P: 954.527.1616 | F: 954.525.0083 | www.grsconsulting.com

February 26, 2020

Ms. Casey Howard
HR and Benefits Manager
City of Winter Springs
1126 East State Road 434
Winter Springs, Florida 32708

Re: City of Winter Springs Defined Benefit Plan
October 1, 2019 Actuarial Valuation

Dear Casey:

As requested, we are pleased to enclose eleven (11) copies of the October 1, 2019 Actuarial Valuation Report for the City of Winter Springs Defined Benefit Plan.

We appreciate the opportunity to partner with you on this important project.

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,

Michelle Jones

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

Enclosures

One East Broward Boulevard | Suite 505 | Ft. Lauderdale, Florida 33301-1804

City Of Winter Springs Defined Benefit Plan

ACTUARIAL VALUATION AS OF OCTOBER 1, 2019

This Valuation Determines the Annual Contribution for the Plan Year October 1, 2020 through September 30, 2021 to be Paid in Plan Year October 1, 2020 to September 30, 2021

February 26, 2020


GRS

City of Winter Springs
Defined Benefit Plan

TABLE OF CONTENTS

		Page
Commentary		1
I.	Summary of Retirement Plan Costs	9
II.	Comparison of Cost Data of Current and Prior Valuations	11
III.	Characteristics of Participants in Actuarial Valuation	12
IV.	Statement of Assets	13
V.	Reconciliation of Plan Assets	14
VI.	Actuarial Gain / (Loss)	16
VII.	Amortization of Unfunded Actuarial Accrued Liability	17
VIII.	Accounting Disclosure Exhibit	18
IX.	Outline of Principal Provisions of the Retirement Plan	27
X.	Actuarial Assumptions and Actuarial Cost Methods Used	30
XI.	Distribution of Plan Participants by Attained Age Groups and Service Groups	38
XII.	Statistics for Participants Entitled to Deferred Benefits and Participants Receiving Benefits	43
XIII.	Reconciliation of Employee Data	44
XIV.	Projected Retirement Benefits	45
XV.	Recent Plan Experience	46
XVI.	State Required Exhibit	48
XVII.	Glossary	52

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February 26, 2020

City Council
City of Winter Springs Defined Benefit Plan
c/o Ms. Casey Howard
HR and Benefits Manager
1126 East State Road 434
Winter Springs, Florida 32708

Dear Council Members:

October 1, 2019 Actuarial Valuation

We are pleased to present our October 1, 2019 Actuarial Valuation for the City of Winter Springs Defined Benefit Plan (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 City has retained Gabriel, Roeder, Smith and Company (GRS) to prepare an annual actuarial valuation under Section 3.02 of the Plan.

This report consists of this commentary, detailed Tables I through XV, the State Required Exhibit on Table XVI and Glossary on Table XVII. The Tables contain basic Plan cost figures plus significant details on the benefits, liabilities and experience of the Plan. We suggest 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 Plan payment for the Plan Year October 1, 2020 – September 30, 2021 under the Florida Protection of Public Employee Retirement Benefits Act. The minimum payment consists of payment of annual normal costs including amortization of the components of the unfunded actuarial accrued liability over various periods as prescribed by law. The minimum payment is **$1,467,898 (33.9%**). The figure in parentheses is the Plan cost expressed as a percentage of projected covered annual payroll for fiscal year October 1, 2020 – September 30, 2021 ($4,325,321).

This total cost is to be met by member, County and City contributions. We anticipate member contributions will be **$216,266** (5.0% of projected covered payroll for fiscal year ending September 30, 2021). The resulting minimum required County and City contribution is **$1,251,632** (28.9%).

We recommend the City continue to contribute not less than the dollar amount of minimum required contribution due to the closing of the Plan to future general employees.

Changes in Actuarial Assumptions, Methods and Plan Provisions

The Plan provisions remain unchanged from our October 1, 2018 Actuarial Valuation. The Plan provisions are outlined on Table IX.

The investment return assumption and disability rates have been updated. The mortality assumptions have been updated to use the mortality assumptions used by the Florida Retirement System (FRS) as required under F.S., Chapter 2015-157 based upon the July 1, 2019 FRS Actuarial Valuation. The remaining actuarial assumptions and methods remain unchanged from our October 1, 2018 Actuarial Valuation. The actuarial assumptions and methods are outlined on Table X.

Comparison of October 1, 2018 and October 1, 2019 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, 2018. The center columns indicate the costs as calculated for October 1, 2019 prior to the update in actuarial assumptions. The right columns indicate the costs as calculated for October 1, 2019 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 decreased by approximately 15% while covered payroll decreased by approximately 14%. Total Plan membership increased by less than 1%. Total normal cost decreased both as a dollar amount and a percentage of covered payroll. Net County and City minimum funding requirement and the unfunded actuarial accrued liability decreased as a dollar amount but increased as a percentage of covered payroll.

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

The value of vested accrued benefits exceeds Plan assets, resulting in a Vested Benefit Security Ratio (VBSR) of 90.3% (90.9% prior to assumptions update) which is a decrease from 92.9% as of the October 1, 2018 Actuarial Valuation. The VBSR is measured on a market value of assets basis.

Plan Experience

The Plan experienced an actuarial loss in the amount of $490,787 this year. This indicates actual overall Plan experience was less favorable than expected.

Table XV (salary, turnover and investment yield) provides figures on recent Plan experience. Salary experience indicates actual salary increases averaged approximately 8.5% for General and Forensic

Employees and 4.5% for Firefighters and Police Officers for Plan Year ended September 30, 2019 when compared to the assumed salary increase of 3.2% and 3.3%, respectively. Salary increases were generally a source of actuarial loss. The three, five and ten-year average annual salary increases are 5.7%, 4.5% and 2.9% for General and Forensic Employees, respectively – 4.8%, 4.8% and 2.6% for Firefighters and Police Officers, respectively.

Employee turnover this year was 390% of the assumed turnover for General and Forensic Employees and 90% of the assumed turnover for Firefighters and Police Officers. Employee turnover was an offsetting source of actuarial gain for General and Forensic Employees and an actuarial loss for Firefighters and Police Officers. The three, five and ten-year average annual turnover is 260%, 230% and 190%, respectively for General and Forensic Employees - 230%, 250% and 230%, respectively for Firefighters and Police Officers.

The smoothed value investment return of 7.90% was greater than the investment return assumption of 7.75% (prior assumption). Smoothed value investment return was an additional offsetting source of actuarial gain during the year. The three, five and ten-year average annual smoothed value investment returns are 9.1%, 9.4% and 7.7%, respectively. The one, three, five and ten-year average annual market value returns are 2.69%, 9.1%, 7.5% and 9.5%, respectively.

Member Census and Financial Data

The City submitted the Member census data used for this Actuarial Valuation to us as of October 1, 2019. This information contains name, Social Security number, date of birth, date of hire, October 1, 2019 rate of pay, actual salary paid and member contributions for the previous year. Dates of termination and retirement are provided where applicable. The City updated information on inactive participants including retirees, beneficiaries and vested terminees.

Financial information concerning Plan assets was provided by the City as of September 30, 2019. We do not audit the Member census data and asset information that is provided to us; however, we perform certain reasonableness checks. The City 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 of the report may be considered as a minimum contribution rate that complies with the Plan'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 fund may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2018	2019
Ratio of market value of assets to payroll	10.60	12.65
Ratio of actuarial accrued liability to payroll	12.24	14.95
Ratio of actives to retirees and beneficiaries	0.75	0.58
Ratio of net cash flow to market value of assets	0.2%	-0.3%
Duration of the actuarial accrued liability	11.76	11.57

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 contribution. 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 higher (lower) or increasing (decreasing) volatility in the actuarially determined contribution 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 targeting 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 actuarial accrued 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 actuarial accrued 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 actuarial accrued liability (and also the actuarially determined contribution) 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 actuarial accrued 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 this 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 Plan. The economic and demographic actuarial assumptions are based upon the results of an Experience Study for the period October 1, 2011 – September 30, 2016. The mortality assumptions are as 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 or decrease as a percent of payroll and the funded status is expected to improve. 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 dollar amortization payment using an initial closed amortization period of 30 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 smoothed 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 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 Funded Ratio shown in Table II is for informational purposes and 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.

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 City only in its entirety and only with the permission of an approved representative of the City.

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.
Consultant and Actuary

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

Table I

Summary of Retirement Plan Costs as of October 1, 2019

	Prior Assumptions		Current Assumptions	
	Cost Data	% of Payroll	Cost Data	% of Payroll
A. Participant Data Summary (Table III)				
1. Active Employees	73	N/A	73	N/A
2. Terminated Vested	167	N/A	167	N/A
3. Receiving Benefits	125	N/A	125	N/A
4. Total Annual Payroll of Active Employees	$ 4,325,321	100.0%	$ 4,325,321	100.0%
B. Total Normal Costs				
1. Age Retirement Benefits	$ 229,785	5.3%	$ 244,414	5.7%
2. Termination Benefits	140,020	3.2%	146,301	3.4%
3. Death Benefits	10,067	0.2%	7,537	0.2%
4. Disability Benefits	4,038	0.1%	3,698	0.1%
5. Estimated Expenses	69,023	1.6%	69,023	1.6%
6. Total Annual Normal Costs	$ 452,933	10.5%	$ 470,973	10.9%
C. Total Actuarial Accrued Liability				
1. Age Retirement and Termination Benefits Active Employees	$ 14,522,197	335.7%	$ 14,851,712	343.4%
2. Death Benefits Active Employees	393,563	9.1%	271,654	6.3%
3. Disability Benefits Active Employees	147,779	3.4%	124,732	2.9%
4. Retired or Terminated Vested Participants Receiving Benefits	36,186,893	836.6%	36,340,974	840.2%
5. Terminated Vested Participants Entitled to Future Benefits	10,852,121	250.9%	10,987,664	254.0%
6. Deceased Participants Whose Beneficiaries are Receiving Benefits (includes DROs)	1,972,580	45.6%	1,977,579	45.7%
7. Disabled Participants Receiving Benefits	0	0.0%	0	0.0%
8. Miscellaneous Liability (Refunds in Process)	104,893	2.4%	104,893	2.4%
9. Total Actuarial Accrued Liability	$ 64,180,026	1483.8%	$ 64,659,208	1494.9%
D. Assets (Table V)				
1. Smoothed Value of Assets	$ 54,759,146	1266.0%	$ 54,759,146	1266.0%
2. Market Value of Assets	$ 54,713,697	1265.0%	$ 54,713,697	1265.0%
E. Unfunded Actuarial Accrued Liability (C.9. - D.1.)	$ 9,420,880	217.8%	$ 9,900,062	228.9%

Summary of Retirement Plan Costs as of October 1, 2019

	Prior Assumptions		Current Assumptions	
	Cost Data	% of Payroll	Cost Data	% of Payroll
F. Minimum Required Contribution				
1. Total Normal Cost (including expenses)	$ 452,933	10.5%	$ 470,973	10.9%
2. Amortization of Unfunded Liability	911,231	21.1%	934,804	21.6%
3. Interest Adjustment	62,175	1.4%	62,121	1.4%
4. Total Payment	$ 1,426,339	33.0%	$ 1,467,898	33.9%
G. Expected payroll of active employees for FYE 2021 (1.000 x $4,325,321)	$ 4,325,321	100.0%	$ 4,325,321	100.0%
H. Contribution Sources (percent of expected 2021 payroll)				
1. County and City	$ 1,210,073	28.0%	$ 1,251,632	28.9%
2. Member	216,266	5.0%	216,266	5.0%
3. Total required contribution	$ 1,426,339	33.0%	$ 1,467,898	33.9%
I. Actuarial Gain / (Loss)	$ (490,787)	(11.3%)	$ (490,787)	(11.3%)
J. Actuarial Present Value of Vested Accrued Benefits				
1. Retired, Terminated Vested, Beneficiaries and Disabled Receiving Benefits	$ 38,159,473	882.2%	$ 38,318,553	885.9%
2. Terminated Vested Participants Entitled to Future Benefits and Miscellaneous	10,957,014	253.3%	11,092,557	256.5%
3. Active Participants Entitled to Future Benefits	11,057,239	255.6%	11,188,522	258.7%
4. Total Actuarial Present Value of Vested Accrued Benefits	$ 60,173,726	1391.2%	$ 60,599,632	1401.0%
K. Unfunded Actuarial Present Value of Vested Accrued Benefits (J.4. - D.2., not less than zero)	$ 5,460,029	126.2%	$ 5,885,935	136.1%
L. Vested Benefit Security Ratio (D.2. ÷ J.4.)	90.9%	N/A	90.3%	N/A

Table II

Comparison of Cost Data of October 1, 2018 and October 1, 2019 Valuations

	October 1, 2018		Prior Assumptions October 1, 2019		Current Assumptions October 1, 2019	
	Cost Data	% of Compensation	Cost Data	% of Compensation	Cost Data	% of Compensation
A. Participants						
1. Active Employees	86	N/A	73	N/A	73	N/A
2. Terminated Vested	164	N/A	167	N/A	167	N/A
3. Receiving Benefits	114	N/A	125	N/A	125	N/A
4. Total Annual Payroll of Active Employees	$ 5,042,067	100.0%	$ 4,325,321	100.0%	$ 4,325,321	100.0%
B. Total Normal Costs	$ 537,506	10.7%	$ 452,933	10.5%	$ 470,973	10.9%
C. Actuarial Accrued Liability	$ 61,721,486	1224.1%	$ 64,180,026	1483.8%	$ 64,659,208	1494.9%
D. Present Value of Future Benefits	$ 64,535,748	1279.9%	$ 66,611,244	1540.0%	$ 67,251,079	1554.8%
E. Smoothed Value of Assets	$ 50,899,575	1009.5%	$ 54,759,146	1266.0%	$ 54,759,146	1266.0%
F. Market Value of Assets	$ 53,431,514	1059.7%	$ 54,713,697	1265.0%	$ 54,713,697	1265.0%
G. Unfunded Actuarial Accrued Liability (C. - E.)	$ 10,821,911	214.6%	$ 9,420,880	217.8%	$ 9,900,062	228.9%
H. County and City Minimum Funding Payment	$ 1,389,125	27.6%	$ 1,210,073	28.0%	$ 1,251,632	28.9%
I. Ratios						
1. Vested Benefit Security Ratio	92.9%	N/A	90.9%	N/A	90.3%	N/A
2. Funded Ratio (F. / C.)	86.6%	N/A	85.3%	N/A	84.6%	N/A

Table III

Characteristics of Participants in Actuarial Valuation as of October 1, 2019

A. Active Plan Participants Summary

1. Active participants fully vested		59
2. Active participants partially vested		0
3. Active participants non-vested		14
4. Total active participants		73
5. Annual rate of pay of active participants	$	4,325,321

B. Retired and Terminated Vested Participant Summary

1. Retired or terminated vested participants receiving benefits	108
2. Terminated vested participants entitled to future benefits	167
3. Deceased participants whose beneficiaries are receiving benefits (includes DROs)	17
4. Disabled participants receiving benefits	0

C. Projected Annual Retirement Benefits

1. Retired or terminated vested receiving benefits	$	3,367,649
2. Terminated vested entitled to future benefits	$	1,758,553
3. Beneficiaries of deceased participants (includes DROs)	$	213,008
4. Disabled participants	$	0

Table IV

Statement of Assets as of October 1, 2019

	Assets		Market Value
A.	Cash and Cash Equivalents	$	524,239
B.	General Investments		
	1. Common Stock	$	36,308,420
	2. Bonds		9,321,234
	3. Real Estate		5,596,184
	4. Other		2,339,264
C.	Receivables		
	1. Accrued Interest	$	0
	2. Employee Contribution Receivable		8,321
	3. City and County Contributions Receivable		616,035
	4. Accounts Receivable		0
D.	Payables		
	1. Accounts Payable	$	0
	2. Due to Broker		0
E.	Plan Assets (A + B + C - D)	$	54,713,697

Table V

Reconciliation of Plan Assets

A.	Market Value of Assets as of October 1, 2018			53,431,514
B.	Receipts During Period			
	1. Contributions			
	a. Member	$ 265,688		
	b. City and County	2,924,706		
	c. Total	$ 3,190,394		
	2. Investment Income			
	a. Interest and dividends	$ 724,616		
	b. Realized / unrealized gains (losses)	1,033,025		
	c. Investment expenses	(320,417)		
	d. Net investment income	$ 1,437,224		
	3. Total receipts during period		$	4,627,618
C.	Disbursements During Period			
	1. Pension payments and contribution refunds	$ 3,276,412		
	2. Administrative expenses	69,023		
	3. Total disbursements during period		$	3,345,435
D.	Market Value of Assets as of September 30, 2019		$	54,713,697

Development of Smoothed Value of Assets as of September 30

	2018	2019	2020	2021	2022	2023
A. Preliminary total smoothed value from prior year	$ 46,396,570	$ 50,899,575	$ 54,759,146			
B. Market value beginning of year	48,091,584	53,431,514	54,713,697			
C. Market value end of year	53,431,514	54,713,697				
D. Non-investment net cash flow	96,737	(155,041)				
E. Investment return						
1. Total market value return: C. - B. - D.	5,243,193	1,437,224				
2. Amount for immediate recognition (7.75%)	3,730,846	4,134,934				
3. Amount for phased-in recognition: E.1. - E.2.	1,512,347	(2,697,710)				
F. Phased-in recognition of investment return:						
1. Current year	302,469	(539,542)				
2. First prior year	496,160	302,469	(539,542)			
3. Second prior year	212,990	496,160	302,469	(539,542)		
4. Third prior year	(592,399)	212,990	496,160	302,469	(539,542)	
5. Fourth prior year	256,202	(592,399)	212,990	496,160	302,471	(539,542)
6. Total phased-in recognition of investment return	675,422	(120,322)	472,077	259,087	(237,071)	(539,542)
G. Total smoothed value end of year						
1. Preliminary total smoothed value end of year A. + D. + E.2. + F.6.	50,899,575	54,759,146				
2. Upper corridor limit: 120% of C.	64,117,817	65,656,436				
3. Lower corridor limit: 80% of C.	42,745,211	43,770,958				
4. Total smoothed value end of year: G.1., not more than G.2., nor less than G.3.	50,899,575	54,759,146				
H. Difference between total market value and total smoothed value	2,531,939	(45,449)				
I. Smoothed value rate of return	9.49%	7.90%				
J. Market value rate of return	10.89%	2.69%				

Actuarial Gain / (Loss) for Plan Year Ended September 30, 2019

A. Derivation of Actuarial Gain / (Loss)

1. City and County net normal cost previous valuation	$	285,403
2. Unfunded actuarial accrued liability previous valuation		10,821,911
3. City and County contributions previous year		2,924,706
4. Interest on:		
(a) City and County net normal cost	$	22,119
(b) Unfunded actuarial accrued liability		838,698
(c) City and County contributions		113,332
(d) Net total: (a) + (b) - (c)	$	747,485
5. Increase / (decrease) in unfunded actuarial accrued liability due to assumption changes	$	479,182
6. Expected unfunded actuarial accrued liability current year: (1. + 2. - 3. + 4. + 5.)	$	9,409,275
7. Actual unfunded actuarial accrued liability current year		9,900,062
8. Actuarial gain / (loss): (6. - 7.)	$	(490,787)

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

1. Smoothed value of assets previous year	$	50,899,575
2. Contributions during period		3,190,394
3. Benefits and administrative expenses during period		3,345,435
4. Expected appreciation for period		3,938,709
5. Expected smoothed value of assets current year: (1. + 2. - 3. + 4.)	$	54,683,243
6. Actual smoothed value of assets current year	$	54,759,146
7. Approximate investment gain / (loss) due to investments: (6. - 5.)	$	75,903

C. Approximate Portion of Gain / (Loss) due to Liabilities: A.8. - B.7. $ (566,690)

Amortization of Unfunded Actuarial Accrued Liability

A. Unfunded Actuarial Accrued Liability

Date	Unfunded Liability	Amortization Payment
October 1, 2019	$ 9,900,062	$ 934,804
October 1, 2020	$ 9,637,652	$ 934,804
October 1, 2021	$ 9,355,562	$ 934,804
October 1, 2022	$ 9,052,315	$ 934,804
October 1, 2023	$ 8,726,324	$ 934,804
…		
…		
October 1, 2049	$ 0	$ 0

B. Covered Payroll History

Date	Covered Payroll	Annual Increase
October 1, 2019	$ 4,325,321	(14.2%)
October 1, 2018	$ 5,042,067	(8.9%)
October 1, 2017	$ 5,537,207	(6.4%)
October 1, 2016	$ 5,916,189	(13.9%)
October 1, 2015	$ 6,868,214	(3.2%)
October 1, 2014	$ 7,093,513	(4.5%)
October 1, 2013	$ 7,431,031	(9.6%)
October 1, 2012	$ 8,216,342	(7.4%)
October 1, 2011	$ 8,875,836	(13.9%)
October 1, 2010	$ 10,304,054	(4.2%)
October 1, 2009	$ 10,752,720	N/A
Ten-Year Average Annual Increase		(8.7%)

Accounting Disclosure Exhibit

	10/01/2018	Prior Assumptions 10/01/2019	Current Assumptions 10/01/2019
I. Number of Plan Members			
a. Retirees and beneficiaries receiving benefits	114	125	125
b. Terminated plan members entitled to but not yet receiving benefits	164	167	167
c. Active plan members	86	73	73
d. Total	364	365	365
II. Financial Accounting Standards Board Allocation as of October 1, 2019			
A. Statement of Accumulated Plan Benefits			
1. Actuarial present value of accumulated vested plan benefits			
a. Participants currently receiving benefits	$ 32,472,782	$ 38,159,473	$ 38,318,553
b. Other participants	25,033,747	22,014,253	22,281,079
c. Total	$ 57,506,529	$ 60,173,726	$ 60,599,632
2. Actuarial present value of accumulated non-vested plan benefits	$ 423,711	$ 267,777	$ 274,181
3. Total actuarial present value of accumulated plan benefits	$ 57,930,240	$ 60,441,503	$ 60,873,813
B. Statement of Change in Accumulated Plan Benefits			
1. Actuarial present value of accumulated plan benefits as of October 1, 2018			$ 57,930,240
2. Increase (decrease) during year attributable to:			
a. Plan amendment			$ 0
b. Change in actuarial assumptions			432,310
c. Benefits paid including refunds			(3,276,412)
d. Other, including benefits accumulated, increase for interest due to decrease in the discount period			5,787,675
e. Net increase			$ 2,943,573
3. Actuarial present value of accumulated plan benefits as of October 1, 2019			$ 60,873,813
C. Significant Matters Affecting Calculations			
1. Assumed rate of return used in determining actuarial present values			7.50%
2. Change in Plan provisions			None.
3. Change in actuarial assumptions			See Table X, 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	9/30/2019	Projected 9/30/2020 *
A. Total Pension Liability (TPL)							
Service Cost	$ 886,819	$ 834,402	$ 808,281	$ 697,459	$ 502,667	$ 472,736	$ 401,950
Interest	3,666,120	3,851,130	4,059,813	4,229,901	4,452,760	4,693,091	4,736,095
Benefit Changes	0	0	0	0	0	0	0
Difference Between Actual and Expected Experience	(581,481)	(107,513)	275,994	(592,087)	124,345	1,281,355	569,125
Assumption Changes	0	8,107	0	526,115	2,531,601	0	479,182
Benefit Payments, including Refunds of Member Contributions	(1,974,208)	(2,202,769)	(2,450,972)	(2,679,408)	(2,935,206)	(3,276,412)	(3,826,450)
Net Change in Total Pension Liability	$ 1,997,250	$ 2,383,357	$ 2,693,116	$ 2,181,980	$ 4,676,167	$ 3,170,770	$ 2,359,902
Total Pension Liability (TPL) - (beginning of year)	46,508,261	48,505,511	50,888,868	53,581,984	55,763,964	60,440,131	63,610,901
Total Pension Liability (TPL) - (end of year)	$ 48,505,511	$ 50,888,868	$ 53,581,984	$ 55,763,964	$ 60,440,131	$ 63,610,901	$ 65,970,803
B. Plan Fiduciary Net Position							
Contributions - City and County	$ 2,527,508	$ 2,392,948	$ 2,586,936	$ 2,605,753	$ 2,635,968	$ 2,924,706	$ 1,389,125
Contributions - Member	369,500	358,106	479,257	342,209	460,745	265,688	216,266
Net Investment Income	3,885,344	5,160	4,077,452	5,851,493	5,243,193	1,437,224	4,017,649
Benefit Payments, including Refunds of Member Contributions	(1,974,208)	(2,202,769)	(2,450,972)	(2,679,408)	(2,935,206)	(3,276,412)	(3,826,450)
Administrative Expenses	(159,424)	(11,937)	(28,208)	(55,697)	(64,770)	(69,023)	(69,023)
Other	0	0	0	0	0	0	0
Net Change in Plan Fiduciary Net Position	$ 4,648,720	$ 541,508	$ 4,664,465	$ 6,064,350	$ 5,339,930	$ 1,282,183	1,727,567
Plan Fiduciary Net Position - (beginning of year)	32,172,541	36,821,261	37,362,769	42,027,234	48,091,584	53,431,514	54,713,697
Plan Fiduciary Net Position - (end of year)	$ 36,821,261	$ 37,362,769	$ 42,027,234	$ 48,091,584	$ 53,431,514	$ 54,713,697	$ 56,441,264
C. Net Pension Liability (NPL) - (end of year): (A) - (B)	$ 11,684,250	$ 13,526,099	$ 11,554,750	$ 7,672,380	$ 7,008,617	$ 8,897,204	$ 9,529,539
D. Plan Fiduciary Net Position as a Percentage of TPL: (B) / (A)	75.91 %	73.42 %	78.44 %	86.24 %	88.40 %	86.01 %	85.55 %
E. Covered Employee Payroll **	$ 7,369,943	$ 7,070,355	$ 6,671,503	$ 5,846,435	$ 5,342,971	$ 4,800,755	$ 4,325,321
F. NPL as a Percentage of Covered Employee Payroll: (C) / (E)	158.54 %	191.31 %	173.20 %	131.23 %	131.17 %	185.33 %	220.32 %
G. Notes to Schedule:							
Valuation Date	10/01/2013	10/01/2014	10/01/2015	10/01/2016	10/01/2017	10/01/2018	10/01/2019
Reporting Date (GASB No. 68)	9/30/2015	9/30/2016	9/30/2017	9/30/2018	9/30/2019	9/30/2020	9/30/2021

Update procedures were used to roll forward the TPL to the measurement date.
See Table VIII, Item V. for a history of benefit changes and assumption changes.

* Projected - actual amounts will be available after fiscal year end.
** Reported payroll on which contributions to the Plan are based as provided under GASB No. 82.

Accounting Disclosure Exhibit

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

Fiscal Year End 9/30	Actuarially Determined Contribution	Actual Contribution [1]	Contribution Deficiency / (Excess)	Covered Payroll [2]	Actual Contribution as a % of Covered Payroll
2010	$ 2,311,058	$ 2,311,058	$ 0	$ 10,752,720	21.49%
2011	2,616,924	2,616,924	0	10,304,054	25.40%
2012	1,965,643	1,913,717	51,926	8,875,836	21.56%
2013	2,258,769	2,258,798	(29)	8,216,342	27.49%
2014	2,474,578	2,527,508	(52,930)	7,369,943	34.29%
2015	2,230,908	2,392,948	(162,040)	7,070,355	33.84%
2016	2,067,445	2,586,936	(519,491)	6,671,503	38.78%
2017	1,831,495	2,605,753	(774,258)	5,846,435	44.57%
2018	1,613,548	2,635,968	(1,022,420)	5,342,971	49.34%
2019	1,484,498	2,924,706	(1,440,208)	4,800,755	60.92%
2020 [3]	1,389,125	1,389,125	0	4,325,321	32.12%

[1] Per City CAFR prior to September 30, 2014

[2] Reported payroll on which contributions to the Plan are based as provided under GASB No. 82 (projected prior to fiscal year ended September 30, 2014)

[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 years prior the fiscal year end in which contributions are reported.

Methods and Assumptions Used to Determine Contribution Rates for Fiscal Year Ending September 30, 2020:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level dollar, closed
Amortization Period	30 years
Asset Valuation Method	5-year smoothed market
Inflation	2.75%
Salary Increases	3.0% - 4.5%
Investment Rate of Return	7.75%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition
Mortality	For healthy male General Employee 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 General Employee 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 General Employee 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 General Employee 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 healthy Firefighter and Police Officer participants during employment, RP 2000 Combined Healthy Participant Mortality Tables, separate rates for males and females, with 90% Blue Collar Adjustment / 10% White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB. For healthy Firefighter and Police Officer participants post employment, RP 2000 Annuitant Mortality Tables, separate rates for males and females, with 90% Blue Collar Adjustment / 10% White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB. For disabled male General Employee participants, RP 2000 Disabled Male Mortality Table, set back four years, without projected mortality improvements. For disabled female General employee participants, RP 2000 Disabled Female Mortality Table, set forward two years, without projected mortality improvements. For disabled male Firefighter and Police Officer participants, 60% RP 2000 Disabled Male Mortality Table setback four years / 40% RP 2000 Annuitant Male Mortality Table with White Collar Adjustment with no setback, without projected mortality improvements. For disabled female Firefighter and Police Officer participants, 60% RP 2000 Disabled Female Mortality Table set forward two years / 40% RP 2000 Annuitant Female Mortality Table with White Collar Adjustment with no setback, without projected mortality improvements.

Accounting Disclosure Exhibit

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

Other Information:

Benefit Changes
2011: Plan closed to future general employees; pensionable earnings to base pay, overtime - maximum 150 hours and accrued leave balance as of July 1, 2011; vesting schedule updated; unreduced early retirement eligibility updated; final average pay updated to five year average and future service benefit accrual rate reduced for general employees.

Assumption Changes
2017: Investment return, salary increase, withdrawal and retirement rates updated. 2016: Mortality rates updated. 2014: Disability rates updated.

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

A discount rate of 7.50% was used to measure the September 30, 2020 TPL. This discount rate was based on the expected rate of return on Plan investments of 7.50%. The projection of cash flows used to determine this discount rate assumed member contributions will be made at the current member contribution rate and City and County contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member contribution rate. Based upon these assumptions, the 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, 2019

	1% Decrease	Current Discount Rate	1% Increase
Discount Rate	6.75%	7.75%	8.75%
NPL	$ 16,197,000	$ 8,897,204	$ 2,768,384

Measurement date: September 30, 2020 *

	1% Decrease	Current Discount Rate	1% Increase
Discount Rate	6.50%	7.50%	8.50%
NPL	$ 16,995,001	$ 9,529,539	$ 3,251,186

* 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, 2020	$ 2,872,335

Summary of Outstanding Deferred Inflows and Outflows of Resources as of September 30, 2020

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience on liabilities	$ 618,263	$ 37,006
Changes of assumptions or other inputs	263,027	0
Net difference between projected and actual earnings on pension Plan investments	45,449	0
Total	$ 926,739	$ 37,006

Projected Deferred Outflows for County and City Contributions to Be Recognized in Pension Expense for Fiscal Year Ending September 30, 2021	$ 1,389,125

Summary of Deferred Outflows and Inflows of Resources that to Be Recognized in Pension Expense in Future Years.

Year Ending 30-Sep	Amount
2021	$ 372,207
2022	(259,087)
2023	237,071
2024	539,542
2025	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	9/30/2014	9/30/2015	9/30/2016	9/30/2017	9/30/2018	9/30/2019	Projected 9/30/2020 *
Service Cost	$ 886,819	$ 834,402	$ 808,281	$ 697,459	$ 502,667	$ 472,736	$ 401,950
Interest on Total Pension Liability	3,666,120	3,851,130	4,059,813	4,229,901	4,452,760	4,693,091	4,736,095
Current-Period Benefit Changes	0	0	0	0	0	0	0
Contributions - Member	(369,500)	(358,106)	(479,257)	(342,209)	(460,745)	(265,688)	(216,266)
Projected Earnings on Plan Investments	(2,604,338)	(2,967,155)	(3,012,502)	(3,370,693)	(3,730,846)	(4,134,934)	(4,017,649)
Administrative Expenses	159,424	11,937	28,208	55,697	64,770	69,023	69,023
Other Changes in Plan Fiduciary Net Position	0	0	0	0	0	0	0
Recognition of Beginning Deferred Outflows / (Inflows) due to Liabilities	(126,409)	(149,527)	(78,759)	(99,375)	1,158,437	1,917,785	1,460,935
Recognition of Beginning Deferred Outflows / (Inflows) due to Assets	(256,201)	336,198	123,208	(372,952)	(675,422)	120,322	(472,077)
Total Pension Expense	$ 1,355,915	$ 1,558,879	$ 1,448,992	$ 797,828	$ 1,311,621	$ 2,872,335	$ 1,962,011

* 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 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2014 / 2015	$ 0	4.3	0.0	$ 0	$ 0
2015 / 2016	$ 275,994	3.9	0.0	$ 63,690	$ 0
2016 / 2017	$ 0	3.2	0.2	$ 0	$ 0
2017 / 2018	$ 124,345	2.2	0.2	$ 56,520	$ 11,305
2018 / 2019	$ 1,281,355	1.9	0.9	$ 674,397	$ 606,958
			TOTAL	$ 794,607	$ 618,263

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 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2014 / 2015	$ (107,513)	4.3	0.0	$ (7,501)	$ 0
2015 / 2016	$ 0	3.9	0.0	$ 0	$ 0
2016 / 2017	$ (592,087)	3.2	0.2	$ (185,027)	$ (37,006)
2017 / 2018	$ 0	2.2	0.2	$ 0	$ 0
2018 / 2019	$ 0	1.9	0.9	$ 0	$ 0
			TOTAL	$ (192,528)	$ (37,006)

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

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2014 / 2015	$ 8,107	4.3	0.0	$ 567	$ 0
2015 / 2016	$ 0	3.9	0.0	$ 0	$ 0
2016 / 2017	$ 526,115	3.2	0.2	$ 164,411	$ 32,882
2017 / 2018	$ 2,531,601	2.2	0.2	$ 1,150,728	$ 230,145
2018 / 2019	$ 0	1.9	0.9	$ 0	$ 0
			TOTAL	$ 1,315,706	$ 263,027

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 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2014 / 2015	$ 0	4.3	0.0	$ 0	$ 0
2015 / 2016	$ 0	3.9	0.0	$ 0	$ 0
2016 / 2017	$ 0	3.2	0.2	$ 0	$ 0
2017 / 2018	$ 0	2.2	0.2	$ 0	$ 0
2018 / 2019	$ 0	1.9	0.9	$ 0	$ 0
			TOTAL	$ 0	$ 0

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 9/30/2019	Recognition Amount for 2018 / 2019	Balance as of 9/30/2019
2014 / 2015	$ 2,961,995	5	0	$ 592,399	$ 0
2015 / 2016	$ (1,064,950)	5	1	$ (212,990)	$ (212,990)
2016 / 2017	$ (2,480,800)	5	2	$ (496,160)	$ (992,320)
2017 / 2018	$ (1,512,347)	5	3	$ (302,469)	$ (907,409)
2018 / 2019	$ 2,697,710	5	4	$ 539,542	$ 2,158,168
			TOTAL	$ 120,322	$ 45,449

Outline of Principal Provisions of the Retirement Plan

A. Effective Date

Plan adopted as a Money Purchase Floor Offset plan on October 1, 1997. Plan amended and restated as a Defined Benefit Plan effective October 1, 2000. Plan most recently amended by Resolution 2017-10 adopted November 13, 2017.

B. Eligibility Requirements

General Employees hired prior to October 1, 2011, Police Officers and Forensic Professionals working 30 or more hours per week are eligible to join the Plan on the first day of the month following completion of six (6) months of service. Electing transferring Firefighters as of October 2, 2008 under the Agreement with the County.

C. Accrual Service

Years of Accrual Service are any Plan Years during which an Employee completes at least 1,000 hours of service, including years of service completed prior to participation in the Plan.

D. Compensation

Wages, salaries and other amounts received (whether or not paid in cash) for personal services actually rendered in the course of employment. Effective October 10, 2011 Compensation shall exclude commissions, bonuses, overtime pay in excess of one hundred fifty (150) hours per Plan year and payments for accrued leave in excess of the dollar amount of an Employee's accrued leave balance on July 1, 2011.

E. Final Average Compensation

Average earnings during the best five (5) consecutive Plan Years out of the last ten (10) Plan Years preceding termination or retirement, but not less than the three (3) highest consecutive compensation periods during employment with the City as of September 30, 2011.

F. Normal Retirement

1. Eligibility:

(a) Attainment of age 65; or
(b) Completion of 30 years of service and determined to be disabled under the City's long term disability insurance policy.

Outline of Principal Provisions of the Retirement Plan

2. Benefit:

For Firefighters, Police Officers and Forensic Professionals, 3.00% times Final Average Compensation multiplied by Accrual Service, up to a maximum of 30 years.

For General Employees, 3.00% times Accrual Service earned through September 30, 2011 times Final Average Compensation plus 2.50% times Accrual Service earned after September 30, 2011 times Final Average Compensation, up to a maximum of 30 years of Accrual Service.

G. Early Retirement

1. Eligibility:

(a) Attainment of age 55 and completion of 15 years of service; or
(b) Completion of 25 years of service.

2. Benefit:

Benefit accrued to date of early retirement, actuarially reduced for each year early retirement benefit commencement precedes age 55. A participant as of September 30, 2011 who attains age 55 and completes 10 or more years of service but less than 15 years of service may receive the accrued benefit as of September 30, 2011 payable without actuarial reduction plus the accrued benefit earned after September 30, 2011 payable with actuarial reduction from normal retirement date.

H. Late Retirement

1. Eligibility:

Continued employment beyond Normal Retirement Date.

2. Benefit:

Greater of (a) and (b):

(a) Accrued benefit calculated as for Normal Retirement based upon service and pay at Late Retirement Date.

(b) Actuarially increased benefit as of Late Retirement Date.

I. Disability Retirement

1. Eligibility:

Completion of 30 years of service and determined to be disabled under the City's long term disability insurance policy.

2. Benefit:

Accrued benefit calculated as for Normal Retirement based upon service and pay at Disability Retirement Date.

Outline of Principal Provisions of the Retirement Plan

J. Death Benefit

Beneficiary entitled to a monthly benefit supported by the present value of the non-forfeitable accrued benefit at the time of the participant's death. If death occurs after actual retirement, the beneficiary receives whatever is payable under the form of benefit option elected.

K. Participant Contributions

Five percent (5%) of compensation.

L. Vested Benefit Upon Termination

100% vested in required participant contributions. Participant contributions made after October 1, 2000 are included in the deferred vested benefit payable at normal or early retirement date.

Upon termination of service prior to normal or early retirement date a participant shall be entitled to a benefit payable at normal or early retirement date calculated as for normal retirement. Based upon pay and service at date of termination multiplied by a percentage from the following table.

Years of Service	Vested Percentage
Less Than 7	0%
7 or More	100%

M. Normal Form of Payment of Retirement Income

Monthly benefit payable for life.

Other Options

Actuarially equivalent joint and survivor at 50%, 75%, 100%; or ten (10) years certain and life.

N. Changes Since Previous Valuation

None.

Actuarial Assumptions and Actuarial Cost Methods Used in the Valuation

A. Mortality

Firefighter, Police Officer and Forensic Professional participants:

For healthy participants during employment, PUB-2010 Headcount Weighted Safety Employee Female Mortality Table and Safety Below Median Employee Male Mortality Table, both set forward 1 year, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018.

For healthy participants post employment, PUB-2010 Headcount Weighted Safety Healthy Retiree Female Mortality Table and Safety Below Median Healthy Retiree Male Mortality Table, both set forward 1 year, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018.

For disabled participants, 80% PUB-2010 Headcount Weighted General Disabled Retiree Mortality Table / 20% PUB-2010 Headcount Weighted Safety Disabled Retiree Mortality Table, separate rates for males and females, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018.

Sample Ages (2019)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Men	Women	Men	Women
55	30.37	34.25	27.50	31.08
60	25.43	29.19	22.93	26.31
62	23.51	27.18	21.21	24.48

Sample Ages (2039)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Men	Women	Men	Women
55	32.00	35.73	29.39	32.90
60	27.00	30.63	24.70	28.04
62	25.04	28.60	22.92	26.16

General Employee participants:

For healthy participants during employment, PUB-2010 Headcount Weighted General Below Median Employee Mortality Table, separate rates for males and females, set back 1 year for male, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018.

For healthy participants post employment, PUB-2010 Headcount Weighted General Below Median Healthy Retiree Mortality Table, separate rates for males and females, set back 1 year for male, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018.

Actuarial Assumptions and Actuarial Cost Methods Used in the Valuation

A. Mortality (cont'd)

For disabled participants, PUB-2010 Headcount Weighted General Disabled Retiree Mortality Table, separate rates for males and females, both set forward 3 years, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018.

Sample Ages (2019)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Male	Female	Male	Female
55	32.50	34.95	28.53	32.29
60	27.66	29.93	24.46	27.77
62	25.78	27.96	22.85	25.95

Sample Ages (2039)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Male	Female	Male	Female
55	34.14	36.43	30.54	34.06
60	29.22	31.36	26.31	29.42
62	27.29	29.36	24.63	27.55

B. Investment Return

7.50%, compounded annually, net of investment expenses - includes assumed inflation of 2.75%.

C. Allowances for Expenses or Contingencies

Prior year's actual administrative expenses are included in normal cost.

D. Salary Increase Factors

Current salary is assumed to increase at a rate based on the table below per year until retirement - includes assumed wage inflation of 3.0%.

Service	General Employees	Forensic Professionals, Firefighters and Police Officers
Less than 5 years	4.50%	4.50%
5 - 14 years	3.25%	3.25%
15 - 20 years	3.00%	3.25%
20+ years	3.00%	3.00%

Actuarial Assumptions and Actuarial Cost Methods Used in the Valuation

E. Employee Withdrawal Rates

Withdrawal rates were used in accordance with the following illustrative example.

	General Employees		Forensic Professionals, Firefighters and Police Officers	
Service	Male	Female	Male	Female
Less than 5 years	20.5%	15.5%	13.5%	4.0%
5 - 9 years	8.0%	12.0%	9.0%	4.0%
10+ years	4.5%	5.0%	4.5%	4.0%

F. Disability Rates

1. Line-of-duty disability rates for General Employees, Forensic Professionals, Firefighters and Police Officers were used in accordance with the following illustrative example.

Age	General Employees	All Other Employees
< 40	0.001%	0.005%
45	0.001%	0.050%
50	0.002%	0.050%
55	0.005%	0.090%
60	0.006%	0.090%
65	0.001%	0.090%

2. Non-duty disability rates for General Employees, Forensic Professionals, Firefighters and Police Officers were used in accordance with the following illustrative example.

Age	General Employees	All Other Employees
20	0.00%	0.02%
25	0.01%	0.02%
30	0.01%	0.04%
35	0.01%	0.04%
40	0.02%	0.04%
45	0.04%	0.04%
50	0.08%	0.07%
55	0.16%	0.07%
60	0.21%	0.07%
65	0.04%	0.07%

The disability assumptions are the disability assumptions used in the July 1, 2019 FRS Actuarial Valuation.

Actuarial Assumptions and Actuarial Cost Methods Used in the Valuation

G. Assumed Retirement Age

Retirement rates were used in accordance with the following tables.

1. For Forensic Professionals, Police Officers and Firefighters:

Age	Years of Service				
	0 - 9	10 - 14	15 - 24	25 - 29	30 or more
Under 55	0.0%	0.0%	0.0%	3.5%	40.0%
55	0.0%	5.0%	25.0%	70.0%	80.0%
56 - 64	0.0%	5.0%	7.5%	7.5%	10.0%
65 and above	100.0%	100.0%	100.0%	100.0%	100.0%

2. For General Employees:

Age	Years of Service		
	0 - 14	15 - 24	25 or more
Under 55	0%	0%	0%
55 - 64	4%	18%	12%
65 and above	100%	100%	100%

H. Marital Assumptions

1. 100% of active members are assumed to be married.
2. Females are assumed to be three (3) years younger than their male spouses.

I. Interest on Future Participant Contributions

3.75%, compounded annually.

J. Asset Valuation Method

The method used for determining the smoothed value of assets phases in the deviation between the expected and actual return on assets at the rate of 20% per year. The smoothed 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 - adjusted for equation of balance October 1, 2010.

Actuarial Assumptions and Actuarial Cost Methods Used in the Valuation

K. Cost Method

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

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 entry age 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 assets of the Plan.

L. Changes Since Previous Valuation

1. Mortality was:

Firefighter, Police Officer and Forensic Professional participants:

For healthy participants during employment, RP 2000 Combined Healthy Participant Mortality Tables, separate rates for males and females, with 90% Blue Collar Adjustment / 10% White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB.

For healthy participants post employment, RP 2000 Annuitant Mortality Tables, separate rates for males and females, with 90% Blue Collar Adjustment / 10% White Collar Adjustment and fully generational mortality improvements projected to each future decrement date with Scale BB.

For disabled male participants, 60% RP 2000 Disabled Male Mortality Table setback four years / 40% RP 2000 Annuitant Male Mortality Table with White Collar Adjustment with no setback, without projected mortality improvements. For disabled female participants, 60% RP 2000 Disabled Female Mortality Table set forward two years / 40% RP 2000 Annuitant Female Mortality Table with White Collar Adjustment with no setback, without projected mortality improvements.

Sample Ages (2019)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Men	Women	Men	Women
55	29.96	32.70	29.45	32.50
60	25.08	27.66	24.87	27.51
62	23.21	25.69	23.09	25.59

Sample Ages (2039)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Men	Women	Men	Women
55	32.17	34.63	31.68	34.46
60	27.32	29.58	27.14	29.45
62	25.45	27.60	25.34	27.51

Actuarial Assumptions and Actuarial Cost Methods Used in the Valuation

L. Changes Since Previous Valuation (cont'd)

1. Mortality was (cont'd):

General Employee participants:

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, set back 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 (2019)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Male	Female	Male	Female
55	30.64	33.66	30.21	33.44
60	25.71	28.64	25.55	28.54
62	23.81	26.68	23.71	26.62

Sample Ages (2039)	Pre-retirement Future Life Expectancy (Years)		Post-retirement Future Life Expectancy (Years)	
	Male	Female	Male	Female
55	32.78	35.50	32.37	35.30
60	27.88	30.47	27.74	30.38
62	25.97	28.49	25.89	28.44

2. Investment Return was:

7.75%, compounded annually, net of investment expenses - includes assumed inflation of 2.75%.

Actuarial Assumptions and Actuarial Cost Methods Used in the Valuation

L. Changes Since Previous Valuation (cont'd)

3. Disability Rates were:

a. Line-of-duty disability rates for General Employees were used in accordance with the following illustrative example.

Age	Male	Female
20	0.000%	0.000%
25	0.001%	0.001%
30	0.001%	0.001%
35	0.001%	0.001%
40	0.001%	0.001%
45	0.004%	0.001%
50	0.006%	0.006%
55	0.006%	0.006%
60	0.010%	0.013%
65	0.010%	0.010%

b. Non-duty disability rates for General Employees were used in accordance with the following illustrative example.

Age	Male	Female
20	0.00%	0.00%
25	0.01%	0.01%
30	0.01%	0.01%
35	0.02%	0.01%
40	0.02%	0.02%
45	0.08%	0.06%
50	0.16%	0.10%
55	0.25%	0.16%
60	0.30%	0.26%
65	0.10%	0.08%

The disability assumptions were the disability assumptions used in the July 1, 2018 FRS Actuarial Valuation.

Actuarial Assumptions and Actuarial Cost Methods Used in the Valuation

L. Changes Since Previous Valuation (cont'd)

3. Disability Rates were: (cont'd)

c. Line-of-duty disability rates for Forensic Professionals, Firefighters and Police Officers were used in accordance with the following illustrative example.

Age	Male	Female
20	0.010%	0.000%
25	0.010%	0.004%
30	0.010%	0.004%
35	0.010%	0.004%
40	0.020%	0.040%
45	0.060%	0.040%
50	0.140%	0.050%
55	0.100%	0.080%
60	0.140%	0.150%
65	0.260%	0.150%

d. Non-duty disability rates for Forensic Professionals, Firefighters and Police Officers were used in accordance with the following illustrative example.

Age	Male	Female
20	0.02%	0.00%
25	0.02%	0.02%
30	0.03%	0.02%
35	0.03%	0.03%
40	0.03%	0.03%
45	0.03%	0.06%
50	0.08%	0.11%
55	0.05%	0.11%
60	0.05%	0.11%
65	0.05%	0.11%

The disability assumptions were the disability assumptions used in the July 1, 2018 FRS Actuarial Valuation.

Distribution by Attained Age Groups and Service Groups as of October 1, 2019

Firefighters

Attained Age Group	COMPLETED YEARS OF SERVICE 0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & Over	Total
Under 25	-	-	-	-	-	-	-	0
25 - 29	-	-	-	-	-	-	-	0
30 - 34	-	-	-	-	-	-	-	0
35 - 39	-	-	-	-	-	-	-	0
40 - 44	-	-	-	-	-	-	-	0
45 - 49	-	-	-	-	-	-	-	0
50 - 54	-	-	-	-	-	-	-	0
55 - 59	-	-	-	-	1	1	1	3
60 - 64	-	-	-	-	-	-	-	0
65 & Over	-	-	-	-	-	-	-	0
TOTAL	0	0	0	0	1	1	1	3

	10/01/2018	10/01/2019
Average Attained Age	55.34 years	58.16 years
Average Hire Age	27.34 years	30.49 years
Average Pay	$ 82,710	$ 89,443
Percent Female	0.0%	0.0%

Distribution by Attained Age Groups and Service Groups as of October 1, 2019

General Employees

Attained Age Group	COMPLETED YEARS OF SERVICE 0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & Over	Total
Under 25	-	-	-	-	-	-	-	0
25 - 29	-	-	-	-	-	-	-	0
30 - 34	-	1	1	-	-	-	-	2
35 - 39	-	-	1	1	-	-	-	2
40 - 44	-	-	3	3	3	-	-	9
45 - 49	-	-	-	-	-	1	-	1
50 - 54	-	-	-	1	1	-	-	2
55 - 59	-	1	2	2	-	-	1	6
60 - 64	-	1	1	1	1	2	-	6
65 & Over	-	-	-	-	-	-	-	0
TOTAL	0	3	8	8	5	3	1	28

	10/01/2018	10/01/2019
Average Attained Age	49.17 years	50.12 years
Average Hire Age	32.53 years	32.76 years
Average Pay	$ 52,428	$ 55,464
Percent Female	25.0%	32.1%

Distribution by Attained Age Groups and Service Groups as of October 1, 2019

Police Officers

Attained	COMPLETED YEARS OF SERVICE							
Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & Over	Total
Under 25	2	-	-	-	-	-	-	2
25 - 29	5	-	-	-	-	-	-	5
30 - 34	4	1	2	-	-	-	-	7
35 - 39	-	-	3	1	-	-	-	4
40 - 44	1	1	-	3	1	-	-	6
45 - 49	-	-	1	-	3	1	-	5
50 - 54	-	-	-	3	2	1	1	7
55 - 59	-	1	-	2	-	-	-	3
60 - 64	-	-	1	-	-	-	-	1
65 & Over	-	-	-	-	-	-	-	0
TOTAL	12	3	7	9	6	2	1	40

	10/01/2018	10/01/2019
Average Attained Age	43.05 years	41.07 years
Average Hire Age	29.66 years	28.54 years
Average Pay	$ 60,583	$ 60,240
Percent Female	19.5%	17.5%

Distribution by Attained Age Groups and Service Groups as of October 1, 2019

Forensic Professionals

Attained Age Group	COMPLETED YEARS OF SERVICE 0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & Over	Total
Under 25	-	-	-	-	-	-	-	0
25 - 29	-	-	-	-	-	-	-	0
30 - 34	1	-	-	-	-	-	-	1
35 - 39	-	-	-	-	-	-	-	0
40 - 44	-	-	-	-	1	-	-	1
45 - 49	-	-	-	-	-	-	-	0
50 - 54	-	-	-	-	-	-	-	0
55 - 59	-	-	-	-	-	-	-	0
60 - 64	-	-	-	-	-	-	-	0
65 & Over	-	-	-	-	-	-	-	0
TOTAL	1	0	0	0	1	0	0	2

	10/01/2018	10/01/2019
Average Attained Age	35.71 years	36.71 years
Average Hire Age	23.71 years	23.71 years
Average Pay	$ 45,917	$ 47,196
Percent Female	100.0%	100.0%

Distribution by Attained Age Groups and Service Groups as of October 1, 2019

All Members

Attained Age Group	COMPLETED YEARS OF SERVICE 0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & Over	Total
Under 25	2	-	-	-	-	-	-	2
25 - 29	5	-	-	-	-	-	-	5
30 - 34	5	2	3	-	-	-	-	10
35 - 39	-	-	4	2	-	-	-	6
40 - 44	1	1	3	6	5	-	-	16
45 - 49	-	-	1	-	3	2	-	6
50 - 54	-	-	-	4	3	1	1	9
55 - 59	-	2	2	4	1	1	2	12
60 - 64	-	1	2	1	1	2	-	7
65 & Over	-	-	-	-	-	-	-	0
TOTAL	13	6	15	17	13	6	3	73

	10/01/2018	10/01/2019
Average Attained Age	46.44 years	45.12 years
Average Hire Age	30.53 years	30.10 years
Average Pay	$ 58,629	$ 59,251
Percent Female	22.1%	24.7%

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 40	30	$ 181,605	$ 6,054
40 - 44	22	256,401	11,655
45 - 49	45	565,641	12,570
50 - 54	27	517,620	19,171
55 -59	25	152,312	6,092
60 - 64	10	64,038	6,404
65 - 69	3	9,896	3,299
70 - 74	4	8,806	2,202
75 & Over	1	2,234	2,234
TOTAL	167	$ 1,758,553	$ 10,530

B. Receiving Benefits

Current Age Group	Count	Total Annual Benefit	Average Annual Benefit
Less than 50	2	$ 18,664	$ 9,332
50 - 54	2	41,560	20,780
55 - 59	28	1,007,074	35,967
60 - 64	28	1,161,540	41,484
65 - 69	23	570,812	24,818
70 - 74	23	443,595	19,287
75 - 79	13	260,450	20,035
80 - 84	4	65,050	16,263
85 & Over	2	11,912	5,956
TOTAL	125	$ 3,580,657	$ 28,645

Table XIII

Reconciliation of Employee Data

A. Active Participants

1. Active participants previous year	86
2. Retired during year	(7)
3. Died during year	0
4. Disabled during year	0
5. Terminated non-vested during year	(1)
6. Terminated vested during year	(9)
7. New active participants	4
8. Out on military leave	0
9. Rehired during year	0
10. Transferred to DC Plan	0
11. Active participants current year	73

B. Participants Receiving Benefits

1. Participants receiving benefits previous year	114
2. New retired participants	7
3. New DRO recipient	0
4. New terminated vested receiving benefits	6
5. New beneficiaries receiving benefits	1
6. Died or ceased payment during year	(3)
7. Retired or terminated vested receiving benefits current year	125

C. Terminated Vested Participants Entitled to Future Benefits

1. Terminated vested entitled previous year	164
2. Died during year	0
3. Commenced receiving benefits during year	(6)
4. New terminated vested	9
5. Terminated vested refunded employee contributions	0
6. Rehired	0
7. Terminated vested entitled current year	167

Table XIV

Projected Retirement Benefits

Fiscal Year Ending	Projected Total Annual Payout
2020	$ 3,826,450
2021	$ 4,050,541
2022	$ 4,337,316
2023	$ 4,638,079
2024	$ 4,744,017
2025	$ 4,929,869
2026	$ 5,131,011
2027	$ 5,327,755
2028	$ 5,456,622
2029	$ 5,650,334

The above projected payout of Plan benefits during the next ten years is based on assumptions involving all decrements. Actual payouts may differ from the above estimates depending upon the 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.

Summary of Transaction Information [1]

Year Ending	Benefits Paid [2]	Administrative Expenses	Employee Contributions	City / County Contributions [3]	Smoothed Value
09/30/2019	$ 3,276,412	$ 69,023	$ 265,688	$ 2,924,706	$ 54,759,146
09/30/2018	2,935,206	64,770	460,745	2,635,968	50,899,575
09/30/2017	2,679,408	55,697	342,209	2,605,753	46,396,570
09/30/2016	2,450,972	28,208	479,257	2,586,936	42,001,072
09/30/2015	2,202,769	11,937	358,106	2,392,948	37,570,287
09/30/2014	1,974,208	159,424	369,500	2,527,508	33,841,977
09/30/2013	1,732,845	177,541	396,374	2,258,798	29,908,683
09/30/2012	1,606,752	309,874	418,635	1,824,431	26,852,721
09/30/2011	1,165,350	196,423	287,090	2,616,924	25,932,292
09/30/2010	886,521	178,530	284,866	2,311,058	23,887,446
09/30/2009	617,274	116,982	306,420	1,781,197	20,788,655
09/30/2008	384,482	70,423	365,288	1,663,951	18,746,975
09/30/2007	233,953	123,197	N/A	1,843,147	15,526,572
09/30/2006	171,697	84,340	N/A	1,505,020	11,951,383
09/30/2005	N/A	N/A	N/A	1,260,627	9,716,089
09/30/2004	140,509	62,225	N/A	1,013,379	8,134,588
09/30/2003	138,353	47,477	N/A	903,748	7,279,048

[1] Information prior to September 30, 2008 as reported by prior actuary.

[2] Includes refunds.

[3] Values prior to September 30, 2008 include Employee Contributions.

Recent Compensation, Termination and Investment Return Experience

Valuation Date	General & Forensic Compensation % Increase / (Decrease) Actual	General & Forensic Compensation % Increase / (Decrease) Assumed	Police & Fire Compensation % Increase / (Decrease) Actual	Police & Fire Compensation % Increase / (Decrease) Assumed	General & Forensic Termination Ratio of Actual to Expected	Police & Fire Termination Ratio of Actual to Expected	Investment Return Net Market Value Yield	Investment Return Net Smoothed Value Yield	Investment Return Assumed Rate of Return
10/01/2019	8.5%	3.2%	4.5%	3.3%	3.9	0.9	2.69%	7.90%	7.75%
10/01/2018	4.7%	3.1%	5.9%	3.2%	2.6	2.0	10.89%	9.49%	7.75%
10/01/2017	3.9%	4.0%	4.0%	4.6%	1.7	6.6	13.9%	9.9%	8.0%
10/01/2016	2.4%	4.2%	5.6%	4.8%	1.8	5.5	10.8%	10.2%	8.0%
10/01/2015	3.2%	4.4%	3.8%	4.8%	1.9	1.4	0.0%	9.4%	8.0%
10/01/2014	2.5%	4.7%	1.8%	4.9%	1.2	2.3	11.9%	10.5%	8.0%
10/01/2013	0.7%	4.7%	0.7%	4.9%	1.4	2.4	16.0%	8.5%	8.0%
10/01/2012	(2.4%)	4.8%	(6.5%)	5.0%	2.4	2.4	19.5%	2.3%	8.0%
10/01/2011	4.9%	4.8%	3.5%	5.2%	1.9	2.4	(1.0%)	2.0%	8.0%
10/01/2010	0.9%	5.0%	2.8%	5.3%	1.2	1.7	12.0%	7.3%	8.0%
Last 3 Years	5.7%	3.4%	4.8%	3.7%	2.6	2.3	9.1%	9.1%	7.8%
Last 5 Years	4.5%	3.8%	4.8%	4.1%	2.3	2.5	7.5%	9.4%	7.9%
Last 10 Years	2.9%	4.3%	2.6%	4.6%	1.9	2.3	9.5%	7.7%	7.9%

Actuarial Valuation as of October 1, 2019

State Required Exhibit

	10/01/2018	Prior Assumptions 10/01/2019	Current Assumptions 10/01/2019
A. Participant Data			
1. Active participants	86	73	73
2. Retired participants and beneficiaries receiving benefits	114	125	125
3. Disabled participants receiving benefits	0	0	0
4. Terminated vested participants	164	167	167
5. Annual payroll of active participants	$ 5,042,067	$ 4,325,321	$ 4,325,321
6. Annual benefits payable to those currently receiving benefits	$ 3,074,399	$ 3,580,657	$ 3,580,657
B. Value of Assets			
1. Smoothed Value	$ 50,899,575	$ 54,759,146	$ 54,759,146
2. Market Value	$ 53,431,514	$ 54,713,697	$ 54,713,697
C. Liabilities			
1. Actuarial present value of future expected benefit payments for active members			
a. Retirement benefits	$ 20,093,335	$ 15,428,210	$ 15,880,274
b. Vesting benefits	1,654,020	1,436,853	1,491,393
c. Death benefits	538,603	455,720	318,959
d. Disability benefits	205,816	173,974	149,343
e. Total	$ 22,491,774	$ 17,494,757	$ 17,839,969
2. Actuarial present value of future expected benefit payments for terminated vested members	$ 9,470,263	$ 10,852,121	$ 10,987,664
3. Actuarial present value of future expected benefit payments for members currently receiving benefits			
a. Service retired	$ 30,477,660	$ 36,186,893	$ 36,340,974
b. Disability retired	0	0	0
c. Beneficiaries	1,995,122	1,972,580	1,977,579
d. Miscellaneous (Refunds in Process)	100,929	104,893	104,893
e. Total	$ 32,573,711	$ 38,264,366	$ 38,423,446

Actuarial Valuation as of October 1, 2019

State Required Exhibit

	10/01/2018	Prior Assumptions 10/01/2019	Current Assumptions 10/01/2019
4. Total actuarial present value of future expected benefit payments	$ 64,535,748	$ 66,611,244	$ 67,251,079
5. Actuarial accrued liabilities	$ 61,721,486	$ 64,180,026	$ 64,659,208
6. Unfunded actuarial accrued liabilities	$ 10,821,911	$ 9,420,880	$ 9,900,062
D. Statement of Accumulated Plan Benefits			
1. Actuarial present value of accumulated vested benefits			
a. Participants currently receiving benefits	$ 32,472,782	$ 38,159,473	$ 38,318,553
b. Other participants	25,033,747	22,014,253	22,281,079
c. Total	$ 57,506,529	$ 60,173,726	$ 60,599,632
2. Actuarial present value of accumulated non-vested plan benefits	423,711	267,777	274,181
3. Total actuarial present value of accumulated plan benefits	$ 57,930,240	$ 60,441,503	$ 60,873,813
E. Pension Cost			
1. Total normal cost	$ 537,506	$ 452,933	$ 470,973
2. Payment required to amortize unfunded liability	1,032,209	911,231	934,804
3. Interest adjustment	71,513	62,175	62,121
4. Total required contribution	$ 1,641,228	$ 1,426,339	$ 1,467,898
5. Item 4 as a percentage of base payroll	32.6%	33.0%	33.9%
6. Estimated employee contributions	$ 252,103	$ 216,266	$ 216,266
7. Item 6 as a percentage of base payroll	5.0%	5.0%	5.0%
8. Net amount payable by County and City	$ 1,389,125	$ 1,210,073	$ 1,251,632
9. Item 8 as a percentage of base payroll	27.6%	28.0%	28.9%

Actuarial Valuation as of October 1, 2019

State Required Exhibit

	10/01/2018	Prior Assumptions 10/01/2019	Current Assumptions 10/01/2019
F. Past Contributions			
1. Total contribution required (previous valuation)	$ 1,750,186	$ 1,641,228	$ 1,641,228
2. Actual contributions made:			
a. Members	$ 265,688	N/A	N/A
b. City and County	2,924,706	N/A	N/A
c. Total	$ 3,190,394	N/A	N/A
G. Disclosure of Following Items:			
1. Actuarial present value of future salaries - attained age	$ 32,407,751	$ 29,261,231	$ 29,745,186
2. Actuarial present value of future employee contributions - attained age	$ 1,620,388	$ 1,463,061	$ 1,487,259
3. Actuarial present value of future contributions from other sources	N/A	N/A	N/A
4. Amount of active members' accumulated contributions	$ 2,548,169	$ 2,168,580	$ 2,168,580
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

Amortization balances are written down in proportion to amortization payments.

	Unfunded Actuarial Accrued Liabilities	Current Unfunded Liabilities	Prior Assumptions Amortization Payment	Current Assumptions Amortization Payment	Remaining Funding Period
10/01/2000	Initial	$ 862,693	$ 110,795	$ 109,700	11 years
10/01/2002	Assumption Change	(12,401)	(1,436)	(1,420)	13 years
10/01/2003	Plan Amendment	82,020	9,100	8,988	14 years
10/01/2004	Plan Amendment	129,231	13,799	13,619	15 years
10/01/2005	Plan Amendment	276,894	28,570	28,177	16 years
10/01/2006	Plan Amendment	327,992	32,817	32,342	17 years
10/01/2007	Plan Amendment	344,454	33,521	33,013	18 years
10/01/2008	Plan Amendment and Assumption Change	1,582,153	150,157	147,782	19 years
10/01/2008	Method Change	3,536,347	335,623	330,314	19 years
10/01/2009	Actuarial Loss / (Gain)	1,543,215	143,171	140,816	20 years
10/01/2010	Actuarial Loss / (Gain)	(290,534)	(26,404)	(25,953)	21 years
10/01/2010	Plan Amendment	(1,684,444)	(153,082)	(150,471)	21 years
10/01/2011	Actuarial Loss / (Gain)	1,872,634	167,019	164,072	22 years
10/01/2012	Actuarial Loss / (Gain)	641,593	56,252	55,228	23 years
10/01/2013	Actuarial Loss / (Gain)	(506,640)	(43,731)	(42,911)	24 years
10/01/2014	Actuarial Loss / (Gain)	(546,052)	(46,465)	(45,569)	25 years
10/01/2014	Assumption Change	5,129	436	428	25 years
10/01/2015	Actuarial Loss / (Gain)	(221,670)	(18,617)	(18,249)	26 years
10/01/2016	Actuarial Loss / (Gain)	(1,073,860)	(89,115)	(87,309)	27 years
10/01/2016	Assumption Change	372,219	30,889	30,263	27 years
10/01/2017	Actuarial Loss / (Gain)	(544,469)	(44,689)	(43,763)	28 years
10/01/2017	Assumption Change	1,972,884	161,929	158,574	28 years
10/01/2018	Actuarial Loss / (Gain)	260,705	21,183	20,735	29 years
10/01/2019	Actuarial Loss / (Gain)	490,787	39,509	38,656	30 years
10/01/2019	Assumption Change	479,182	N/A	37,742	30 years
	TOTAL	$ 9,900,062	$ 911,231	$ 934,804	

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.

Michelle Jones

Shelly L. Jones, A.S.A., E.A.
Enrollment Number: 17-08646

Jennifer Borregard

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

Dated: February 26, 2020

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.