



July 26, 2019

Ms. Patti McLauchlin
Administrator, City of Key West
Employees' Retirement Plan
City of Key West
1300 White Street
Key West, Florida 33040

**Re: Retirement Plan for Employees of the City of Key West
October 1, 2018 Actuarial Valuation**

Dear Patti:

As requested, we are pleased to enclose ten (10) copies of the October 1, 2018 Actuarial Valuation Report for the Retirement Plan for Employees of the City of Key West.

We appreciate the opportunity to work with the Board on this important project and look forward to presenting the key financial results of our Actuarial Valuation Report at the September 13th Board Meeting.

Upon Board approval of the Actuarial Valuation Report, we will upload an electronic copy of the Actuarial Valuation Report along with the required disclosure information to the State portal as required by the State.

If you should have any questions concerning the above, please do not hesitate to contact us.

Sincerest regards,

A handwritten signature in black ink that reads "Michelle Jones". The signature is written in a cursive, flowing style.

Shelly L. Jones, A.S.A.
Consultant and Actuary

Enclosures

Retirement Plan for Employees of the City of Key West

Actuarial Valuation as of October 1, 2018

This Valuation Determines the Annual Contribution for Plan Year October 1, 2019 through September 30, 2020 to Be Paid in Fiscal Year October 1, 2019 to September 30, 2020



Retirement Plan for Employees of the City of Key West

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July 26, 2019

General Employees' Pension Board
c/o Ms. Patti McLaughlin
Administrator, City of Key West
Employees' Retirement Plan
City of Key West
1300 White Street
Key West, Florida 33040

Dear Board Members:

October 1, 2018 Actuarial Valuation

We are pleased to present our October 1, 2018 Actuarial Valuation for the Retirement Plan for Employees of the City of Key West (Plan). The purpose of this report is to indicate appropriate contribution levels, comment on the actuarial stability of the Plan and to satisfy State requirements. The Board has retained Gabriel, Roeder, Smith & Company (GRS) to prepare an annual actuarial valuation under Section 46.72(a) of the Plan. This report is prepared for and at the request of the Pension Board.

This report consists of this commentary, detailed Tables I through XVI, the State Required Exhibit on Table XVII and Glossary on Table XVIII. The Tables contain basic Plan cost figures plus significant details on the benefits, liabilities and experience of the Plan. We suggest that you thoroughly review the report at your convenience and contact us with any questions that may arise.

Retirement Plan Costs

Our Actuarial Valuation develops the required minimum Retirement Plan payment under the Florida Protection of Public Employee Retirement Benefits Act. The minimum payment consists of payment of the annual normal costs including expenses and amortization of the components of the unfunded actuarial accrued liability over various periods as prescribed by law. **The minimum payment for fiscal year ending September 30, 2020 is \$1,916,883 (14.8%).** The figure in parentheses is the Plan cost expressed as a percentage of projected covered annual payroll for fiscal year ending September 30, 2020 (\$12,951,913).

This total cost is to be met by member and City contributions. We anticipate member contributions will be **\$777,115 (6.0%)**. The resulting minimum required City contribution is **\$1,139,768 (8.8%)**.

Changes in Actuarial Assumptions, Methods and Plan Benefits

Plan benefits remain unchanged from the previous valuation. Plan benefits are summarized on Table VIII.

Investment return, salary increase factors, rates of withdrawal and rates of retirement are updated based on the results of our Experience Study for the five years ended September 30, 2017. The remaining actuarial assumptions and methods are unchanged from the actuarial assumptions and methods used in the previous Actuarial Valuation and are outlined on Table IX.

Comparison of October 1, 2017 and October 1, 2018 Valuation Results

Table II of our report provides information of a comparative nature. The left columns of the Table indicate the costs as calculated for October 1, 2017. The center columns indicate the costs as calculated for October 1, 2018, prior to the update in actuarial assumptions. The right columns indicate the costs as of October 1, 2018, after the update in actuarial assumptions.

Comparing the left and center columns of Table II shows the effect of Plan experience during the year. The number of active participants remains the same while covered payroll decreased by approximately 2%. Total Plan membership increased by approximately 3%. Total normal cost decreased as a dollar amount but increased as a percentage of covered payroll. The net City minimum funding requirement and unfunded actuarial accrued liability decreased both as a dollar amount and as a percentage of covered payroll.

Comparing the center and right columns of Table II shows the effect of the update of actuarial assumptions. Normal cost, unfunded actuarial accrued liability and the City minimum funding requirement all increased as a dollar amount and as a percentage of covered payroll.

Your Plan continues to have assets in excess of the value of vested accrued benefits, resulting in a Vested Benefit Security Ratio of 122.4% (123.1% prior to assumption change), which is an increase from 119.9% as of October 1, 2017. The Vested Benefit Security Ratio is measured on a market value of assets basis.

Plan Experience

Table VI indicates that the Plan experienced an actuarial gain of \$1,784,644. This suggests actual overall Plan experience was more favorable than expected.

Table XIV (salary, turnover and investment yield) provides figures on recent Plan experience. The salary experience indicates actual salary increases this year averaged approximately 2.3%. Salary experience was generally a source of actuarial gain when compared to the assumed 4.4% average annual increase. Three, five and ten-year average salary increases are 4.7%, 5.6% and 3.7%, respectively.

Employee turnover this year was 120% of the assumed and was generally an additional source of actuarial gain. Three, five and ten-year turnover has averaged 100%, 100% and 100% of assumed turnover, respectively.

Smoothed actuarial value investment return of 8.4% exceeded the investment return assumption of 7.5% (prior assumption). Smoothed investment return was an additional source of actuarial gain during the previous year. Three, five and ten-year average annual smoothed actuarial value investment returns are 8.5%, 8.5% and 6.9%, respectively. One, three, five and ten-year average market value returns are 9.7%, 9.9%, 8.1% and 8.4%, respectively.

Member Census and Financial Data

The Board submitted the Member census data as of October 1, 2018 used for this Actuarial Valuation to us. This information contains name, Social Security number, date of birth, date of hire, October 1, 2018 rate of pay, actual salary paid and Member contributions for the previous year. Dates of termination and retirement are provided where applicable. The Board updated information on inactive Members including retirees, beneficiaries and vested terminees.

We received financial information concerning Plan assets as of September 30, 2018 from the Comprehensive Annual Financial Report (CAFR). We do not audit the Member census data and asset information that is provided to us; however, we perform certain reasonableness checks. The Plan is responsible for the accuracy of the data.

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

The actuarially determined contribution rate shown on page one may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the Plan.

Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Plan Maturity Measures

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

	<u>2017</u>	<u>2018</u>
Ratio of the market value of assets to payroll	4.13	4.49
Ratio of actuarial accrued liability to payroll	4.05	4.33
Ratio of actives to retirees and beneficiaries	1.71	1.62
Ratio of net cash flow to market value of assets	-3.4%	-2.8%
Duration of the actuarial accrued liability	11.52	11.47

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of the actuarially determined 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 the actuarially determined 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 the actuarially determined 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 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 the actuarially determined 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.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, a duration of 10 indicates the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

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.

Summary

In our opinion the benefits provided for under the current Plan will be sufficiently funded through the payment of the amount as indicated in the current and future Actuarial Valuation reports. We will continue to update you on the future payment requirements for the Plan through our actuarial reports. These reports will also continue to monitor the future experience of the Plan.

The actuarial assumptions used in this Actuarial Valuation are as adopted by the Board of Trustees. The economic and demographic actuarial assumptions are based upon the results of an Actuarial Experience Study for the period October 1, 2012 – September 30, 2017. The mortality assumptions are prescribed by statute. Each assumption represents an estimate of future Plan experience.

If all actuarial assumptions are met and if all future minimum required contributions are paid, Plan assets will be sufficient to pay all Plan benefits, future contributions are expected to remain relatively stable as a percentage of payroll and the funded status of the plan is expected to approach 100%. Plan minimum required contributions are determined in compliance with the requirements of the Florida Protection of Public Employee Retirement Benefits Act with normal cost determined as a level percent of covered payroll and a level percent amortization payment of the unfunded actuarial accrued liability using an initial amortization period of 20 years.

The Unfunded Actuarial Accrued Liability (UAAL) may not be appropriate for assessing the sufficiency of Plan assets to meet the estimated cost of settling benefit obligations but may be appropriate for assessing the need for or the amount of future contributions. The UAAL would be different if it reflected the market value of assets rather than the actuarial value of assets.

The Unfunded Actuarial Present Value of Vested Accrued Benefits and the corresponding Vested Benefit Security Ratio may be appropriate for assessing the sufficiency of Plan assets to meet the estimated cost of settling benefit obligations but may not be appropriate for assessing the need for or the amount of future contributions. The Unfunded Actuarial Present Value of Vested Accrued Benefits and the corresponding Vested Benefit Security Ratio are based upon the market value of assets.

The GASB Net Pension Liability and Plan Fiduciary Net Position as a Percentage of Total Pension Liability may not be appropriate for assessing the sufficiency of Plan assets to meet the estimated cost of settling benefit obligations but may be appropriate for assessing the need for or the amount of future contributions. The GASB Net Pension Liability and Plan Fiduciary Net Position as a Percentage of Total Pension Liability are based upon the market value of assets.

This report should not be relied on for any purpose other than the purpose described in the primary communication. Determinations of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement plans. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the 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.

This report may be provided to parties other than the Board only in its entirety and only with the permission of an approved representative of the Board.

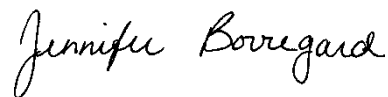
The signing actuaries are independent of the Plan sponsor.

The undersigned 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 in this report. We are available to respond to any questions with regards to matters covered in this report.

Very truly yours,



Shelly L. Jones, A.S.A., E.A., M.A.A.A, F.C.A.
Consultant and Actuary



Jennifer M. Borregard, E.A., M.A.A.A, F.C.A.
Consultant and Actuary



Nicolas Lahaye, F.S.A., E.A., M.A.A.A, F.C.A.
Consultant and Actuary

Summary of Retirement Plan Costs as of October 1, 2018

	Prior Assumptions		Current Assumptions	
	Cost Data	% of Payroll	Cost Data	% of Payroll
A. Participant Data Summary (Table III)				
1. Active Members	269	N/A	269	N/A
2. Terminated vested	8	N/A	8	N/A
3. Receiving benefits (including DROPs)	166	N/A	166	N/A
4. Annual payroll of active Members	\$ 12,760,505	100.0%	\$ 12,760,505	100.0%
B. Total Normal Costs				
1. Age retirement benefits	\$ 1,021,656	8.0%	\$ 1,277,456	10.0%
2. Termination benefits	278,823	2.2%	216,662	1.7%
3. Death benefits	39,213	0.3%	44,999	0.4%
4. Disability benefits	110,147	0.9%	113,681	0.9%
5. Assumed expenses	184,725	1.4%	184,725	1.4%
6. Total annual normal costs	\$ 1,634,564	12.8%	\$ 1,837,523	14.4%
C. Actuarial Accrued Liability				
1. Age retirement benefits active employees	\$ 20,252,067	158.7%	\$ 22,112,332	173.3%
2. Termination benefits active employees	1,076,399	8.4%	589,990	4.6%
3. Death benefits active employees	470,187	3.7%	572,288	4.5%
4. Disability benefits active employees	392,822	3.1%	404,397	3.2%
5. Retired or terminated vested participants receiving benefits (including DROPs)	29,150,990	228.4%	29,265,330	229.3%
6. Terminated vested participants entitled to future benefits	339,464	2.7%	342,784	2.7%
7. Deceased participants whose beneficiaries are receiving benefits	1,663,993	13.0%	1,670,715	13.1%
8. Disabled participants receiving benefits	22,649	0.2%	22,703	0.2%
9. Miscellaneous liability	254,801	2.0%	254,801	2.0%
10. Total actuarial accrued liability	\$ 53,623,372	420.2%	\$ 55,235,340	432.9%
D. Net Assets (Table V)				
1. Smoothed actuarial value	\$ 55,441,012	434.5%	\$ 55,441,012	434.5%
2. Market value	\$ 57,290,853	449.0%	\$ 57,290,853	449.0%
E. Unfunded Actuarial Accrued Liability (C.10. - D.1.)	\$ (1,817,640)	(14.2%)	\$ (205,672)	(1.6%)

Summary of Retirement Plan Costs as of October 1, 2018

	Prior Assumptions		Current Assumptions	
	Cost Data	% of Payroll	Cost Data	% of Payroll
F. Minimum Required Contribution				
1. Total Normal Cost	\$ 1,634,564	12.8%	\$ 1,837,523	14.4%
2. Amortization of Unfunded Actuarial Accrued Liability	(149,019)	(1.2%)	(17,219)	(0.1%)
3. Interest Adjustment	53,694	0.4%	65,371	0.5%
4. Total Minimum Required Contribution	\$ 1,539,239	12.1%	\$ 1,885,675	14.8%
G. Minimum Required Contribution (F.S., 112.66 (13)) (Greater of F.1. and F.4.)	\$ 1,634,564	12.8%	\$ 1,885,675	14.8%
H. Expected Payroll of Active Members for 2019 - 2020 Plan Year (\$12,760,505 x 1.015)	\$ 12,951,913	101.5%	\$ 12,951,913	101.5%
I. Contribution Sources for Fiscal Year Ending September 30, 2020 (% of expected payroll of Active Members)				
1. City	\$ 880,730	6.8%	\$ 1,139,768	8.8%
2. Member	777,115	6.0%	777,115	6.0%
3. Total Minimum Required Contribution	\$ 1,657,845	12.8%	\$ 1,916,883	14.8%
J. Actuarial Gain / (Loss) (Table VI)	\$ 1,784,644	14.0%	\$ 1,784,644	14.0%
K. Actuarial Present Value of Vested Accrued Benefits				
1. Retired, Terminated Vested, Beneficiaries and Disabled Receiving Benefits (including DROPs)	\$ 30,837,632	241.7%	\$ 30,958,748	242.6%
2. Terminated Vested Participants Entitled to Future Benefits and Miscellaneous	594,265	4.7%	597,585	4.7%
3. Active Participants Entitled to Future Benefits	15,099,335	118.3%	15,260,468	119.6%
4. Total Actuarial Present Value of Vested Accrued Benefits	\$ 46,531,232	364.7%	\$ 46,816,801	366.9%
L. Unfunded Actuarial Present Value of Vested Accrued Benefits (K.4. - D.2., not less than zero)	\$ 0	0.0%	\$ 0	0.0%
M. Vested Benefit Security Ratio (D.2. ÷ K.4.)	123.1%	N/A	122.4%	N/A

Comparison of Cost Data of October 1, 2017 and October 1, 2018 Valuations

	October 1, 2017		Prior Assumptions October 1, 2018		Current Assumptions October 1, 2018	
	Cost Data	% of Annual Payroll	Cost Data	% of Annual Payroll	Cost Data	% of Annual Payroll
A. Members						
1. Active Members	269	N/A	269	N/A	269	N/A
2. Terminated vested Members	5	N/A	8	N/A	8	N/A
3. Receiving benefits (including DROPs)	157	N/A	166	N/A	166	N/A
4. Annual payroll of active Members	\$ 13,003,575	100.0%	\$ 12,760,505	100.0%	\$ 12,760,505	100.0%
5. Projected annual payroll of active Members	\$ 13,146,614	101.1%	\$ 12,951,913	101.5%	\$ 12,951,913	101.5%
B. Total Normal Costs	\$ 1,657,405	12.7%	\$ 1,634,564	12.8%	\$ 1,837,523	14.4%
C. Total Actuarial Accrued Liability	\$ 52,677,248	405.1%	\$ 53,623,372	420.2%	\$ 55,235,340	432.9%
D. Smoothed Actuarial Value of Assets	\$ 52,628,079	404.7%	\$ 55,441,012	434.5%	\$ 55,441,012	434.5%
E. Unfunded Actuarial Accrued Liability	\$ 49,169	0.4%	\$ (1,817,640)	(14.2%)	\$ (205,672)	(1.6%)
F. City Minimum Funding Payment	\$ 959,703	7.3% ¹	\$ 880,730	6.8% ²	\$ 1,139,768	8.8% ²
G. Actuarial Gain / (Loss)	\$ 668,022	5.1%	\$ 1,784,644	14.0%	\$ 1,784,644	14.0%
H. Unfunded Actuarial Present Value of Vested Accrued Benefits	\$ 0	0.0%	\$ 0	0.0%	\$ 0	0.0%
I. Vested Benefit Security Ratio	119.9%	N/A	123.1%	N/A	122.4%	N/A

¹ Percent of expected 2018-2019 covered payroll (\$13,146,614)

² Percent of expected 2019-2020 covered payroll (\$12,951,913)

Characteristics of Members in
Actuarial Valuation as of October 1, 2018

A. Active Plan Members Summary

1. Active Members fully vested	81
2. Active Members partially vested	54
3. Active Members non-vested	134
4. Total active Members	269
5. Annual rate of pay of active Members	\$ 12,760,505

B. Retired and Terminated Vested Member Summary

1. Retired or terminated vested Members receiving benefits (including DROPs)	132
2. Terminated vested Members entitled to future benefits	8
3. Deceased participants whose beneficiaries are receiving benefits	33
4. Disabled Members receiving benefits	1

C. Projected Annual Retirement Benefits

1. Retired or terminated vested receiving benefits (including DROPs)	\$ 2,809,558
2. Terminated vested Members entitled to future benefits	\$ 83,946
3. Beneficiaries of deceased Members receiving benefits	\$ 174,427
4. Disabled Members receiving benefits	\$ 3,633

Table IV

Statement of Assets as of October 1, 2018

<u>Assets</u>	<u>Market Value</u>
A. <u>Cash and Cash Equivalents</u>	\$ 1,238,737
B. <u>General Investments</u>	
1. Corporate Bonds	6,383,207
2. Templeton Global Bond Mutual Fund	2,422,587
3. U.S. Government Securities	5,075,422
4. Equities	35,260,748
5. American Core Realty Fund LLC	6,792,782
C. <u>Accrued Interest</u>	120,169
D. <u>Accounts Receivable</u>	29,023
E. <u>Accounts Payable</u>	31,822
F. <u>Benefits / Distributions Payable</u>	0
G. <u>Pending Trades</u>	0
H. <u>Total Plan Assets</u> (A. + B.5. + C. + D. - E. - F. - G.)	\$ 57,290,853

Reconciliation of Plan Assets¹

A. <u>Market Value of Assets as of October 1, 2017</u>	\$ 53,666,271
B. <u>Receipts During Period</u>	
1. Contributions	
(a) Employee	\$ 790,420
(b) City	991,645
(c) Total	<u>\$ 1,782,065</u>
2. Investment income	
(a) Dividends, interest and other	\$ 1,407,293
(b) Investment expenses	(255,900)
(c) Net investment income	<u>\$ 1,151,393</u>
3. Realized appreciation	2,311,041
4. Unrealized appreciation	<u>1,686,126</u>
5. Total receipts during period	<u>\$ 6,930,625</u>
C. <u>Disbursements During Period</u>	
1. Pension benefit payments and contribution refunds	\$ 2,803,923
2. DROP distributions	317,395
3. Administrative expenses	<u>184,725</u>
4. Total disbursements during period	<u>\$ 3,306,043</u>
D. <u>Market Value of Assets as of September 30, 2018</u>	\$ 57,290,853
E. <u>Reconciliation of DROP Account Balances</u>	
1. DROP account balances as of October 1, 2017	\$ 781,952
2. Benefit payments into DROP accounts during year	282,879
3. Investment gains / (losses) during year ²	60,983
4. Distributions from DROP accounts during year	<u>(317,395)</u>
5. DROP account balances as of September 30, 2018	<u>\$ 808,419</u>

¹ As reported in the Plan's financial statements.² Based on actual fund performance.

Development of Smoothed Actuarial Value of Assets as of September 30

	2017	2018	2019	2020	2021	2022
A. Preliminary smoothed actuarial value from prior year	50,120,040	52,628,079	55,441,012			
B. Market value end of year	53,666,271	57,290,853				
C. Market value beginning of year	49,222,011	53,666,271	57,290,853			
D. Non-investment net cash flow	(1,676,002)	(1,523,978)				
E. Investment return						
1. Total market value return: B. - C. - D.	6,120,262	5,148,560				
2. Amount for immediate recognition (7.5%)	3,628,801	3,967,821				
3. Amount for phased-in recognition: E.1. - E.2.	2,491,461	1,180,739				
F. Phased-in recognition of investment return						
1. Current year: 20% of E.3.	498,292	236,148				
2. First prior year	3,922	498,292	236,148			
3. Second prior year	(597,468)	3,922	498,292	236,148		
4. Third prior year	228,195	(597,468)	3,922	498,292	236,148	
5. Fourth prior year	422,299	228,196	(597,470)	3,921	498,293	236,147
6. Total phased-in recognition of investment return	555,240	369,090	140,892	738,361	734,441	236,147
G. Total smoothed actuarial value end of year						
1. Preliminary total smoothed actuarial value end of year:						
A. + D. + E.2. + F.6.	52,628,079	55,441,012				
2. Upper corridor limit: 120% of B.	64,399,525	68,749,024				
3. Lower corridor limit: 80% of B.	42,933,017	45,832,682				
4. Total smoothed actuarial value end of year:						
G.1., not more than G.2., nor less than G.3.	52,628,079	55,441,012				
H. Difference between market value and smoothed actuarial value	1,038,192	1,849,841				
I. Smoothed actuarial value rate of return	8.5%	8.4%				
J. Market value rate of return	12.6%	9.7%				

Actuarial Gain / (Loss) for
Plan Year Ended September 30, 2018

A. Derivation of Actuarial Gain / (Loss)

1. City normal cost previous actuarial valuation	\$ 877,190
2. Unfunded actuarial accrued liability previous actuarial valuation	49,169
3. City contributions previous year	991,645
4. Interest on:	
(a) City normal cost	\$ 65,789
(b) Unfunded actuarial accrued liability	3,688
(c) City contributions	37,187
(d) Net total: (a) + (b) - (c)	\$ 32,290
5. Increase / (decrease) in actuarial accrued liability due to assumption change	\$ 1,611,968
6. Expected unfunded actuarial accrued liability current year: (1. + 2. - 3. + 4. + 5.)	\$ 1,578,972
7. Actual unfunded actuarial accrued liability current year	(205,672)
8. Actuarial gain / (loss): (6. - 7.)	\$ 1,784,644

B. Approximate Portion of Gain / (Loss)
due to Investments

1. Smoothed actuarial value of assets previous year	\$ 52,628,079
2. Contributions during period	1,782,065
3. Benefits, refunds and administrative expenses during period	3,306,043
4. Expected net appreciation for period	3,889,957
5. Expected smoothed actuarial value of assets current year: (1. + 2. - 3. + 4.)	\$ 54,994,058
6. Actual smoothed actuarial value of assets current year	\$ 55,441,012
7. Approximate gain / (loss) due to investments: (6. - 5.)	\$ 446,954

C. Approximate Portion of Gain / (Loss)
due to Liabilities: A.8. - B.7.

\$ 1,337,690

Actuarial Gain / (Loss) for
Plan Year Ended September 30, 2018

D. Amortization of Unfunded Accrued Liability

<u>Date</u>	<u>Unfunded Liability</u>	<u>Amortization Payment</u>
October 1, 2018	\$ (205,672)	\$ (17,219)
October 1, 2019	\$ (202,492)	\$ (17,477)
October 1, 2020	\$ (198,798)	\$ (17,739)
October 1, 2021	\$ (194,547)	\$ (18,006)
October 1, 2022	\$ (189,694)	\$ (18,276)
October 1, 2023	\$ (184,189)	\$ (18,550)
October 1, 2024	\$ (177,980)	\$ (18,828)
October 1, 2025	\$ (171,008)	\$ (19,110)
October 1, 2026	\$ (163,214)	\$ (19,397)
October 1, 2027	\$ (154,533)	\$ (19,688)
October 1, 2028	\$ (144,891)	\$ (19,983)
October 1, 2029	\$ (134,215)	\$ (20,283)
October 1, 2030	\$ (122,419)	\$ (20,587)
October 1, 2031	\$ (109,418)	\$ (20,896)
October 1, 2032	\$ (95,117)	\$ (21,210)
October 1, 2033	\$ (79,415)	\$ (21,528)
October 1, 2034	\$ (62,200)	\$ (21,851)
October 1, 2035	\$ (43,355)	\$ (22,178)
October 1, 2036	\$ (22,754)	\$ (5,379)
October 1, 2037	\$ (18,670)	\$ (18,670)
October 1, 2038	\$ 0	\$ 0

E. Covered Payroll History

<u>Year Ended</u>	<u>Pensionable Payroll</u>	<u>Annual Increase</u>
September 30, 2018	\$ 12,760,505	(1.9%)
September 30, 2017	\$ 13,003,575	2.5%
September 30, 2016	\$ 12,688,183	11.9%
September 30, 2015	\$ 11,339,923	12.0%
September 30, 2014	\$ 10,127,588	2.0%
September 30, 2013	\$ 9,932,184	(0.1%)
September 30, 2012	\$ 9,945,221	3.5%
September 30, 2011	\$ 9,608,967	(3.3%)
September 30, 2010	\$ 9,938,506	(3.3%)
September 30, 2009	\$ 10,277,176	(6.4%)
September 30, 2008	\$ 10,982,201	N/A
Ten-Year Average Annual Increase		1.5%

Accounting Disclosure Exhibit

	<u>10/01/2017</u>	<u>Prior Assumptions 10/01/2018</u>	<u>Current Assumptions 10/01/2018</u>
I. <u>Number of Plan Members</u>			
1. Retirees and beneficiaries receiving benefits	157	166	166
2. Terminated plan members due deferred benefits	5	8	8
3. Active plan members	269	269	269
4. Total plan members	431	443	443
II. <u>Financial Accounting Standards Board Allocation</u> <u>As of October 1, 2018</u>			
A. <u>Statement of Accumulated Plan Benefits</u>			
1. Actuarial present value of accumulated vested plan benefits			
a. Participants currently receiving benefits	\$ 29,170,936	\$ 30,837,632	\$ 30,958,748
b. Other participants	15,601,549	15,693,600	15,858,053
c. Total	\$ 44,772,485	\$ 46,531,232	\$ 46,816,801
2. Actuarial present value of accumulated non-vested plan benefits	\$ 1,762,092	\$ 1,701,595	\$ 1,722,723
3. Total actuarial present value of accumulated plan benefits	\$ 46,534,577	\$ 48,232,827	\$ 48,539,524
B. <u>Statement of Change in Accumulated Plan Benefits</u>			
1. Actuarial present value of accumulated plan benefits as of October 1, 2017			\$ 46,534,577
2. Increase (decrease) during year attributable to:			
a. Plan amendment			\$ 0
b. Change in actuarial assumptions			306,697
c. Benefits paid including contribution refunds			(3,121,318)
d. Other, including benefits accumulated, increase for interest due to decrease in the discount period			4,819,568
e. Net increase			\$ 2,004,947
3. Actuarial present value of accumulated plan benefits as of October 1, 2018			\$ 48,539,524
C. <u>Significant Matters Affecting Calculations</u>			
1. Assumed rate of return used in determining actuarial present values			7.45%
2. Change in plan provisions			None
3. Change in actuarial assumptions			See Table IX, Item L.

Accounting Disclosure Exhibit

III. Net Pension Liability and Related Ratios (GASB No. 67 & No. 68)

Measurement date	9/30/2014	9/30/2015	9/30/2016 *	9/30/2017	9/30/2018	Projected 9/30/2019 **
A. Total Pension Liability (TPL)						
Service Cost	\$ 1,134,108	\$ 1,154,040	\$ 1,269,240	\$ 1,427,943	\$ 1,472,641	\$ 1,652,798
Interest	3,149,825	3,277,233	3,499,027	3,791,376	3,944,192	4,127,890
Benefit Changes	0	0	0	0	0	0
Difference Between Actual and Expected Experience	(795,460)	(189,114)	1,253,381	1,851,258	(180,469)	(1,353,022)
Assumption Changes	1,479,338	0	(97,983)	43,681	0	1,611,968
Benefit Payments, including Refunds of Member Contributions	(2,261,393)	(2,671,762)	(2,735,024)	(3,041,719)	(3,121,318)	(2,960,434)
Net Change in Total Pension Liability	\$ 2,706,418	\$ 1,570,397	\$ 3,188,641	\$ 4,072,539	\$ 2,115,046	\$ 3,079,200
Total Pension Liability (TPL) - (beginning of year)	41,323,353	44,029,771	45,600,168	48,788,809	52,861,348	54,976,394
Total Pension Liability (TPL) - (end of year)	\$ 44,029,771	\$ 45,600,168	\$ 48,788,809	\$ 52,861,348	\$ 54,976,394	\$ 58,055,594
B. Plan Fiduciary Net Position						
Contributions - City	\$ 919,864	\$ 842,957	\$ 730,895	\$ 752,506	\$ 991,645	\$ 959,703
Contributions - Member	655,206	708,253	769,999	797,975	790,420	765,630
Net Investment Income	4,431,002	555,804	3,511,656	6,120,262	5,148,560	4,215,280
Benefit Payments, including Refunds of Member Contributions	(2,261,393)	(2,671,762)	(2,735,024)	(3,041,719)	(3,121,318)	(2,960,434)
Administrative Expenses	(142,131)	(163,130)	(211,426)	(184,764)	(184,725)	(184,725)
Other	0	0	0	0	0	0
Net Change in Plan Fiduciary Net Position	\$ 3,602,548	\$ (727,878)	\$ 2,066,100	\$ 4,444,260	\$ 3,624,582	\$ 2,795,454
Plan Fiduciary Net Position - (beginning of year)	44,281,241	47,883,789	47,155,911	49,222,011	53,666,271	57,290,853
Plan Fiduciary Net Position - (end of year)	\$ 47,883,789	\$ 47,155,911	\$ 49,222,011	\$ 53,666,271	\$ 57,290,853	\$ 60,086,307
C. Net Pension Liability (NPL) - (end of year): (A) - (B)	\$ (3,854,018)	\$ (1,555,743)	\$ (433,202)	\$ (804,923)	\$ (2,314,459)	\$ (2,030,713)
D. Plan Fiduciary Net Position as a Percentage of TPL: (B) / (A)	108.75 %	103.41 %	100.89 %	101.52 %	104.21 %	103.50 %
E. Covered Payroll ***	\$ 10,500,212	\$ 11,773,303	\$ 13,093,472	\$ 13,299,209	\$ 13,173,649	\$ 12,760,505
F. NPL as a Percentage of Covered Payroll: (C) / (E)	(36.70)%	(13.21)%	(3.31)%	(6.05)%	(17.57)%	(15.91)%
G. Notes to Schedule:						
Valuation Date	10/1/2013	10/1/2014	10/1/2015	10/1/2016	10/1/2017	10/1/2018
Reporting Date (GASB No. 68)	9/30/2015	9/30/2016	9/30/2017	9/30/2018	9/30/2019	9/30/2020

Update procedures used to roll forward TPL excluding DROP account balances to the measurement dates - actual DROP account balances as of measurement dates included in TPL.

See Part V, Notes to the Schedule of Contributions for assumption changes prior to September 30, 2019 measurement date.

See Table IX, Item L. for assumption changes for September 30, 2019 measurement date.

* As reported in City's CAFR

** Projected - actual amounts will be available after fiscal year end.

*** Reported payroll on which contributions to the Plan are based as provided under GASB Statement No. 82.

Accounting Disclosure Exhibit

IV. Schedule of Employer Contributions (GASB No. 67 & No. 68)¹

Fiscal Year End (9/30)	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll ²	Actual Contribution as a % of Covered Payroll
2009	\$ 745,087	\$ 1,265,870	\$ (520,783)	\$ 10,982,201	11.53%
2010	640,444	1,163,828	(523,384)	10,277,176	11.32%
2011	684,153	1,133,177	(449,024)	9,938,506	11.40%
2012	842,538	879,008	(36,470)	9,608,967	9.15%
2013	987,241	987,241	0	9,945,221	9.93%
2014	635,941	919,864	(283,923)	10,500,212	8.76%
2015	474,597	842,957	(368,360)	11,773,303	7.16%
2016	474,597	730,895	(256,298)	13,093,472	5.58%
2017	663,635	752,506	(88,871)	13,299,209	5.66%
2018	991,645	991,645	0	13,173,649	7.53%
2019 ³	959,703	959,703	0	12,760,505	7.52%

¹ Per City CAFR prior to September 30, 2014

² Reported payroll on which contributions to the Plan are based as provided under GASB Statement No. 82

³ Projected - actual amounts will be available after fiscal year end

Accounting Disclosure Exhibit

V. Notes to Schedule of Contributions (GASB No. 67 & No. 68)

Valuation Date: Actuarially determined contributions are calculated as of October 1st - two year(s) prior the fiscal year end in which contributions are reported.

Methods and Assumptions Used to Determine Contribution Rates for the Fiscal Year Ending September 30, 2019:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Pay, Closed
Amortization Period	20 years
Asset Valuation Method	5-year smoothed market
Inflation	2.75%
Salary Increases	3.75% - 6.00%
Investment Rate of Return	7.5%
Payroll Growth Assumption	Payroll is assumed to increase at a rate equal to the historical 10-year average (1.1% as of October 1, 2017) - not less than 0.0%.
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition
Mortality	For healthy male participants during employment, RP 2000 Combined Male Healthy Participant Mortality Table, with 50% White Collar / 50% Blue Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB. For healthy female participants during employment, RP 2000 Combined Female Healthy Participant Mortality Table, with White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB. For healthy male participants post employment, RP 2000 Annuitant Male Mortality Table, with 50% White Collar / 50% Blue Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB. For healthy female participants post employment, RP 2000 Annuitant Female Mortality Table, with White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB. For disabled male participants, RP 2000 Disabled Male Mortality Table, setback four years, without projected mortality improvements. For disabled female participants, RP 2000 Disabled Female Mortality Table, set forward two years, without projected mortality improvements.
Cost-of-Living Increases	None.

Other Information:

Benefit Changes
None.

Accounting Disclosure Exhibit

V. Notes to Schedule of Contributions (GASB No. 67 & No. 68) (cont'd)

Assumption Changes

2016: Actuarial cost method and mortality assumption updated. 2015: Mortality assumption updated - first affects required contribution for fiscal year ending September 30, 2017. 2013: Investment return assumption updated to 7.5% compounded annually, net of investment expenses; withdrawal, salary increase and retirement rates updated. 2011: Funding method updated to Aggregate Actuarial Cost Method; mortality, withdrawal, salary increase and retirement rates updated.

VI. Discount Rate (GASB No. 67 & No. 68)

Discount rates of 7.50% and 7.45% were used to measure the TPL as of September 30, 2018 and the projected TPL as of September 30, 2019, respectively. These discount rates were based on the expected rate of return on Plan investments of 7.50% and 7.45% respectively. The projection of cash flows used to determine these discount rates assumed member contributions will be made at the current member contribution rate and employer contributions will be made at rates equal to the difference between actuarially determined current contribution rates and the member contribution rate. Based on these assumptions, the pension Plan's fiduciary net position was projected to be available to make all projected future expected benefit payments of current Plan members. Therefore, the long-term expected rate of return on Plan investments was applied to all periods of projected benefit payments to determine the TPL.

VII. Sensitivity of the NPL to the Discount Rate Assumption (GASB No. 67 & No. 68)

Measurement date: September 30, 2018

	1% Decrease	Current Discount Rate	1% Increase
Discount Rate	6.50%	7.50%	8.50%
NPL	\$ 3,873,031	\$ (2,314,459)	\$ (7,499,137)

Measurement date: September 30, 2019 *

	1% Decrease	Current Discount Rate	1% Increase
Discount Rate	6.45%	7.45%	8.45%
NPL	\$ 4,451,981	\$ (2,030,713)	\$ (7,475,621)

* Projected - actual amounts will be available after fiscal year end

Accounting Disclosure Exhibit

VIII. Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions - Reporting Date (GASB No. 68)

Pension Expense for Fiscal Year Ending September 30, 2019 \$ 1,160,221

Summary of Outstanding Deferred Inflows and Outflows of Resources as of September 30, 2019

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience on liabilities	1,516,838	174,389
Changes of assumptions or other inputs	25,093	35,442
Net difference between projected and actual earnings on pension plan investments	0	1,849,841
Total	<u>\$ 1,541,931</u>	<u>\$ 2,059,672</u>

Projected Deferred Outflows for City Contributions to Be Recognized in Pension Expense for Fiscal Year Ending September 30, 2020 \$ 959,703

Summary of Deferred Outflows and Inflows of Resources that will be Recognized in Pension Expense in Future Years.

Year Ending 30-Sep	Amount
2020	\$ 439,001
2021	(200,702)
2022	(489,816)
2023	(266,224)
2024	0
Thereafter	0

Accounting Disclosure Exhibit

The following information is not required to be disclosed but is provided for informational purposes.

IX. Components of Pension Expense (GASB No. 68)

Measurement Date	<u>9/30/2014</u>	<u>9/30/2015</u>	<u>9/30/2016</u>	<u>9/30/2017</u>	<u>9/30/2018</u>	Projected <u>9/30/2019 *</u>
Service Cost	\$ 1,134,108	\$ 1,154,040	\$ 1,269,240	\$ 1,427,943	\$ 1,472,641	\$ 1,652,798
Interest on Total Pension Liability	3,149,825	3,277,233	3,499,027	3,791,376	3,944,192	4,127,890
Current-Period Benefit Changes	0	0	0	0	0	0
Contributions - Member	(655,206)	(708,253)	(769,999)	(797,975)	(790,420)	(765,630)
Projected Earnings on Plan Investments	(3,290,026)	(3,543,146)	(3,482,831)	(3,628,801)	(3,967,821)	(4,215,280)
Administrative Expenses	142,131	163,130	202,210	184,764	184,725	184,725
Other Changes in Plan Fiduciary Net Position	0	0	0	0	0	0
Recognition of Beginning Deferred Outflows / (Inflows) due to Liabilities	142,474	103,075	348,905	752,084	685,994	630,667
Recognition of Beginning Deferred Outflows / (Inflows) due to Assets	(228,195)	369,273	365,351	(132,941)	(369,090)	(140,892)
Total Pension Expense	<u>\$ 395,111</u>	<u>\$ 815,352</u>	<u>\$ 1,431,903</u>	<u>\$ 1,596,450</u>	<u>\$ 1,160,221</u>	<u>\$ 1,474,278</u>

* Projected - actual amounts will be available after measurement date

Accounting Disclosure Exhibit

The following information is not required to be disclosed but is provided for informational purposes.

X. Recognition of Deferred Outflows and (Inflows) due to Liabilities - Measurement Date (GASB No. 68)

Recognition of Deferred Outflows due to Differences Between Actual and Expected Experience on Liabilities

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2018	Recognition Amount for 2017 / 2018	Balance as of 9/30/2018
2013 / 2014	\$ 0	4.8	0.0	\$ 0	\$ 0
2014 / 2015	0	4.8	0.8	0	0
2015 / 2016	1,253,381	4.7	1.7	266,677	453,350
2016 / 2017	1,851,258	4.7	2.7	393,885	1,063,488
2017 / 2018	0	4.8	3.8	0	0
TOTAL				\$ 660,562	\$ 1,516,838

Recognition of Deferred (Inflows) due to Differences Between Actual and Expected Experience on Liabilities

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2018	Recognition Amount for 2017 / 2018	Balance as of 9/30/2018
2013 / 2014	\$ (795,460)	4.8	0.0	\$ (132,576)	\$ 0
2014 / 2015	(189,114)	4.8	0.8	(39,399)	(31,518)
2015 / 2016	0	4.7	1.7	0	0
2016 / 2017	0	4.7	2.7	0	0
2017 / 2018	(180,469)	4.8	3.8	(37,598)	(142,871)
TOTAL				\$ (209,573)	\$ (174,389)

Recognition of Deferred Outflows due to Changes of Assumptions or Other Inputs

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2018	Recognition Amount for 2017 / 2018	Balance as of 9/30/2018
2013 / 2014	\$ 1,479,338	4.8	0.0	\$ 246,558	\$ 0
2014 / 2015	0	4.8	0.8	0	0
2015 / 2016	0	4.7	1.7	0	0
2016 / 2017	43,681	4.7	2.7	9,294	25,093
2017 / 2018	0	4.8	3.8	0	0
TOTAL				\$ 255,852	\$ 25,093

Accounting Disclosure Exhibit

The following information is not required to be disclosed but is provided for informational purposes.

X. Recognition of Deferred Outflows and (Inflows) due to Liabilities - Measurement Date (GASB No. 68) (Cont'd)

Recognition of Deferred (Inflows) due to Changes of Assumptions or Other Inputs

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2018	Recognition Amount for 2017 / 2018	Balance as of 9/30/2018
2013 / 2014	\$ 0	4.8	0.0	\$ 0	\$ 0
2014 / 2015	0	4.8	0.8	0	0
2015 / 2016	(97,983)	4.7	1.7	(20,847)	(35,442)
2016 / 2017	0	4.7	2.7	0	0
2017 / 2018	0	4.8	3.8	0	0
TOTAL				\$ (20,847)	\$ (35,442)

XI. Recognition of Deferred Outflows and (Inflows) due to Assets - Measurement Date (GASB No. 68)

Recognition of Deferred Outflows / (Inflows) due to Difference Between Projected and Actual Earnings on Pension Plan Investments

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2018	Recognition Amount for 2017 / 2018	Balance as of 9/30/2018
2013 / 2014	\$ (1,140,976)	5	0	\$ (228,196)	\$ 0
2014 / 2015	2,987,342	5	1	597,468	597,470
2015 / 2016	(19,609)	5	2	(3,922)	(7,843)
2016 / 2017	(2,491,461)	5	3	(498,292)	(1,494,877)
2017 / 2018	(1,180,739)	5	4	(236,148)	(944,591)
TOTAL				\$ (369,090)	\$ (1,849,841)

Outline of Principal Provisions of the Retirement Plan

A. Effective Date:

January 1, 1973, as amended through Ordinance 09-04.

B. Eligibility Requirements:

Full-time employee, other than police officers and firefighters.

C. Credited Service:

Service in completed calendar months from date of employment to the earlier of date of retirement or termination.

D. Earnable Compensation:

Base salary paid including overtime pay *pick-up* contributions, but excluding bonuses, expense allowances, unused accumulated leave time, etc.

E. Final Monthly Compensation (FMC) :

Average monthly rate of earnable compensation during the best thirty-six (36) consecutive months out of the last one hundred twenty (120) months preceding date of retirement (or termination).

F. Employee Contributions:

6% of basic annual compensation.

G. Normal Retirement:

- (1) Eligibility: The earlier of attainment of age 60 and completion of 10 years of credited service or completion of 20 years of credited service, irrespective of age. Employees participating in the plan prior to March 1, 1993 may retire fully vested at age 60 with 5 years of credited service. Employees hired on or after March 1, 1993 may retire at age 60 with 5 years of credited service but less than 10 years of credited service with reduced benefits.
- (2) Benefit: 2.5% times FMC times credited service. 1.25% times FMC times credited service for employees hired on or after March 1, 1993 with less than 10 years of credited service.

Outline of Principal Provisions of the Retirement Plan

H. Early Retirement:

- (1) Eligibility: Attainment of age 55 and completion of 10 years credited service.
- (2) Benefit: Benefit accrued to date of retirement, reduced by 1/15th for each year prior to normal retirement to reflect commencement of benefit at an earlier age.

I. Deferred Retirement:

- (1) Eligibility: Continued employment beyond normal retirement date.
- (2) Benefit: Benefit accrued at deferred retirement date based on credited service and FMC at deferred retirement date.

J. Disability Retirement:

- (1) Eligibility: Total and permanent qualifying disability. If non-service incurred, requires completion of ten (10) years of credited service.
- (2) Benefit: Benefit (payable for ten (10) years certain and life thereafter or prior recovery)

Incurred in Line-of-Duty: Greatest of (a), (b) or (c), where

- (a) is 42% of FMC as of date of disability,
 - (b) is the benefit supported by the present value of accrued benefit as of date of disability deferred to normal retirement date and
 - (c) is the benefit supported by eighteen (18) times FMC.
- Benefit under (c) shall not exceed 60% of anticipated retirement benefit.

Not Incurred in Line-of-Duty: Greater of (a) or (b), where

- (a) is the benefit supported by the present value of accrued benefit as of date of disability deferred to normal retirement date and
- (b) is the benefit supported by eighteen (18) times FMC.

Outline of Principal Provisions of the Retirement Plan

K. Survivor Benefit:

Benefit to beneficiary (payable for ten (10) years certain and life thereafter) which can be supported by the greater of A or B, where A is the single-sum value of the accrued benefit at date of death deferred to normal retirement date and B is the lesser of (i) and (ii), where (i) is 18 times FMC at date of death and (ii) is 100 times the anticipated monthly normal retirement benefit.

L. Vested Benefit Upon Termination:

(1) Eligibility:

Vesting schedule with no vesting until completion of 5 years of credited service (50%) increasing by 10% per year until 100% vesting upon completion of 10 years of credited service.

(2) Benefit at payable at Normal Retirement Date:

Benefit equal to accrued benefit based upon credited service and FMC at date of termination times vested percentage.

M. Cash Termination Benefit:

(1) Accumulated employee contributions without interest for non-vested employees.

(2) Accumulated employee contributions without interest in lieu of deferred vested benefit for vested employees.

N. Normal Form of Retirement Income:

Monthly life annuity with guaranteed return of employee contributions.

Outline of Principal Provisions of the Retirement Plan

O. Deferred Retirement Option Plan (DROP):

- (1) Eligibility: Upon meeting the eligibility for normal or early retirement.
- (2) Participation in the DROP must be exercised within the first thirty (30) years of employment; provided, however, that participation in the DROP, when combined with participation in the retirement plan as an active member may not exceed thirty (30) years. The maximum period of participation in the DROP is five (5) years.
- (3) An employee's account in the DROP program shall be credited with interest based upon the actual earnings of the retirement fund.
- (4) No payment may be made from the DROP until the employee actually separates from service with the City.

P. Cost of Living Adjustment (COLA):

Effective January 1, 2006, members receiving benefits received a 2.0% *ad hoc* COLA.

Q. Changes From Previous Valuation:

None.

Actuarial Assumptions and Actuarial Cost Methods
Used in the Valuation

A. Mortality

For healthy male participants during employment, RP 2000 Combined Male Healthy Participant Mortality Table, with 50% White Collar / 50% Blue Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB. For healthy female participants during employment, RP 2000 Combined Female Healthy Participant Mortality Table, with White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB.

For healthy male participants post employment, RP 2000 Annuitant Male Mortality Table, with 50% White Collar / 50% Blue Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB. For healthy female participants post employment, RP 2000 Annuitant Female Mortality Table, with White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB.

For disabled male participants, RP 2000 Disabled Male Mortality Table, setback four years, without projected mortality improvements. For disabled female participants, RP 2000 Disabled Female Mortality Table, set forward two years, without projected mortality improvements.

Sample Ages (2018)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Male	Female	Male	Female
55	30.53	33.57	30.10	33.34
60	25.60	28.54	25.44	28.44
62	23.70	26.58	23.60	26.52

Sample Ages (2038)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Male	Female	Male	Female
55	32.67	35.41	32.26	35.21
60	27.78	30.38	27.63	30.30
62	25.87	28.40	25.78	28.35

Actuarial Assumptions and Actuarial Cost Methods
Used in the Valuation

B. Investment Return

7.45%, net of investment expenses, compounded annually - includes inflation of 2.5%.

C. Allowances for Expenses or Contingencies

Previous year's actual administrative expenses added to normal cost.

D. Employee Withdrawal Rates

Withdrawal rates for males and for females were used in accordance with the following illustrative example:

<u>Service</u>	<u>Withdrawal Rates</u>
0-1	25.0%
1-2	22.0%
2-3	16.0%
3-4	14.0%
4-5	10.0%
5-6	10.0%
6-7	9.0%
7-8	8.0%
8-10	6.0%
10+	2.0%

E. Disability Rates

Class (01) Inter-Company disability rates were used with separate rates for males and females.
50% of all disablements are assumed to be service related.

F. Marital Assumptions

100% of all active participants are assumed to be married.

Females are assumed to be three years younger than their male spouses.

G. Salary Increase Factors

Current salary was assumed to increase at a rate based on the table below per year until retirement - includes assumed wage inflation of 3.25%.

<u>Age</u>	<u>Salary Increase</u>
< 30	6.00%
30 - 59	5.00%
60 +	4.00%

Actuarial Assumptions and Actuarial Cost Methods
Used in the Valuation

H. Assumed Retirement Age

Rates of early retirement were used in accordance with the following table.

<u>Age</u>	<u>Retirement Rate</u>
55	15%
56 - 59	10%

Rates of normal retirement were used in accordance with the following table.

<u>Age</u>	<u>Retirement Rate</u>
55 or younger	20%
56 - 64	30%
65 - 74	35%
75 - 79	50%
80 & older	100%

However, all active members on the valuation date are assumed to have a minimum of one year of future service.

I. Payroll Growth Assumption

Payroll is assumed to increase at a rate equal to the historical 10-year average (1.5% as of October 1, 2018) - not less than 0.0%.

J. Valuation of Assets

The method used for determining the smoothed actuarial value of assets phases in the deviation between the expected and actual return on assets at the rate of 20% per year. The smoothed actuarial value of assets will be further adjusted to the extent necessary to fall within the corridor whose lower limit is 80% of the fair market value of plan assets and whose upper limit is 120% of the fair market value of plan assets.

K. Actuarial Cost Methods

Normal Retirement, Termination, Death and Disability Benefits: Entry Age Normal

Under this method the normal cost for each active employee is the amount which is calculated to be a level percentage of pay that would be required annually from his age at hire to his assumed retirement age to fund his estimated benefits, assuming the Plan had always been in effect. The normal cost for the Plan is the sum of such amounts for all employees. The actuarial accrued liability as of any valuation date for each active employee or inactive employee who is eligible to receive benefits under the Plan is the excess of the actuarial present value of estimated future benefits over the actuarial present value of current and future normal costs. The unfunded actuarial accrued liability as of any valuation date is the excess of the actuarial accrued liability over the smoothed actuarial value of assets of the Plan.

Actuarial Assumptions and Actuarial Cost Methods
Used in the Valuation

L. Changes from Previous Valuation

1. Investment Return was:

7.5%, net of investment expenses, compounded annually - includes inflation of 2.75%.

2. Employee Withdrawal Rates were:

<u>Service</u>	<u>Withdrawal Rates</u>
0-1	22.0%
1-2	22.0%
2-3	16.0%
3-4	16.0%
4-5	10.0%
5-6	10.0%
6-7	9.0%
7-8	9.0%
8-9	8.0%
9-10	8.0%
10+	4.0%

3. Salary Increase Factors were:

<u>Service</u>	<u>Salary Increase</u>
0-1	6.00%
1-2	6.00%
2-3	5.00%
3-4	5.00%
4-5	5.00%
5-6	4.75%
6-7	4.75%
7-8	4.50%
8-9	4.25%
9-10	4.00%
10+	3.75%

Actuarial Assumptions and Actuarial Cost Methods
Used in the Valuation

L. Changes from Previous Valuation

4. Assumed Retirement Age was:

Rates of early retirement were used in accordance with the following table.

<u>Age</u>	<u>Retirement Rate</u>
55	15%
56 - 59	5%

Rates of normal retirement were used in accordance with the following table.

<u>Age</u>	<u>Retirement Rate</u>
Less than 55	15%
55 - 59	40%
60 - 61	25%
62 - 64	35%
65 - 74	50%
75 & older	100%

Table X

Distribution by Attained Age and Service
Groups as of October 1, 2018

Attained Age Group	-----COMPLETED YEARS OF SERVICE-----							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over	
Under 25	20	1	-	-	-	-	-	21
25 - 29	16	2	-	-	-	-	-	18
30 - 34	17	3	5	-	-	-	-	25
35 - 39	18	7	2	-	-	-	-	27
40 - 44	11	7	7	3	-	-	-	28
45 - 49	16	8	11	6	1	-	-	42
50 - 54	13	4	10	4	3	-	1	35
55 - 59	13	10	7	4	-	1	-	35
60 - 64	6	9	5	2	1	-	-	23
65 - 69	2	2	1	1	-	-	-	6
70 - 74	2	1	2	-	-	1	-	6
75 & Over	-	-	-	1	2	-	-	3
TOTAL	134	54	50	21	7	2	1	269

	<u>10/01/2017</u>	<u>10/01/2018</u>
Average Attained Age	46.29 years	45.45 years
Average Hire Age	39.11 years	38.51 years
Average Pay	\$ 48,340	\$ 47,437
Percent Female	33.5%	32.7%

Statistics for Participants Entitled to Deferred Benefits
and Participants Receiving Benefits

A. Entitled to Deferred Benefits

Current Age Group	Count	Total Annual Benefit	Average Annual Benefit
Less than 50	6	\$ 64,266	\$ 10,711
50 - 54	1	15,848	15,848
55 - 59	0	-	-
60 - 64	0	-	-
65 - 69	0	-	-
70 & Over	1	3,832	3,832
TOTAL	8	\$ 83,946	\$ 10,493

B. Receiving Benefits (including DROPs)

Current Age Group	Count	Total Annual Benefit	Average Annual Benefit
Less than 50	14	\$ 125,324	\$ 8,952
50 - 54	7	164,186	23,455
55 - 59	13	418,083	32,160
60 - 64	24	555,937	23,164
65 - 69	28	535,769	19,135
70 - 74	33	583,913	17,694
75 - 79	22	330,612	15,028
80 - 84	15	171,520	11,435
85 - 89	9	99,145	11,016
90 & Over	1	3,129	3,129
TOTAL	166	\$ 2,987,618	\$ 17,998

Reconciliation of Member DataA. Active Participants

1. Active participants previous year	269
2. Retired during year	(5)
3. Entered DROP during year	(6)
4. Died during year	(1)
5. Disabled during year	0
6. Terminated refunded during year	(27)
7. Terminated not refunded during year	(8)
8. Terminated vested	(3)
9. Rehired	6
10. New active participants	44
11. Active participants current year	<u>269</u>

B. Participants Receiving Benefits

1. Participants receiving benefits previous year	147
2. New retired participants	5
3. New terminated vested receiving benefits	0
4. New disabled receiving benefits	0
5. New beneficiaries receiving benefits	1
6. Died or ceased payment during year	(3)
7. Retired or terminated vested receiving benefits current year	<u>150</u>

C. DROP Participants

1. DROP participants previous year	10
2. Died during year	0
3. Became disabled during year	0
4. Employment terminated and retired during year	0
5. Entered DROP during year	6
6. DROP participants current year	<u>16</u>

D. Terminated Vested Participants Entitled to Future Benefits

1. Terminated vested entitled previous year	5
2. Died during year	0
3. Commenced receiving benefits during year	0
4. New terminated vested	3
5. Refunded member contributions	0
6. Rehired	0
7. Terminated vested entitled to future benefits current year	<u>8</u>

Projected Retirement Benefits

<u>Fiscal Year</u>	<u>Projected Total Annual Payout</u>
2019	\$ 2,960,434
2020	\$ 3,332,460
2021	\$ 3,521,030
2022	\$ 3,741,226
2023	\$ 3,941,211
2024	\$ 4,146,924
2025	\$ 4,343,961
2026	\$ 4,554,418
2027	\$ 4,778,373
2028	\$ 5,005,923

The above projected payout of Plan benefits during the next ten years is based on assumptions involving all decrements. The actual payout may differ from the above estimated depending upon death, salary and retirement experience of the Plan. However, since the projected payment is recomputed each valuation date, there is an automatic correction to the extent that actual experience varies from expected experience.

Table XIV

Recent Compensation, Termination and Investment Return Experience

Fiscal Year	Compensation		Termination	Investment Return		
	% Increase (Decrease)	Assumed Increase	Ratio of Actual to Expected	Smoothed Actuarial Value	Market Value	Assumed Rate
2018	2.3%	4.4%	1.2	8.4%	9.7%	7.5%
2017	2.6%	4.4%	1.1	8.5%	12.6%	7.5%
2016	9.4%	4.5%	0.7	8.7%	7.5%	7.5%
2015	9.2%	4.4%	0.8	7.7%	1.2%	7.5%
2014	4.9%	4.5%	1.1	9.3%	10.1%	7.5%
2013	3.3%	7.6%	1.1	8.8%	13.3%	8.0%
2012	5.0%	7.7%	0.9	3.6%	15.3%	8.0%
2011	3.0%	7.6%	1.4	3.7%	(1.1%)	8.0%
2010	0.9%	7.9%	0.9	5.4%	9.2%	8.0%
2009	(2.8%)	7.9%	1.1	5.5%	7.2%	8.0%
Last 3 Years	4.7%	4.4%	1.0	8.5%	9.9%	7.5%
Last 5 Years	5.6%	4.4%	1.0	8.5%	8.1%	7.5%
Last 10 Years	3.7%	6.1%	1.0	6.9%	8.4%	7.7%

Summary of Transaction Information¹

Year Ended	Benefits Paid ²	Total Expenses	Member Contributions	City Contributions	Market Value ³
09/30/2018	\$ 3,121,318	\$ 440,625	\$ 790,420	\$ 991,645	\$ 57,290,853
09/30/2017	\$ 3,041,719	\$ 422,903	\$ 797,975	\$ 752,506	\$ 53,666,271
09/30/2016	\$ 2,735,024	\$ 435,479	\$ 769,999	\$ 730,895	\$ 49,222,011
09/30/2015	\$ 2,671,762	\$ 389,039	\$ 708,253	\$ 842,957	\$ 47,155,911
09/30/2014	\$ 2,261,393	\$ 393,806	\$ 655,206	\$ 919,864	\$ 47,883,789
09/30/2013	\$ 2,736,270	\$ 240,579	\$ 629,220	\$ 987,241	\$ 44,281,241
09/30/2012	\$ 2,324,314	\$ 267,219	\$ 610,375	\$ 879,008	\$ 39,746,668
09/30/2011	\$ 2,123,714	\$ 301,844	\$ 601,769	\$ 1,133,177	\$ 35,519,181
09/30/2010	\$ 1,933,345	\$ 312,100	\$ 612,574	\$ 1,163,828	\$ 36,586,205
09/30/2009	\$ 1,710,341	\$ 208,043	\$ 632,457	\$ 1,265,870	\$ 33,939,905
09/30/2008	\$ 1,450,151	\$ 212,667	\$ 713,251	\$ 1,331,364	\$ 31,679,524
09/30/2007	\$ 1,316,275	\$ 205,055	\$ 710,429	\$ 1,250,735	\$ 35,050,475
09/30/2006	\$ 1,380,767	\$ 185,896	\$ 661,533	\$ 1,199,176	\$ 29,866,340
09/30/2005	\$ 1,235,748	\$ 163,673	\$ 633,086	\$ 1,147,792	\$ 26,857,011
09/30/2004	\$ 1,060,839	\$ 176,274	\$ 575,902	\$ 995,293	\$ 23,582,251
09/30/2003	\$ 811,942	\$ 158,084	\$ 531,715	\$ 967,755	\$ 20,778,117
09/30/2002	\$ 772,089	\$ 165,553	\$ 511,158	\$ 860,526	\$ 17,619,387
09/30/2001	\$ 993,003	\$ 178,606	\$ 473,658	\$ 779,043	\$ 18,534,124
09/30/2000	\$ 750,178	\$ 128,816	\$ 472,597	\$ 782,111	\$ 19,303,795
09/30/1999	\$ 806,251	\$ 155,394	\$ 450,523	\$ 746,460	\$ 17,137,828
09/30/1998	\$ 608,403	\$ 120,276	\$ 422,195	\$ 1,326,594	\$ 14,411,390
09/30/1997	\$ 443,102	\$ 90,986	\$ 403,334	\$ 675,729	\$ 13,308,000
09/30/1996	\$ 402,987	\$ 87,094	\$ 377,636	\$ 631,346	\$ 10,649,000
09/30/1995	\$ 300,345	\$ 77,881	\$ 349,544	\$ 607,151	\$ 9,279,000
09/30/1994	\$ 234,960	\$ 76,288	\$ 299,289	\$ 535,230	\$ 7,568,000
09/30/1993	\$ 197,031	\$ 73,915	\$ 283,713	\$ 501,617	\$ 6,855,000
09/30/1992	\$ 177,419	\$ 98,730	\$ 255,096	\$ 446,212	\$ 5,666,000

¹ Information prior to October 1, 2000 as reported by prior actuaries

² Effective for year ended September 30, 2013, includes DROP distributions (previously included DROP benefit payments)

³ Effective for year ended September 30, 2013, includes DROP account balances

City Contribution Information

Valuation Date	Contribution Fiscal Year End	Minimum Required Employer Contributions	Actual Employer Contributions Made
10/01/2018	09/30/2020	\$ 1,139,768	N/A
10/01/2017	09/30/2019	\$ 959,703	N/A
10/01/2016	09/30/2018	\$ 991,645	\$ 991,645
10/01/2015	09/30/2017	\$ 663,635	\$ 752,506
10/01/2014	09/30/2016	\$ 474,597	\$ 730,895
10/01/2014	09/30/2015	\$ 474,597	\$ 842,957
10/01/2013	09/30/2014	\$ 635,941	\$ 919,864
10/01/2012	09/30/2013	\$ 987,241	\$ 987,241
10/01/2011	09/30/2012	\$ 842,538	\$ 879,008
10/01/2010	09/30/2011	\$ 684,153	\$ 1,133,177
10/01/2009	09/30/2010	\$ 640,444	\$ 1,163,828
10/01/2008	09/30/2009	\$ 745,087	\$ 1,265,870
10/01/2007	09/30/2008	\$ 893,546	\$ 1,331,364
10/01/2006	09/30/2007	\$ 961,724	\$ 1,250,735
10/01/2005	09/30/2006	\$ 1,136,922	\$ 1,199,176
10/01/2004	09/30/2005	\$ 999,852	\$ 1,147,792
10/01/2003	09/30/2004	\$ 760,180	\$ 995,293
10/01/2002	09/30/2003	\$ 967,755	\$ 967,755

Actuarial Valuation as of October 1, 2018State Required Exhibit

	<u>10/01/2017</u>	<u>Prior Assumptions 10/01/2018</u>	<u>Current Assumptions 10/01/2018</u>
A. <u>Member Data</u>			
1. Active Members	269	269	269
2. Retired Members and Beneficiaries receiving benefits (including DROPs)	156	165	165
3. Disabled Members receiving benefits	1	1	1
4. Terminated vested Members	5	8	8
5. Annual payroll of active Members	\$ 13,003,575	\$ 12,760,505	\$ 12,760,505
6. Projected annual payroll of active Members	\$ 13,146,614	\$ 12,951,913	\$ 12,951,913
7. Annual benefits payable to Members currently receiving benefits	\$ 2,818,289	\$ 2,987,618	\$ 2,987,618
B. <u>Value of Assets</u>			
1. Smoothed actuarial value of assets	\$ 52,628,079	\$ 55,441,012	\$ 55,441,012
2. Market value of assets	\$ 53,666,271	\$ 57,290,853	\$ 57,290,853
C. <u>Liabilities</u>			
1. Actuarial present value of future expected benefit payments for active members			
a. Retirement benefits	\$ 27,378,365	\$ 26,526,061	\$ 31,077,042
b. Termination benefits	2,834,450	2,749,263	1,995,150
c. Death benefits	714,223	683,963	841,352
d. Disability benefits	1,087,439	1,051,434	1,156,858
e. Total	<u>\$ 32,014,477</u>	<u>\$ 31,010,721</u>	<u>\$ 35,070,402</u>
2. Actuarial present value of future expected benefit payments for terminated vested members	\$ 263,036	\$ 339,464	\$ 342,784
3. Actuarial present value of future expected benefit payments for members currently receiving benefits			
a. Service retired (including DROPs)	\$ 27,503,926	\$ 29,150,990	\$ 29,265,330
b. Disability retired	23,324	22,649	22,703
c. Beneficiaries	1,643,686	1,663,993	1,670,715
d. Miscellaneous	196,643	254,801	254,801
e. Total	<u>\$ 29,367,579</u>	<u>\$ 31,092,433</u>	<u>\$ 31,213,549</u>

Actuarial Valuation as of October 1, 2018

State Required Exhibit

	<u>10/01/2017</u>	<u>Prior Assumptions 10/01/2018</u>	<u>Current Assumptions 10/01/2018</u>
4. Total actuarial present value of future expected benefit payments	\$ 61,645,092	\$ 62,442,618	\$ 66,626,735
5. Actuarial accrued liabilities	\$ 52,677,248	\$ 53,623,372	\$ 55,235,340
6. Unfunded actuarial accrued liabilities	\$ 49,169	\$ (1,817,640)	\$ (205,672)
D. <u>Statement of Accumulated Plan Benefits</u>			
1. Actuarial present value of accumulated vested benefits			
a. Participants currently receiving benefits including DROPs	\$ 29,170,936	\$ 30,837,632	\$ 30,958,748
b. Other participants	15,601,549	15,693,600	15,858,053
c. Total	<u>\$ 44,772,485</u>	<u>\$ 46,531,232</u>	<u>\$ 46,816,801</u>
2. Actuarial present value of accumulated non-vested plan benefits	<u>1,762,092</u>	<u>1,701,595</u>	<u>1,722,723</u>
3. Total actuarial present value of accumulated plan benefits	<u>\$ 46,534,577</u>	<u>\$ 48,232,827</u>	<u>\$ 48,539,524</u>
E. <u>Statement of Change in Accumulated Plan Benefits</u>			
1. Actuarial present value of accumulated plan benefits as of October 1, 2017			\$ 46,534,577
2. Increase (decrease) during year attributable to:			
a. Plan amendment			\$ 0
b. Change in actuarial assumptions			306,697
c. Benefits paid including contribution refunds			(3,121,318)
d. Other, including benefits accumulated and increase for interest due to decrease in the discount period			<u>4,819,568</u>
e. Net increase			<u>\$ 2,004,947</u>
3. Actuarial present value of accumulated plan benefits as of October 1, 2018			\$ 48,539,524

Actuarial Valuation as of October 1, 2018

State Required Exhibit

	10/01/2017	Prior Assumptions 10/01/2018	Current Assumptions 10/01/2018
F. <u>Pension Cost</u>			
1. Total normal cost	\$ 1,657,405	\$ 1,634,564	\$ 1,837,523
2. Payment required to amortize unfunded liability	5,768	(149,019)	(17,219)
3. Interest adjustment	60,115	53,694	65,371
4. Total preliminary required contribution	\$ 1,723,288	\$ 1,539,239	\$ 1,885,675
5. Total required contribution (Greater of F.1. and F.4.)	\$ 1,723,288	\$ 1,634,564	\$ 1,885,675
6. Item 5 as a percentage of payroll	13.3%	12.8%	14.8%
7. Estimated employee contributions	\$ 788,797	\$ 777,115	\$ 777,115
8. Item 7 as a percentage of projected payroll	6.0%	6.0%	6.0%
9. Net amount payable by City	\$ 959,703	\$ 880,730	\$ 1,139,768
10. Item 9 as a percentage of projected payroll	7.3%	6.8%	8.8%
G. <u>Past Contributions</u>			
1. Total contribution required	\$ 1,782,065	\$ 1,748,500	\$ 1,748,500
2. Actual contributions made:			
a. Employees	\$ 790,420	N/A	N/A
b. City	991,645	N/A	N/A
c. Total	\$ 1,782,065	N/A	N/A
H. <u>Net Actuarial Gain (Loss)</u>	\$ 668,022	\$ 1,784,644	\$ 1,784,644
I. <u>Disclosure of Following Items:</u>			
1. Actuarial present value of future salaries - attained age	\$ 80,902,497	\$ 79,393,309	\$ 87,856,567
2. Actuarial present value of future employee contributions - attained age	\$ 4,854,150	\$ 4,763,599	\$ 5,271,394
3. Actuarial present value of future contributions from other sources	N/A	N/A	N/A
4. Amount of active members' accumulated contributions	\$ 5,002,830	\$ 4,925,956	\$ 4,925,956
5. Actuarial present value of future salaries and future benefits at entry age	N/A	N/A	N/A
6. Actuarial present value of future employee contributions at entry age	N/A	N/A	N/A

State Required Exhibit

<u>Unfunded Actuarial Accrued Liabilities</u>		<u>Current Unfunded Liabilities</u>	<u>Current Assumption Amortization Payment</u>	<u>Prior Assumption Amortization Payment</u>	<u>Remaining Funding Period</u>
10/01/2016	Method Change - Initial Unfunded	\$ (139,471)	\$ (12,042)	\$ (12,081)	18 years
10/01/2016	Assumption Change	(12,676)	(1,094)	(1,098)	18 years
10/01/2017	Actuarial Loss / (Gain)	119,151	9,979	10,013	19 years
10/01/2018	Actuarial Loss / (Gain)	(1,784,644)	(145,336)	(145,853)	20 years
10/01/2018	Assumption Change	1,611,968	131,274	N/A	20 years
TOTAL		\$ (205,672)	\$ (17,219)	\$ (149,019)	

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, and in our 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 other wise provided for in the valuation. All known events or trends which may require material increase in Plan costs or required contribution rates have been taken into account in the valuation.

Jennifer Borregard

Jennifer M. Borregard, E.A., M.A.A.A, F.C.A.
Enrollment Number: 17-07624

Michelle Jones

Shelly L. Jones, A.S.A., E.A, M.A.A.A, F.C.A.
Enrollment Number: 17-08684

Dated: July 26, 2019

Nicolas Lahaye

Nicolas Lahaye, F.S.A., E.A, M.A.A.A, F.C.A
Enrollment Number: 17-07775

Glossary

Actuarial Accrued Liability. 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. 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 of Future Benefits. 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, non-retired 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 required contribution.

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.

Glossary

Amortization Payment. That portion of the plan contribution 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.

Annual Required Contribution. The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The annual required contribution consists of the Employer Normal Cost and Amortization Payment plus interest adjustment.

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. 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.

Glossary

GASB No. 67 and GASB No. 68. These are the governmental accounting standards that set the accounting rules for public retirement plans and the employers that sponsor or contribute to them. Statement No. 67 sets the accounting rules for the plans themselves, while Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement plans.

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.