and Tier B members; 1.5% for Tier C members

Delayed Retirement

Eligibility	Any time after the Normal Retirement Date.
Benefit	Calculated in the same manner as the Normal Retirement Benefit but using the FAME and Creditable Service as of the actual retirement date.

Form of Benefit	50% joint and survivor annuity payable only to the spouse or, if no spouse, to the surviving children until age 21; other options are also available. Spouse's benefits cease upon remarriage. Life annuity for Tier C members
COLA	2.5% for Tier A and Tier B members; 1.5% for Tier C members

Disability Benefits

Eligibility	A total and permanent disability which renders a member incapacitated for the further performance of duty. Five years of Creditable Service is also required unless the disability is service-connected.
Benefit	Ordinary Disability: Accrued retirement benefit, without reduction, with a minimum of 35% of FAME. Service-Connected Disability: Accrued retirement benefit without reduction, with a minimum of 65% of FAME; 75% of FAME minimum for General Tier A members. Such amounts are reduced by workers' compensation benefits and, in certain cases, earned income will be considered in offsetting the benefit. The period of disability shall be included in Creditable Service for purposes of computing normal retirement benefits when a disability retiree reaches normal retirement age.
Form of Benefit	50% joint and survivor annuity payable only to the spouse or, if no spouse, to the surviving children until age 21; other options are also available. Spouse's benefits cease upon remarriage. Life annuity for Tier C members
COLA	2.5% for Tier A and Tier B members; 1.5% for Tier C members

Preretirement Death Benefits

For a member who has at least three years of Creditable Service but who dies before commencement of retirement benefits, a monthly benefit is payable to the spouse or, if no spouse, to the children until age 21. The benefit is equal to 50% of the accrued normal retirement benefit without reduction with the result being a minimum of 30% of FAME and a maximum of 40% of FAME for General members.

Termination Benefits

Any member who terminates employment and does not request a refund of his own contributions and has completed at least five years of Creditable Service will be eligible to receive his accrued benefit upon reaching his normal retirement age.

Contributions

Tier A Members	12% of Earnings.
Tier B and Tier C Members	10% of Earnings. Employees who have reached the applicable benefit accrual cap (90% for General Tier A employees and 80% for all others) but have not yet reached retirement age will continue to contribute to the pension Plan, but only on the amount by which pay increases after reaching the cap
From the City	The amount necessary to fund the Plan properly according to the Plan's actuary.

Deferred Retirement Option Plan (DROP)

Eligibility	Members who are eligible for Normal Retirement
Benefit	The member's Credited Service and AFC are frozen upon entry into the DROP. The monthly retirement benefit as described under Normal Retirement is calculated based upon the frozen Credited Service and AFC.
Maximum DROP Period	60 months
Interest Credited	The investment return is determined by the self-directed investments.
Normal Form of Benefit	Lump Sum
COLA	None

Changes Since Last Valuation

There have been no changes since the last valuation.