

CITY OF LIVONIA  
EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION  
AS OF NOVEMBER 30, 2020  
CONTRIBUTIONS APPLICABLE TO THE  
PLAN/FISCAL YEAR BEGINNING DECEMBER 1, 2021  
GASB 67/68 DISCLOSURE INFORMATION  
AS OF NOVEMBER 30, 2020



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS

March 23, 2021

Board of Trustees  
City of Livonia Employees Retirement System

Re: Actuarial Valuation Report (including GASB Statements No. 67 and No. 68) – City of Livonia Employees Retirement System

Dear Board:

We are pleased to present to the Board this report of the annual actuarial valuation of the City of Livonia Employees Retirement System. Included are the related results for GASB Statements No. 67 and No. 68. The funding valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the appropriate funding requirements for the applicable plan year. The calculation of the liability for GASB results was performed for the purpose of satisfying the requirements of GASB Statements No. 67 and No. 68. Use of the results for other purposes may not be applicable and could produce significantly different results.

The valuations have been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflects laws and regulations issued to date pursuant to the provisions of the Retirement System as well as applicable federal laws and regulations. In our opinion, the assumptions used in this valuation, as adopted by the Board of Trustees, represent reasonable expectations of anticipated plan experience. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuation, we did not perform an analysis of the potential range of such future measurements.

The funding percentages and unfunded accrued liability as measured based on the actuarial value of assets will differ from similar measures based on the market value of assets. These measures, as provided, are appropriate for determining the adequacy of future contributions, but may not be appropriate for the purpose of settling a portion or all of its liabilities.

In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by the City, financial reports prepared by the custodian bank and the actuarial assumptions and methods described in the Actuarial Assumptions section of this report. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

The total pension liability, net pension liability, and certain sensitivity information shown in the GASB results are based on an actuarial valuation performed as of the valuation date.

The undersigned are familiar with the immediate and long-term aspects of pension valuations and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the actuarial opinions.

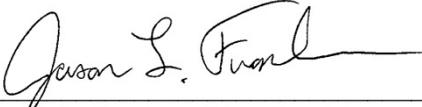
To our knowledge, no associate of Foster & Foster, Inc. working on valuations of the program has any direct financial interest or indirect material interest in the City of Livonia, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Livonia Employees Retirement System. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

If there are any questions, concerns, or comments about any of the items contained in this report, please contact us at 630-620-0200.

Respectfully submitted,

Foster & Foster, Inc.

By:   
Sandra W. Rodwan, EA, MAAA

By:   
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By:   
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Enclosures

## TABLE OF CONTENTS

Section	Title	Page
I	Introduction	
	a. Summary of Report	5
	b. Changes Since Prior Valuation	6
	c. Comparative Summary of Principal Valuation Results	7
	d. Contribution Requirements by Division	12
II	Valuation Information	
	a. Development of Amortization Payment	13
	b. P.A.202 Requirements	14
	c. Reserve Transfer Calculation	15
	d. Funding and Contribution History	16
	e. Projection of Benefit Payments	18
	f. Actuarial Assumptions and Methods	19
	g. Glossary	22
	h. Discussion of Risk	23
III	Trust Fund	26
IV	Member Statistics	
	a. Statistical Data	31
	b. Participant Distributions	33
	c. Valuation Participant Reconciliation	36
V	Summary of Current Plan	37
VI	Governmental Accounting Standards Board Statements No. 67 and No. 68 Disclosure Information	42

SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Livonia Employees Retirement System, performed as of November 30, 2020, has been completed and the results are presented in this Report. The contribution amounts set forth herein are applicable to the plan/fiscal year beginning December 1, 2021.

The contribution requirements, compared with those set forth in the November 30, 2019 actuarial report, are as follows:

Valuation Date	11/30/2020	11/30/2019
Applicable to Fiscal Year Beginning	<u>12/1/2021</u>	<u>12/1/2020</u>
Total Recommended Contribution	\$2,582,842	N/A
Member Contributions (Est.)	189,702	N/A
City Recommended Contribution	2,393,140	1,948,481

As you can see, the City Recommended Contribution shows an increase November 30, 2019 actuarial valuation report. The increase is attributable to an assumption change (interest rate lowered from 7.40% to 7.30%).

Plan experience was favorable overall on the basis of the plan's actuarial assumptions. Sources of favorable experience included an investment return of 8.06% (Actuarial Asset Basis) which exceeded the 7.40% assumption and an average salary increase of 4.75% which fell short of the 5.07% assumption. There were no significant sources of unfavorable experience.

## CHANGES SINCE THE PRIOR VALUATION

The valuation reflects no plan changes.

The valuation reflects the following assumption change since the prior valuation:

- The assumed interest rate was lowered from 7.40% to 7.30%.

The valuation reflects the following method changes:

- In conjunction with the acquisition of Rodwan Consulting Company by Foster & Foster, the valuation reflects a change in actuarial software.
- The calculation of the recommended contribution was updated as follows:
  - A total recommended contribution is calculated (amortization of total unfunded present value of benefits) and then offset by expected member contributions for the year. Previously, only the employer portion of unfunded present value of benefits was amortized.
  - The recommended contribution calculation includes an adjustment for assumed interest.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Asmp/Mthd <u>11/30/2020</u>	<u>11/30/2019</u>
<b>A. Participant Data</b>		
Number Included		
Actives	42	51
Service Retirees	454	461
Beneficiaries	85	86
Disability Retirees	15	17
Terminated Vested	<u>8</u>	<u>10</u>
Total	604	625
Total Annual Payroll	\$3,997,860	\$4,809,720
Payroll Under Assumed Ret. Age	3,777,764	4,809,720
Annual Rate of Payments to:		
Service Retirees	16,803,271	18,658,974 <sup>1</sup>
Beneficiaries	1,685,031	0
Disability Retirees	419,047	0
Terminated Vested	110,046	132,245
<b>B. Assets</b>		
Actuarial Value	214,405,059	215,976,582
Market Value	222,607,697	218,901,336
<b>C. Liabilities</b>		
Present Value of Benefits (PVB)		
Actives		
Retirement Benefits	32,026,649	35,569,075
Disability Benefits	703,415	864,748
Death Benefits	117,346	146,635
Vested Benefits	85,563	129,310
Service Retirees	182,952,003	196,513,011 <sup>1</sup>
Beneficiaries	14,434,357	0
Disability Retirees	4,292,464	0
Terminated Vested	<u>1,216,983</u>	<u>1,294,238</u>
Total	235,828,780	234,517,017

<sup>1</sup> 11/30/2019 Retiree annual payments and present value of benefits include retirees, beneficiaries and disabled members.

C. Liabilities - (Continued)	New Asmp/Mthd <u>11/30/2020</u>	<u>11/30/2019</u> <sup>1</sup>
Present Value of Future Salaries	11,652,495	15,327,794
Present Value of Future Member Contributions (PVFMC)	538,925	600,900
Total Normal Cost (Aggregate)	0	0
Present Value of Future Normal Costs (EAN)	2,846,222	3,809,871
Total Actuarial Accrued Liability (EAN)	232,982,558	230,707,146
Total Normal Cost (EAN)	952,539	1,112,432
Unfunded Present Value of Benefits (UPVB = PVB - AVA)	21,423,721	17,939,535
Funded Ratio (AVA / AL)	92.0%	93.6%

<sup>1</sup> Values reported for 11/30/2019 are consistent with the report issued by Rodwan Consulting Company. The unfunded present value of vested benefits reflects only the employer-paid benefits. The 11/30/2020 values reflect total benefits.

	New Asmp/Mthd <u>11/30/2020</u>	<u>11/30/2019</u>
D. Actuarial Present Value of Accrued Benefits		
Vested Accrued Benefits		
Inactives	202,895,807	N/A
Actives	0	N/A
Member Contributions	<u>3,699,800</u>	<u>N/A</u>
Total	206,595,607	N/A
Non-vested Accrued Benefits	<u>24,963,260</u>	<u>N/A</u>
Total Present Value Accrued Benefits	231,558,867	N/A
Funded Ratio (MVA / PVAB)	96.1%	N/A
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:		
Plan Amendments	0	
Assumption Changes	0	
Plan Experience	0	
Benefits Paid	0	
Interest	0	
Other	<u>0</u>	
Total	0	

	New Asmp/Mthd	
Valuation Date	11/30/2020	11/30/2019
Applicable to Fiscal Year Beginning	<u>12/1/2021</u>	<u>12/1/2020</u>
E. Pension Cost		
Normal Cost <sup>1</sup>	\$0	\$0
Administrative Expenses <sup>1</sup>	0	0 <sup>2</sup>
Payment Required to Amortize Unfunded Present Value of Benefits over 14 years (as of 11/30/2020) <sup>1</sup>	2,582,842	1,948,481
Total Recommended Contribution	2,582,842	1,948,481 <sup>2</sup>
Expected Member Contributions <sup>1</sup>	189,702	0 <sup>2</sup>
Expected City Contribution	2,393,140	1,948,481 <sup>2</sup>
F. Past Contributions		
Plan Years Ending:	<u>11/30/2020</u>	
Total Recommended Contribution	1,232,152	
City	1,019,901	
Actual Contributions Made:		
Members (excluding buyback)	212,251	
City	<u>1,019,901</u>	
Total	1,232,152	
G. Net Actuarial (Gain)/Loss	N/A	

<sup>1</sup> Contributions developed as of 11/30/2020 displayed above have been adjusted to account for assumed interest.

<sup>2</sup> Values reported for 11/30/2019 are consistent with the report issued by Rodwan Consulting Company. The amortization of unfunded present value of benefits reflects employer-paid benefits only.

H. Schedule Illustrating the Amortization of the Total Unfunded Actuarial Accrued Liability as of:

<u>Year</u>	Projected Unfunded <u>PVB</u>
2020	21,423,721
2021	20,404,811
2022	19,311,520
2025	15,529,057
2028	10,856,292
2031	5,083,670
2034	0

I. (i) 3 Year Comparison of Actual and Assumed Salary Increases

		<u>Actual</u>	<u>Assumed</u>
Year Ended	11/30/2020	4.75%	5.07%
Year Ended	11/30/2019	N/A	N/A
Year Ended	11/30/2018	N/A	N/A

(ii) 3 Year Comparison of Investment Return on Actuarial Value

		<u>Actual</u>	<u>Assumed</u>
Year Ended	11/30/2020	8.06%	7.40%
Year Ended	11/30/2019	7.10%	7.50%
Year Ended	11/30/2018	6.70%	7.50%

PENSION COST BY DIVISION

	<u>General</u>	<u>Police</u>	<u>Fire</u>	<u>Total</u>
Present Value of Future Salaries	2,667,621	5,265,393	3,719,481	11,652,495
Payroll	671,844	1,666,189	1,439,731	3,777,764
Total Present Value of Future Benefits	67,978,576	105,618,997	62,231,207	235,828,780
Actuarial Value of Assets	61,803,104	96,024,104	56,577,851	214,405,059
Total Unfunded Present Value of Benefits	6,175,472	9,594,893	5,653,356	21,423,721
Total Normal Cost <sup>1</sup>	0	0	0	0
Administrative Expenses <sup>1</sup>	0	0	0	0
Payment Required to Amortize Unfunded Present Value of Benefits over 14 years (as of 11/30/2020) <sup>1</sup>	744,515	1,156,759	681,568	2,582,842
Total Recommended Contribution	744,515	1,156,759	681,568	2,582,842
Expected Member Contributions <sup>1</sup>	23,285	96,899	69,518	189,702
Expected City Contribution	721,230	1,059,860	612,050	2,393,140
Entry Age Normal Costs (as a % of Payroll) <sup>2</sup>				
Entry Age Normal Cost	17.43%	27.58%	26.11%	25.21%
Member Contributions	3.23%	5.42%	4.50%	4.70%
City Entry Age Normal Cost Percentage	14.20%	22.16%	21.61%	20.51%

<sup>1</sup> Contributions developed as of 11/30/2020 displayed above have been adjusted to account for assumed interest.

<sup>2</sup> Entry Age Normal percentages for illustrative purposes only.

DEVELOPMENT OF NOVEMBER 30, 2020 AMORTIZATION PAYMENT

(1)	Total Unfunded Present Value of Benefits as of November 30, 2019	\$18,540,435
(2)	Sponsor Normal Cost developed as of November 30, 2019	0
(3)	Expected administrative expenses for the year ended November 30, 2020	0
(4)	Expected interest on (1), (2) and (3)	1,371,992
(5)	Sponsor contributions to the System during the year ended November 30, 2020	1,019,901
(6)	Expected interest on (5)	37,736
(7)	Total Unfunded Present Value of Benefits as of <sup>1</sup> as of November 30, 2020, (1)+(2)+(3)+(4)-(5)-(6)	18,854,790
(8)	Change to UPVB due to Assumption/Method Change	3,949,719
(9)	Change to UPVB due to Actuarial (Gain)/Loss	(1,380,788)
(10)	Total Unfunded Present Value of Benefits as of November 30, 2020	21,423,721
(11)	UPVB Subject to Amortization (100% PVB less AVA)	21,423,721

<u>Date</u> <u>Established</u>	<u>Years</u> <u>Remaining</u>	<u>11/30/2020</u> <u>Amount</u>	<u>Amortization</u> <u>Amount</u>
11/30/2020	14	21,423,721	2,407,122

P.A. 202 REPORTING  
AS OF NOVEMBER 30, 2020

Michigan Public Act 202 of 2017 requires municipal retirement systems in the state to submit information concerning their actuarial accrued liabilities and funded status based on uniform assumptions. The information is to be furnished by the municipality on Form 5572.

Form 5572

Line

24	Actuarial Value of Assets	214,405,059
25	Actuarial Accrued Liabilities	239,405,369
26	Funded Ratio	89.6%
27	Actuarially Determined Contribution	4,045,215

The information was calculated based on the following assumptions, in compliance with the Uniform Assumptions pursuant to PA 202, applicable for fiscal year 2020. All other assumptions are as described in the Actuarial Assumptions and Methods section of this report.

Investment Rate of Return	7.00%
Discount Rate (equivalent single rate used)	7.00%
Periods with sufficient assets	7.00%
Periods without sufficient assets	3.50%
Salary Increase	4.00%, plus merit increases
Mortality Table	PubS-2010 with MP-2018
Amortization Period for Unfunded	
Actuarial Accrued Liability	14 years
Cost Method	Entry Age Normal
Amortization Method	Level-dollar, closed

## RECOMMENDED RESERVE TRANSFERS

Below are the recommended transfers to the Reserve for Retired Benefit Payments from the Reserve for Employer Contributions. This transfer will set the Reserve for Retired Benefit payments equal to the retired life liabilities as of November 30, 2020.

Division	Reported Reserve for Retired Benefit Payments	Computed Retiree Liabilities	Recommended Transfer from Reserve for Employer Contributions
General	\$59,621,860	\$62,452,612	\$2,830,752
Police	84,327,971	90,240,224	5,912,253
Fire	<u>48,423,011</u>	<u>48,985,989</u>	<u>562,979</u>
Total	\$192,372,842	\$201,678,825	\$9,305,983

## FUNDING HISTORY

Valuation Date	Entry Age Normal			Present Value of Future Benefits			
	Valuation Assets <sup>1</sup>	Entry Age Normal Actuarial Accrued Liabilities <sup>1 2</sup>	Funded Ratio	Unfunded Actuarial Accrued Liabilities <sup>1</sup>	Present Value of Future Benefits <sup>1</sup>	Funded Ratio	Unfunded PVB
11/30/2000	192,477	148,670	129.5%	(43,807)			
11/30/2001	200,937	151,438	132.7%	(49,499)			
11/30/2002	199,627	159,272	125.3%	(40,355)			
11/30/2003	203,505	159,900	127.3%	(43,605)			
11/30/2004	199,578	164,378	121.4%	(35,200)			
11/30/2005	200,005	167,226	119.6%	(32,779)			
11/30/2006	205,101	169,506	121.0%	(35,595)			
11/30/2007	215,675	173,486	124.3%	(42,189)			
11/30/2008	210,519	179,096	117.5%	(31,423)			
11/30/2009	207,959	190,134	109.4%	(17,825)			
11/30/2010	203,934	195,105	104.5%	(8,829)			
11/30/2011	194,515	196,420	99.0%	1,905			
11/30/2012	186,245	200,224	93.0%	13,979			
11/30/2013	197,513	201,390	98.1%	3,877			
11/30/2014	207,103	202,435	102.3%	(4,668)			
11/30/2015	213,228	207,438	102.8%	(5,790)			
11/30/2016	217,503	210,779	103.2%	(6,724)			
11/30/2017	223,050	219,436	101.6%	(3,614)			
11/30/2018	220,158	220,656	99.8%	498			
11/30/2019	215,977	230,707	93.6%	14,730	234,517	92.1%	18,540
11/30/2020	214,405	232,983	92.0%	18,578	235,829	90.9%	21,424

<sup>1</sup> Values are reported in \$1,000's. All values are reported after any applicable assumption and benefit changes for the year.

<sup>2</sup> Contribution requirements are calculated based on the unfunded present value of benefits. Entry Age Normal results are for informational purposes only.

RECOMMENDED CONTRIBUTION HISTORY

Valuation Date	Fiscal Year Ending Nov 30	Recommended % of Payroll Contributions			Recommended Dollar Contribution
		General	Police	Fire	
11/30/2000	2002	0.00%	0.00%	9.73%	417,464
11/30/2001	2003	0.00%	0.00%	9.50%	392,639
11/30/2002	2004	0.00%	0.00%	12.70%	0
11/30/2003	2005	0.00%	0.00%	0.00%	0
11/30/2004	2006	0.00%	0.00%	0.00%	0
11/30/2005	2007	0.00%	0.00%	0.00%	0
11/30/2006	2008	0.00%	0.00%	0.00%	0
11/30/2007	2009	0.00%	0.00%	0.00%	0
11/30/2008	2010	0.00%	0.00%	0.00%	0
11/30/2009	2011	0.00%	0.00%	0.00%	0
11/30/2010	2012	8.98%	3.55%	7.49%	829,363
11/30/2011	2013	28.42%	12.10%	19.81%	2,307,296
11/30/2012	2014	45.75%	23.71%	50.70%	4,132,710
11/30/2013	2015	20.07%	17.96%	33.10%	2,262,146
11/30/2014	2016	0.00%	4.23%	22.48%	856,625
11/30/2015	2017	4.49%	4.49%	4.49%	407,269
11/30/2016	2018	0.00%	0.00%	0.00%	0
11/30/2017	2019	7.45%	7.45%	7.45%	497,856
11/30/2018	2020	22.26%	22.26%	22.26%	1,434,991
11/30/2019	2021	N/A	N/A	N/A	1,948,481
11/30/2020	2022	N/A	N/A	N/A	2,393,140

PROJECTION OF BENEFIT PAYMENTS

Year	Payments for Current Actives	Payments for Current Inactives	Total Payments
2020	1,545,943	19,017,395	20,386,324
2021	1,997,665	18,818,881	20,641,380
2022	2,072,958	18,572,196	20,472,284
2023	2,805,866	18,302,171	20,937,681
2024	2,620,649	18,016,824	20,469,773
2025	2,653,985	17,718,164	20,207,229
2026	2,799,363	17,403,777	20,041,146
2027	2,725,139	17,075,568	19,641,768
2028	2,784,998	16,735,551	19,364,775
2029	2,731,555	16,384,516	18,963,564
2030	2,741,997	16,023,366	18,616,218
2031	2,740,677	15,653,036	18,248,015
2032	2,736,181	15,274,493	17,868,499
2033	2,729,275	14,885,476	17,476,197
2034	2,717,326	14,484,643	17,067,146
2035	2,703,022	14,074,546	16,646,562
2036	2,683,882	13,657,979	16,214,733
2037	2,666,943	13,235,333	15,779,082
2038	2,636,797	12,807,080	15,324,669
2039	2,602,068	12,373,805	14,860,698
2040	2,565,626	11,936,160	14,390,684
2041	2,525,618	11,494,807	13,913,432
2042	2,481,835	11,050,294	13,429,273
2043	2,434,370	10,602,987	12,938,665
2044	2,382,997	10,153,174	12,441,665
2045	2,327,613	9,701,072	11,938,388
2046	2,268,043	9,246,857	11,428,830
2047	2,204,134	8,790,712	10,913,022
2048	2,135,762	8,333,025	10,391,223
2049	2,062,873	7,874,391	9,863,969
2050	1,985,482	7,415,524	9,331,982
2051	1,903,667	6,957,413	8,796,321
2052	1,817,567	6,501,128	8,258,183
2053	1,727,406	6,047,859	7,718,972
2054	1,633,500	5,599,107	7,180,491
2055	1,536,284	5,156,613	6,644,899
2056	1,436,319	4,722,321	6,114,685
2057	1,334,281	4,298,526	5,592,796
2058	1,230,919	3,887,757	5,082,489
2059	1,127,105	3,492,492	4,587,089

## ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	7.30% per year compounded annually, net of investment related expenses.
Mortality Rate	<p><b><i>Active Lives – Police and Fire:</i></b> PubS-2010 Employee mortality, generational improvements with Scale MP-2018. 0% of active deaths are assumed to be in the line of duty.</p> <p><b><i>Active Lives – General:</i></b> PubG-2010 Employee mortality, generational improvements with Scale MP-2018.</p> <p><b><i>Inactive Lives – Police and Fire:</i></b> PubS-2010 Healthy Retiree mortality, generational improvements with Scale MP-2018.</p> <p><b><i>Inactive Lives – General:</i></b> PubG-2010 Healthy Retiree mortality, generational improvements with Scale MP-2018.</p>
Retirement Age	See tables later in this section. These tables are based on an experience study performed in 2014.
Disability Rate	See table later in this section. 0% of the police and fire disabilities are assumed to be in the line of duty. These tables are based on an experience study performed in 2014.
Termination Rate	See tables later in this section. These tables are based on an experience study performed in 2014.
Annuity Withdrawal Assumptions	100% of members are assumed to elect a lump sum of member contributions in exchange for a reduced annuity benefit at retirement. The annuity offset is equal to the annuitized value of the member contributions using a 1.00% assumed interest rate
Inflation	2.50%.
Salary Increases	See table on next page. This is based on an experience study performed in 2014.

Age	Across the Board	Merit and Longevity	Total
20	4.00%	7.92%	11.92%
25	4.00%	5.75%	9.75%
30	4.00%	3.98%	7.98%
35	4.00%	2.89%	6.89%
40	4.00%	2.10%	6.10%
45	4.00%	1.48%	5.48%
50	4.00%	0.96%	4.96%
55	4.00%	0.53%	4.53%
60	4.00%	0.15%	4.15%
65	4.00%	0.00%	4.00%

Marital Status	90% of Members are assumed to be married.
Spouse's Age	Males are assumed to be three years older than females.
Funding Method	Aggregate.
Actuarial Asset Method	Investment gains and losses are smoothed over a five-year period. In the first year, 20% of the gain or loss is recognized. In the second year 40%, in the third year 60%, in the fourth year 80%, and in the fifth year 100% of the gain or loss is recognized. The actuarial investment gain or loss is defined as the actual return on investments minus the actuarial assumed investment return. Actuarial Assets shall not be less than 80% nor greater than 120% of the Market Value of Assets.
Funding Policy Amortization Method	The unfunded present value of benefits is amortized according to a Level-dollar method over a closed period. 14 years as of December 1, 2020.
Payroll Growth	N/A
Administrative Expenses	Expenses paid out of the fund other than investment-related expenses are assumed to be equal to the average of the expenses paid in the last three years, rounded to the nearest \$1,000.

Decrement Tables

<u>% Terminating During the Year</u>			<u>% Becoming Disabled During the Year</u>			<u>% Retiring During the Year (General)</u>	
Age	Police &		Age	Police &		Age	Rate
	General	Fire		General	Fire		
20	4.00%	1.62%	20	0.020%	0.070%	45 - 54	70%
25	4.00%	1.62%	25	0.040%	0.120%	55	45%
30	3.50%	1.40%	30	0.070%	0.240%	56	30%
35	3.25%	0.83%	35	0.110%	0.400%	57 - 58	25%
40	2.00%	0.32%	40	0.160%	0.550%	59	30%
45	1.25%	0.18%	45	0.200%	0.710%	60 - 61	25%
50	1.25%	0.18%	50	0.250%	0.870%	62 - 68	20%
55	0.75%	0.18%	55	0.300%	1.030%	69	100%
60	0.50%	0.18%	60	0.300%	1.030%		
66+	0.00%	0.00%					

% Retiring  
During the Year (Police)

Service	Age		
	<52	52 - 59	60+
<25	0%	10%	100%
25	75%	75%	100%
26 - 29	25%	25%	100%
30	100%	100%	100%

% Retiring  
During the Year (Fire)

Service	Age				
	<52	52	53	54 - 59	60+
<25	0%	35%	20%	10%	100%
25 - 29	40%	40%	40%	40%	100%
30	100%	100%	100%	100%	100%

## GLOSSARY

Total Annual Payroll is the projected annual rate of pay as of the valuation date of all covered Members.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

Aggregate Actuarial Cost Method (Level Dollar) is the method used to determine required contributions under the Plan. The unfunded present value of benefits is amortized over a closed period (14 years as November 30, 2020)

Total Required Contribution is equal to the amortization of the unfunded present value of benefits, plus assumed expenses, less expected member contributions paid.

Normal (Current Year's) Cost is the current year's cost for benefits yet to be funded.

Unfunded Accrued Liability is a liability which arises when a pension plan is initially established or improved and such establishment or improvement is applicable to all years of past service.

Entry Age Normal Cost Method - Under this method, the normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation.

(a) The normal cost accrual rate equals:

(i) the present value of future benefits for the participant, determined as of the participant's entry age, divided by

(ii) the present value of the compensation expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.

(b) In calculating the present value of future compensation, the salary scale is applied both retrospectively and prospectively to estimate compensation in years prior to and subsequent to the valuation year based on the compensation used for the valuation.

(c) The accrued liability is the sum of the individual accrued liabilities for all participants and beneficiaries. A participant's accrued liability equals the present value, at the participant's attained age, of future benefits less the present value at the participant's attained age of the individual normal costs payable in the future. A beneficiary's accrued liability equals the present value, at the beneficiary's attained age, of future benefits. The unfunded accrued liability equals the total accrued liability less the actuarial value of assets.

(d) Under this method, the entry age used for each active participant is the participant's age at the time he or she would have commenced participation if the plan had always been in existence under current terms, or the age as of which he or she first earns service credits for purposes of benefit accrual under the current terms of the plan.

## DISCUSSION OF RISK

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined under various assumption scenarios. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- Payroll Growth: The plan's payroll growth assumption, if one is used, causes a predictable annual increase in the plan's amortization payment in order to produce an amortization payment that remains constant as a percentage of payroll if all assumptions are realized. If payroll does not increase according to the plan's payroll growth assumption, the plan's amortization payment can increase significantly as a percentage of payroll even if all assumptions other than the payroll growth assumption are realized.
- Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

- **Contribution Risk:** This risk results from the potential that actual employer contributions may deviate from actuarially determined contributions, which are determined in accordance with the Board’s funding policy. The funding policy is intended to result in contribution requirements that if paid when due, will result in a reasonable expectation that assets will accumulate to be sufficient to pay plan benefits when due. Contribution deficits, particularly large deficits and those that occur repeatedly, increase future contribution requirements and put the plan at risk for not being able to pay plan benefits when due.

### Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature plans with a substantial inactive liability. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the plan, we have provided some relevant metrics in the table following titled “Plan Maturity Measures and Other Risk Metrics”. Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has stayed about the same from November 30, 2017 to November 30, 2020, indicating that the plan's maturity level has not significantly changed during the period.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the plan, to the Total Accrued Liability, is 87.1%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors will need to be made up for over a shorter time horizon than would be needed for a less mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has decreased from 93.6% on November 30, 2017 to 92.0% on November 30, 2020.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Market Value of Assets, stayed approximately the same from November 30, 2019 to November 30, 2020. The current Net Cash Flow Ratio of -8.3% indicates that contributions are not currently covering the plan's benefit payments and administrative expenses.

It is important to note that the actuary has identified the risks above as the most significant risks based on the characteristics of the plan and the nature of the project, however, it is not an exhaustive list of potential risks that could be considered. Additional advanced modeling, as well as the identification of additional risks, can be provided at the request of the audience addressed on page 2 of this report.

PLAN MATURITY MEASURES AND OTHER RISK METRICS

	<u>11/30/2019</u>	<u>11/30/2020</u>
<u>Support Ratio</u>		
Total Actives	51	42
Total Inactives	574	562
Actives / Inactives	8.9%	7.5%

Asset Volatility Ratio

Market Value of Assets (MVA)	218,901,336	222,607,697
Total Annual Payroll	4,809,720	3,997,860
MVA / Total Annual Payroll	4,551.2%	5,568.2%

Accrued Liability (AL) Ratio

Inactive Accrued Liability	197,807,249	202,895,807
Total Accrued Liability	230,707,146	232,982,558
Inactive AL / Total AL	85.7%	87.1%

Funded Ratio

Actuarial Value of Assets (AVA)	215,976,582	214,405,059
Total Accrued Liability	230,707,146	232,982,558
AVA / Total Accrued Liability	93.6%	92.0%

Net Cash Flow Ratio

Net Cash Flow <sup>1</sup>	(19,111,839)	(18,466,445)
Market Value of Assets (MVA)	218,901,336	222,607,697
Ratio	-8.7%	-8.3%

<sup>1</sup> Determined as total contributions minus benefit payments and administrative expenses.

STATEMENT OF FIDUCIARY NET  
POSITION November 30, 2020

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Other Short-term Investments	2,217,719
Cash and Cash Equivalents	234,154
 Total Cash and Equivalents	 2,451,873
 Receivables:	
Contributions Receivable	172,547
Other Receivables	47,231
Accrued Past Due Interest	221,842
 Total Receivable	 441,620
 Investments:	
U.S Government Bonds	860,781
Corporate Bonds	5,140,698
Other Fixed Income	33,354,063
Equities	154,883,324
Real Estate	25,669,179
 Total Investments	 219,908,045
 Other Assets	 164,197
 Total Assets	 222,965,735
 <u>LIABILITIES</u>	
 Liabilities:	
Payable:	
Accounts Payable	358,038
 Total Liabilities	 358,038
 Net Assets:	
Active and Retired Members' Equity	222,607,697
 NET POSITION RESTRICTED FOR PENSIONS	 222,607,697
 TOTAL LIABILITIES AND NET ASSETS	 222,965,735

STATEMENT OF CHANGES IN FIDUCIARY NET  
POSITION FOR THE YEAR ENDED November 30, 2020  
Market Value Basis

ADDITIONS

Contributions:

Member	212,251
City	1,019,901

Total Contributions 1,232,152

Investment Income:

Miscellaneous Income	18,162	
Net Realized Gain (Loss)	4,392,872	
Unrealized Gain (Loss)	13,796,994	
Net Increase in Fair Value of Investments		18,208,028
Interest & Dividends		4,511,525
Less Investment Expense <sup>1</sup>		(546,748)

Net Investment Income 22,172,805

Total Additions 23,404,957

DEDUCTIONS

Distributions to Members:

Benefit Payments	18,823,771
Refund of Contributions/Transfers	642,807

Total Distributions 19,466,578

Administrative Expenses 232,019

Total Deductions 19,698,597

Net Increase in Net Position 3,706,360

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 218,901,337

End of the Year 222,607,697

<sup>1</sup> Investment Related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION

November 30, 2020

Plan Year Ending	Gain/(Loss)	Gains/(Losses) Not Yet Recognized				
		Amounts Not Yet Recognized by Valuation Year				
		2020	2021	2022	2023	2024
11/30/2017	18,211,127	3,642,225	0	0	0	0
11/30/2018	(17,718,032)	(7,087,213)	(3,543,606)	0	0	0
11/30/2019	10,259,094	6,155,456	4,103,638	2,051,819	0	0
11/30/2020	6,865,212	5,492,170	4,119,127	2,746,085	1,373,042	0
Total		8,202,638	4,679,159	4,797,904	1,373,042	0

Development of Investment Gain/Loss

Market Value of Assets, 11/30/2019	218,901,337
Actuarial Value of Assets, 11/30/2019	215,976,582
Contributions Less Benefit Payments	(18,234,426)
Expected Investment Earnings <sup>1</sup>	15,307,593
Actual Net Investment Earnings	<u>22,172,805</u>
2020 Actuarial Investment Gain/(Loss)	6,865,212

<sup>1</sup> Expected Investment Earnings = 7.40% x (215,976,582 + 0.5 x -18,234,426)

Development of Actuarial Value of Assets

Market Value of Assets, 11/30/2020	222,607,697
(Gains)/Losses Not Yet Recognized	<u>(8,202,638)</u>
Actuarial Value of Assets, 11/30/2020	214,405,059
(A) 11/30/2019 Actuarial Assets:	215,976,582
(I) Net Investment Income:	
1. Interest and Dividends	4,529,687
2. Realized Gains (Losses)	4,392,872
3. Change in Actuarial Value	8,519,111
4. Expenses	<u>(778,767)</u>
Total	16,662,903
(B) 11/30/2020 Actuarial Assets:	214,405,059
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	8.06%
Market Value of Assets Rate of Return:	10.46%
11/30/2020 Limited Actuarial Assets:	214,405,059
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	1,355,310

CHANGES IN NET ASSETS AVAILABLE FOR  
BENEFITS November 30, 2020  
Actuarial Asset Basis

INCOME		
Contributions:		
Member	212,251	
City	1,019,901	
Total Contributions		1,232,152
Earnings from Investments		
Interest & Dividends	4,511,525	
Miscellaneous Income	18,162	
Net Realized Gain (Loss)	4,392,872	
Change in Actuarial Value	8,519,111	
Total Earnings and Investment Gains		17,441,670
EXPENSES		
Administrative Expenses:		
Investment Related <sup>1</sup>	546,748	
Other	232,019	
Total Administrative Expenses		778,767
Distributions to Members:		
Benefit Payments	18,823,771	
Refund of Contributions/Transfers	642,807	
Total Distributions		19,466,578
Change in Net Assets for the Year		(1,571,523)
Net Assets Beginning of the Year		215,976,582
Net Assets End of the Year <sup>2</sup>		214,405,059

<sup>1</sup> Investment Related expenses include investment advisory, custodial and performance monitoring fees.

<sup>2</sup> Net Assets may be limited for actuarial consideration.

## RESERVE BALANCES

	November 30, 2020	November 30, 2019
Reserve for Employees' Contributions	3,879,443	4,344,377
Reserve for Employer Contributions	26,355,412	37,209,449
Reserve for Retired Benefit Payments	192,372,842	177,347,510
Reserve for Health Insurance	<u>0</u>	<u>0</u>
Total	222,607,697	218,901,337

STATISTICAL DATA

	<u>11/30/2019</u>	<u>11/30/2020</u>
<u>Actives</u>		
Number	51	42
Average Current Age	50.9	51.6
Average Age at Employment	26.0	26.0
Average Past Service	24.9	25.6
Average Annual Salary	\$89,795	\$94,993
<u>Service Retirees</u>		
Number	461	454
Average Current Age	N/A	69.9
Average Annual Benefit	\$40,475	\$37,012
<u>Beneficiaries</u>		
Number	86	85
Average Current Age	N/A	75.5
Average Annual Benefit	N/A	\$19,824
EDROs incl. in Beneficiaries	20	22
<u>Disability Retirees</u>		
Number	17	15
Average Current Age	N/A	70.7
Average Annual Benefit	N/A	\$27,936
<u>Terminated Vested</u>		
Number	10	8
Average Current Age	N/A	64.6
Average Annual Benefit	\$13,225	\$13,756

STATISTICAL DATA BY DIVISION

	<u>11/30/2019</u>	<u>11/30/2020</u>
<u>Actives - General</u>		
Number	13	10
Average Current Age	57.2	55.7
Average Age at Employment	29.6	27.3
Average Past Service	27.6	28.4
Average Annual Salary	\$66,639	\$64,133
<u>Actives - Police</u>		
Number	24	18
Average Current Age	48.1	49.4
Average Age at Employment	24.1	24.8
Average Past Service	24.0	24.6
Average Annual Salary	\$93,358	\$96,295
<u>Actives - Fire</u>		
Number	14	14
Average Current Age	50.1	51.7
Average Age at Employment	26.2	26.8
Average Past Service	23.9	24.8
Average Annual Salary	\$105,189	\$115,360

AGE AND SERVICE DISTRIBUTION  
TOTAL

AGE	PAST SERVICE											Total	Total Pay
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+		
45 - 49	0	0	0	0	0	0	0	0	13	3	0	16	\$ 1,653,222
50 - 54	0	0	0	0	0	0	0	0	8	6	1	15	\$ 1,450,097
55 - 59	0	0	0	0	0	0	0	0	2	5	2	9	\$ 704,405
60 - 64	0	0	0	0	0	0	0	0	0	1	1	2	\$ 181,969
65+	0	0	0	0	0	0	0	0	0	0	0	0	\$ 0
Total	0	0	0	0	0	0	0	0	23	15	4	42	\$ 3,989,692

AGE DISTRIBUTION  
RETIREES AND BENEFICIARIES

AGE	<u>General</u>		<u>Police</u>		<u>Fire</u>		<u>Total</u>	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
< 45	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
45 - 49	0	\$ 0	7	\$ 359,620	1	\$ 66,986	8	\$ 426,606
50 - 54	3	\$ 70,450	31	\$ 1,654,482	4	\$ 291,475	38	\$ 2,016,407
55 - 59	20	\$ 669,659	42	\$ 2,146,515	14	\$ 908,389	76	\$ 3,724,563
60 - 64	35	\$ 1,222,183	24	\$ 1,322,695	15	\$ 915,999	74	\$ 3,460,877
65 - 69	38	\$ 1,118,346	10	\$ 250,938	14	\$ 708,684	62	\$ 2,077,968
70 - 74	57	\$ 1,533,842	14	\$ 391,043	15	\$ 656,097	86	\$ 2,580,981
75 - 79	25	\$ 528,297	24	\$ 866,325	15	\$ 458,400	64	\$ 1,853,022
80 - 84	30	\$ 544,868	23	\$ 643,688	11	\$ 260,887	64	\$ 1,449,443
85 - 89	31	\$ 496,834	7	\$ 172,676	8	\$ 149,232	46	\$ 818,742
90 - 94	17	\$ 254,029	3	\$ 68,254	4	\$ 54,471	24	\$ 376,754
95 - 99	7	\$ 53,133	0	\$ 0	4	\$ 53,629	11	\$ 106,762
100 +	1	\$ 15,224	0	\$ 0	0	\$ 0	1	\$ 15,224
Total	264	\$ 6,506,864	185	\$ 7,876,236	105	\$ 4,524,248	554	\$ 18,907,348

AGE DISTRIBUTION  
INACTIVE VESTED MEMBERS

AGE	<u>General</u>		<u>Police</u>		<u>Fire</u>		<u>Total</u>	
	<u>Count</u>	<u>Annual Pensions</u>	<u>Count</u>	<u>Annual Pensions</u>	<u>Count</u>	<u>Annual Pensions</u>	<u>Count</u>	<u>Annual Pensions</u>
< 45	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
45 - 49	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
50 - 54	2	\$ 10,710	1	\$ 35,945	1	\$ 37,974	4	\$ 84,629
55 - 59	1	\$ 9,796	0	\$ 0	0	\$ 0	1	\$ 9,796
60 - 64	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
65 - 69	0	\$ 0	1	\$ 5,822	0	\$ 0	1	\$ 5,822
70 - 74	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
75 - 79	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
80 - 84	0	\$ 0	1	\$ 7,000	0	\$ 0	1	\$ 7,000
85 - 89	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
90 - 94	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
95 - 99	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
100 +	1	\$ 2,800	0	\$ 0	0	\$ 0	1	\$ 2,800
Total	4	\$ 23,305	3	\$ 48,767	1	\$ 37,974	8	\$ 110,046

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 11/30/2019	51
b. Terminations	
i. Vested (partial or full) with deferred benefits	0
ii. Non-vested or full lump sum distribution received	0
iii. Transferred service to other fund	0
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	0
d. Disabled	0
e. Retired	<u>(9)</u>
f. Continuing participants	42
g. New entrants	<u>0</u>
h. Total active life participants in valuation	42

2. Non-Active lives (including beneficiaries receiving benefits)

	Service Retirees, Vested Receiving <u>Benefits</u>	Receiving Death <u>Benefits</u>	Receiving Disability <u>Benefits</u>	Vested <u>Deferred</u>	<u>Total</u>
a. Number prior valuation	461	86	17	10	574
Retired	9	0	0	0	9
Vested Deferred	0	0	0	0	0
Death, With Survivor	(5)	6	0	(1)	0
Death, No Survivor	(10)	(10)	(2)	0	(22)
Disabled	0	0	0	0	0
Refund of Contributions	0	0	0	0	0
Rehires	0	0	0	0	0
New EDROs	0	2	0	0	2
Data Corrections	(1)	1	0	(1)	(1)
Hired/Termed in Same Year	0	0	0	0	0
b. Number current valuation	454	85	15	8	562

## SUMMARY OF CURRENT PLAN PROVISIONS

### Plan Administration

The Plan is a single employer defined benefit pension plan administered by a Board of Trustees comprised of:

- a.) The mayor or mayor's designated administrative representative,
- b.) A member of the City Council, selected by the Council,
- c.) A member of the Civil Service Commission,
- d.) A police or fire member, elected by police and fire members,
- e.) A member of any retirement plan established by city ordinance who is not a police or fire member.

### Membership Requirements

Membership includes all persons in the classified and unclassified service of the City who perform services on a permanent part-time or full-time basis. New employees do not become members in this Retirement System.

### Average Final Compensation

The average of the highest annual compensations received during any 3 years of service contained within the 10 years of service immediately preceding retirement, including base salary, longevity, shift differential, paid time off, holiday pay, and payment of accumulated vacation time up to the limits established by the respective bargaining agreements. In addition, merit pay is included for Police members and Paramedic/EMT or ALS bonuses are included for firefighters.

### Voluntary Retirement Eligibility

#### General Members:

30 years of service regardless of age, or age 55 with 10 years of service. Permanent part-time General members need only 10 calendar years of membership instead of 10 years of credited service.

#### Police Members:

25 years of service regardless of age, or age 52 with 10 years of service. Early Retirement: Age 50 with 10 years but less than 25 years of service, benefit reduced ½% per month below age 52.

#### Fire Members:

25 years of service regardless of age (effective 10/17/16), or age 52 with 10 years of service. Early Retirement: Age 50 with 10 years of service, benefit reduced ½% per month below age 52.

Normal Pension Amount

- General Members: 2.5% of the member’s average final compensation (AFC) times years of credited service; maximum is 75% of AFC.
- Police Members: 2.8% of the member’s average final compensation (AFC) times the first 24 years of credited service, plus 7.8% of AFC for the 25<sup>th</sup> year of credited service; maximum 75% AFC.
- Fire Members: 2.8% of the member’s average final compensation (AFC) times years of credited service; maximum 75% AFC.

Deferred Pension (Vesting)

- Eligibility Termination of City employment, other than by death or disability, prior to attaining voluntary retirement age but after completing at least 10 full years of credited service.
- Amount A monthly pension, payable beginning at voluntary retirement age (or early retirement age with a reduced benefit), computed in the same manner as a normal pension but based on credited service and AFC at time of termination of City employment.

Disability Retirement

- Eligibility Termination of City employment by reason of total and permanent disability after completing at least 10 full years of credited service, except that in the event of a duty disability the 10 year service requirement is waived.
- Amount 1) Disability incurred after age 55: A monthly pension computed in the same manner as a normal pension but based on credited service and AFC at the time of termination. (2) Disability incurred before age 55: A monthly pension computed in the same manner as a normal pension but based on AFC at time of termination and the credited service the member would have completed had employment continued until age 55, provided that in the event of a duty disability the pension payable to age 55 shall not be less than 75% of AFC. Worker’s compensation benefits are deducted. For non-duty disability cases, the following limitations apply:

<u>Actual Years of Service</u>	<u>Maximum Total Years Used to Compute Benefit</u>	<u>Maximum Benefit As a Percent of AFC</u>
10-15	20	50.0%
16-20	25	62.5
over 20	30- or actual service if greater	75.0

Non-Duty Death

Eligibility	Death after completing 10 years of credited service, but before termination of City employment. If member had not attained age 55 at the time of death, the death benefit shall commence at the time they would have attained voluntary retirement age. Member must either: (1) have elected Option A and named a beneficiary, or (2) leave a surviving spouse in the event Option A was not elected.
Amount	Monthly pension the beneficiary would have received had the member retired the day before death (notwithstanding that he might not have attained his voluntary retirement age) and elected the 100% joint and survivor Option A.

Duty Death

Eligibility	Death from causes arising solely and exclusively out of and in the course of a member's City employment.
Amount	Surviving spouse, or unmarried children under age 18 (if no surviving spouse), or dependent parents (if no surviving spouse or children) shall receive a monthly pension equal to the pension payable if the member had become duty disabled, elected the 100% survivor option and subsequently died. The option factor for children or parents is assumed to equal 80%. The benefit shall continue until: (a) death in the case of the widow, (b) death, marriage, adoption or attainment of age 18 in the case of the children. Worker's compensation benefits are deducted.

Employee Contributions

General - Local 1917	3.66% of compensation.
- Others	3.10% of compensation.
Police - LPOA	2.55% of compensation.
- LCOA, Police Chief, And Deputy Chief	6.25% of compensation (eff. 8/24/2010); 7.30% of compensation when City contribution rate exceeds 4.18%
Fire	4.50% of compensation (effective 10/17/2016)
Annuity Withdrawal	Upon voluntary, mandatory or disability retirement (or deferred retirement, in the case of General members), a member may withdraw his accumulated contributions with interest and receive an actuarially reduced lifetime benefit.

## Cost-of-Living Allowance

An additional cost-of-living allowance will be paid to all retirees. The monthly amount is determined as follows.

(1) Members retired before December 1, 1979:

- (1) \$20/month for one year commencing one year after retirement.
- (2) \$40/month for one year commencing two years after retirement.
- (3) \$40/month for one year commencing three years after retirement.
- (4) \$60/month for one year commencing four years after retirement.
- (5) \$80/month commencing five years after retirement.

(2) Members retiring on or after December 1, 1979 and before December 1, 1986:

- (1) \$20/month for one year commencing one year after retirement.
- (2) \$40/month for one year commencing two years after retirement.
- (3) \$60/month for one year commencing three years after retirement.
- (4) \$80/month commencing four years after retirement.

(3) Members retiring on or after December 1, 1986:

- (1) \$20/month for one year commencing one year after retirement.
- (2) \$40/month for one year commencing two years after retirement.
- (3) \$60/month for one year commencing three years after retirement.
- (4) \$80/month for one year commencing four years after retirement.
- (5) \$100/month for one year commencing five years after retirement.
- (6) \$120/month commencing six years after retirement.

(4) General members (excluding District Court), and Police Dispatchers retiring on or after December 1, 2007:

- (a) \$25/month for one year commencing one year after retirement.
- (b) \$50/month for one year commencing two years after retirement.
- (c) \$75/month for one year commencing three years after retirement.
- (d) \$100/month for one year commencing four years after retirement.
- (e) \$125/month for one year commencing five years after retirement.
- (f) \$150/month for one year commencing six years after retirement.
- (g) \$175/month for one year commencing seven years after retirement.
- (h) \$200/month for one year commencing eight years after retirement.
- (i) \$225/month for one year commencing nine years after retirement.
- (j) \$250/month commencing ten years after retirement.

(5) Fire and Police members (excluding dispatchers) retiring on or after December 1, 2006 (March 20, 2006 for Fire) and before December 1, 2008:

- (a) \$20/month for one year commencing one year after retirement.
- (b) \$40/month for one year commencing two years after retirement.
- (c) \$60/month for one year commencing three years after retirement.
- (d) \$80/month for one year commencing four years after retirement.
- (e) \$100/month for one year commencing five years after retirement.
- (f) \$120/month for one year commencing six years after retirement.
- (g) \$140/month for one year commencing seven years after retirement.
- (h) \$160/month for one year commencing eight years after retirement.
- (i) \$180/month for one year commencing nine years after retirement.
- (j) \$200/month commencing ten years after retirement

(6) Police and Fire members retiring on or after December 1, 2008:

- (a) \$25/month for one year commencing one year after retirement.
- (b) \$50/month for one year commencing two years after retirement.
- (c) \$75/month for one year commencing three years after retirement.
- (d) \$100/month for one year commencing four years after retirement.
- (e) \$125/month for one year commencing five years after retirement.
- (f) \$150/month for one year commencing six years after retirement.
- (g) \$175/month for one year commencing seven years after retirement.
- (h) \$200/month for one year commencing eight years after retirement.
- (i) \$225/month for one year commencing nine years after retirement.
- (j) \$250/month commencing ten years after retirement

(7) Fire members retiring on or after 10/17/16, and LPOA, LLSA & Police Command on or after 12/1/2017, in addition to (6) above:

- (k) \$275/month for one year commencing eleven years after retirement.
- (l) \$300/month for one year commencing twelve years after retirement
- (m) \$325/month for one year commencing thirteen years after retirement.
- (n) \$325/month for one year commencing fourteen years after retirement.
- (o) \$375/month commencing fifteen years after retirement.

For Police retirees retiring before December 1, 1991 and for Fire retirees retiring before December 1, 1993, the maximum increase is \$80 per month.

SUMMARY

Valuation Date	11/30/2020	11/30/2019
Measurement Date	11/30/2020	11/30/2019
Plan Membership:		
Inactives Currently Receiving Benefits	554	547
Inactives Not Yet Receiving Benefits	8	10
Active Plan Members	<u>42</u>	<u>51</u>
Total	604	608
Covered Payroll	\$ 3,997,860	\$ 4,579,558
Net Pension Liability		
Total Pension Liability	\$ 232,814,031	\$ 230,707,147
Plan Fiduciary Net Position	<u>222,607,697</u>	<u>218,901,337</u>
Net Pension Liability	\$ 10,206,334	\$ 11,805,810
Plan Fiduciary Net Position		
As a Percentage of Total Pension Liability	95.62%	94.88%
Net Pension Liability		
As a Percentage of Covered Payroll	255.29%	257.79%
Total Pension Expense	\$ 3,103,328	\$ 1,079,358
Development of Single Discount Rate		
Single Discount Rate	7.30%	7.40%
Long-Term Expected Rate of Return	7.30%	7.40%
High-quality Municipal Bond Rate	2.03%	3.22%
Number of Years Future Benefit Payments		
Are Expected to be Paid	99	99

SCHEDULE OF CHANGES IN NET PENSION LIABILITY  
PLAN AND CITY REPORTING

GASB 68 Reporting Period Ending	11/30/2020	11/30/2019
Measurement Date	<u>11/30/2020</u>	<u>11/30/2019</u>
Total Pension Liability		
Service Cost	908,315	1,645,245
Interest	16,419,281	16,950,422
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	2,210,334	(11,621,805)
Changes of Assumptions	2,035,532	8,335,763
Contributions - Buy Back	-	-
Benefit Payments, Including Refunds of Employee Contributions	<u>(19,466,578)</u>	<u>(19,570,958)</u>
Net Change in Total Pension Liability	2,106,884	(4,261,333)
Total Pension Liability - Beginning	<u>230,707,147</u>	<u>234,968,480</u>
Total Pension Liability - Ending (a)	\$ 232,814,031	\$ 230,707,147
 Plan Fiduciary Net Position		
Contributions - Employer	1,019,901	432,885
Contributions - Employee	212,251	273,901
Contributions - Buy Back	-	-
Net Investment Income	22,172,805	25,843,651
Benefit Payments, Including Refunds of Employee Contributions	(19,466,578)	(19,570,958)
Administrative Expense	(232,019)	(247,666)
Other	-	-
Net Change in Plan Fiduciary Net Position	<u>3,706,360</u>	<u>6,731,813</u>
Plan Fiduciary Net Position - Beginning	218,901,337	212,169,524
Adjustment to beginning of year	-	-
Plan Fiduciary Net Position - Ending (b)	\$ 222,607,697	\$ 218,901,337
 Net Pension Liability - Ending (a) - (b)	\$ 10,206,334	\$ 11,805,810
 Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	95.62%	94.88%
 Covered Payroll	\$ 3,997,860	\$ 4,579,558
Net Pension Liability as a Percentage of Covered Payroll	255.29%	257.79%

STATEMENT OF CHANGES IN NET PENSION LIABILITY  
CITY REPORTING

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Balances at November 30, 2019	\$230,707,147	\$218,901,337	\$ 11,805,810
Adjustment to beginning of year	-	-	-
Changes for a Year:			
Service Cost	908,315	-	908,315
Interest	16,419,281	-	16,419,281
Differences Between Expected and Actual Experience	2,210,334	-	2,210,334
Changes of Assumptions	2,035,532	-	2,035,532
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	1,019,901	(1,019,901)
Contributions - Employee	-	212,251	(212,251)
Contributions - Buy Back	-	-	-
Net Investment Income	-	22,172,805	(22,172,805)
Benefit Payments, Including Refunds of Employee Contributions	(19,466,578)	(19,466,578)	-
Administrative Expense	-	(232,019)	232,019
Other Changes	-	-	-
Net Changes	2,106,884	3,706,360	(1,599,476)
Balances at November 30, 2020	\$232,814,031	\$222,607,697	\$ 10,206,334

*Sensitivity of Net Pension Liability to changes in the Discount Rate:*

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.30%	7.30%	8.30%
Sponsor's Net Pension Liability	\$ 32,567,721	\$ 10,206,334	\$ (8,737,089)

*Pension Plan Fiduciary Net Position*

Detailed information about the Pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF  
RESOURCES RELATED TO PENSIONS  
YEAR-END NOVEMBER 30, 2020

For the year ended November 30, 2020, the Sponsor will recognize a pension expense of \$3,103,328. On November 30, 2020, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience	0	0
Changes of assumptions	0	0
Net difference between projected and actual earnings on pension plan investments	0	8,089,730
Total	\$0	\$8,089,730

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year-ended November 30:

2021	(\$3,499,960)
2022	\$202,703
2023	(\$3,461,000)
2024	(\$1,331,473)
2025	\$0
Thereafter	\$0

COMPONENTS OF PENSION EXPENSE  
YEAR-END NOVEMBER 30, 2020

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	11,805,810	\$ 4,406,827	\$ -	
Total Pension Liability Factors:				
Service Cost	908,315	-	-	908,315
Interest	16,419,281	-	-	16,419,281
Changes in Benefit Terms	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions				
Current Year Amortization	2,210,334	-	2,210,334	-
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	-	-	(2,210,334)	2,210,334
Current Year Amortization	2,035,532	-	2,035,532	-
Current Year Amortization	-	-	(2,035,532)	2,035,532
Benefit Payments, Including Refunds of Employee Contributions	(19,466,578)	-	-	-
Net Change	<u>2,106,884</u>	<u>-</u>	<u>-</u>	<u>21,573,462</u>
Plan Fiduciary Net Position:				
Contributions - Employer	1,019,901	-	-	-
Contributions - Employee	212,251	-	-	(212,251)
Projected Net Investment Income	15,515,440	-	-	(15,515,440)
Difference Between Projected and Actual Earnings on Pension Plan Investments				
Current Year Amortization	6,657,365	6,657,365	-	-
Current Year Amortization	-	(7,163,662)	(4,189,200)	(2,974,462)
Benefit Payments, Including Refunds of Employee Contributions	(19,466,578)	-	-	-
Administrative Expenses	(232,019)	-	-	232,019
Net Change	<u>3,706,360</u>	<u>(506,297)</u>	<u>(4,189,200)</u>	<u>(18,470,134)</u>
Ending Balance	<u>10,206,334</u>	<u>\$ 3,900,530</u>	<u>\$ (4,189,200)</u>	<u>\$ 3,103,328</u>

AMORTIZATION SCHEDULE – EXPERIENCE

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

Year Base Established	Differences Between Expected and Actual Experience	Recognition Period (Years)	2020	2021	2022	2023	2024	Thereafter
2020	\$ 2,210,334	1	\$ 2,210,334	\$ -	\$ -	\$ -	\$ -	\$ -
2019	\$ (11,621,805)	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			2,210,334	-	-	-	-	-

AMORTIZATION SCHEDULE – CHANGES OF ASSUMPTIONS

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

Year Base Established	Effects of Changes in Assumptions	Recognition Period (Years)	2020	2021	2022	2023	2024	Thereafter
2020	\$ 2,035,532	1	\$ 2,035,532	\$ -	\$ -	\$ -	\$ -	\$ -
2019	\$ 8,335,763	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 2,035,532	\$ -	\$ -	\$ -	\$ -	\$ -

AMORTIZATION SCHEDULE – INVESTMENTS

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

Year Base Established	Differences		Increase (Decrease) in Pension Expense Arising from the Recognition of the Differences Between Projected and Actual Earnings on Pension Plan Investments						
	Between Projected and Actual Earnings	Recognition Period (Years)	2020	2021	2022	2023	2024	Thereafter	
2020	\$ (6,657,365)	5	\$ (1,331,473)	\$(1,331,473)	\$(1,331,473)	\$(1,331,473)	\$(1,331,473)	\$ -	
2019	\$ (10,647,631)	5	\$ (2,129,526)	\$(2,129,526)	\$(2,129,526)	\$(2,129,527)	\$ -	\$ -	
2018	\$ 18,318,510	5	\$ 3,663,702	\$ 3,663,702	\$ 3,663,702	\$ -	\$ -	\$ -	
2017	\$ (18,513,315)	5	\$ (3,702,663)	\$(3,702,663)	\$ -	\$ -	\$ -	\$ -	
2016	\$ 2,627,493	5	\$ 525,498	\$ -	\$ -	\$ -	\$ -	\$ -	
2015	\$ -	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Net Increase (Decrease) in Pension Expense			\$ (2,974,462)	\$(3,499,960)	\$ 202,703	\$(3,461,000)	\$(1,331,473)	\$ -	

SCHEDULE OF CONTRIBUTIONS

Plan Year-End	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
11/30/2020	1,019,901	1,019,901	-	3,997,860	25.51%
11/30/2019	432,885	432,885	-	4,579,558	9.45%
11/30/2018	558,568	558,568	-	6,446,503	8.66%
11/30/2017	336,320	336,320	-	6,682,629	5.03%
11/30/2016	815,291	815,291	-	7,625,911	10.69%
11/30/2015	2,158,914	2,158,914	-	9,070,569	23.80%
11/30/2014	3,634,058	3,634,058	-	9,312,278	39.02%
11/30/2013	2,082,219	2,082,219	-	9,870,211	21.10%
11/30/2012	747,119	747,119	-	11,282,045	6.62%
11/30/2011	-	-	-	12,455,231	0.00%

The following assumptions were used to determine the Actuarially Determined Contribution for the plan year ending November 30, 2020:

Calculation Timing	The Actuarially Determined Contribution is calculated using a November 30, 2018 valuation date.
Interest Rate	7.50%
Mortality Rate	RP 2000 Combined Healthy Annuitant Mortality Table projected to 2014
Assumptions	All other assumptions and methods used for determining the Actuarially Determined Contribution can be found in the November 30, 2018 Actuarial Valuation Report for the Employees Retirement System prepared by Rodwan Consulting Company.

ASSUMPTIONS – GASB PENSION LIABILITY AND PENSION EXPENSE

The GASB 67/GASB 68 Pension Liability for Plan reporting as of November 30, 2020 and GASB 68 Pension Expense were determined as follows:

Valuation Date	November 30, 2020
Measurement Date	November 30, 2020
GASB 68 Expense Measurement Period	December 1, 2019 - November 30, 2020
Reporting Period	December 1, 2019 - November 30, 2020
Discount Rate	7.30%
Inflation	2.50%
Salary Increases	Age-based rates
Other Assumptions	A summary of complete assumptions can be found in the accompanying Actuarial Valuation as of November 30, 2020 for the Employees Retirement System prepared by Foster & Foster Actuaries and Consultants.

The GASB 67/GASB 68 Total Pension Liability and GASB 68 Pension Expense reflects the following assumption change.

- The discount rate was lowered from 7.40% to 7.30%.

NOTES TO THE FINANCIAL STATEMENTS

*Discount Rate*

The Discount Rate used to measure the Total Pension Liability was 7.30 percent.

The projection of cash flows used to determine the Discount Rate assumed that Plan Member contributions will be made at the current contribution rate and that Sponsor contributions will be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the Long-Term Expected Rate of Return on Pension Plan investments (7.30 percent) was applied to all periods of projected benefit payments to determine the Total Pension Liability.

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.30 percent. The municipal bond rate is 2.03 percent (based on the daily rate closest to, but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index). The resulting single discount rate is 7.30 percent.

SUMMARY OF CURRENT PLAN

Pension Fund

The Plan is established and administered by the City of Livonia Employees Retirement System

Plan Administration

The Plan is a single employer defined benefit pension plan administered by a Board of Trustees comprised of:

- a.) The mayor or mayor's designated administrative representative,
- b.) A member of the City Council, selected by the Council,
- c.) A member of the Civil Service Commission,
- d.) A police or fire member, elected by police and fire members,
- e.) A member of any retirement plan established by city ordinance who is not a police or fire member.

Benefits Provided

The Plan provides retirement, termination, disability and death benefits.

A summary of the benefit provisions can be found in the accompanying Actuarial Valuation as of November 30, 2020 for the Employees Retirement System prepared by Rodwan Consulting Company.

The valuation reflects benefit changes noted on the page "Changes Since Prior Valuation".