

City of North Kansas City Policemen's and Firemen's Retirement Fund

Actuarial Valuation as of October 1, 2020



CONSULTING GROUP

Actuaries • Advisors • Administrators



November 2, 2020

Board of Trustees
City of North Kansas City
Policemen's and Fireman's Retirement Fund
City Hall, 2010 Howell Street
North Kansas City, MO 64116

Dear Board Members:

This report provides the results of an actuarial valuation for the City of North Kansas City Policemen's and Firemen's Retirement Fund (The Plan), which was performed as of October 1, 2020. The purpose of the valuation is to:

- Compare the current value of Trust assets with accrued liabilities to assess the funded condition of the Pension Plan,
- Compute the City's recommended contribution rate for the Fiscal Year beginning October 1, 2020.
- Provide accounting disclosure information for the Plan under applicable Governmental Accounting Standards for the Fiscal Year ended September 30, 2020.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices. The employee data was provided by the plan administrator and the Plan asset data was provided by the City administrator. This data has been reviewed for reasonableness, but no attempt has been made to audit such information. Employee data is snapshot data as of the valuation date.

The valuation was based on the provisions of the Plan as amended through the beginning of the Plan Year. Each actuarial assumption used in this valuation is reasonably related to the past experience of the Plan and represents reasonable expectations of future experience under the Plan. The Plan trustees with advice and approval of the actuary set the assumptions and methods for the valuation.

Neither the signing actuary nor the firm of MCG Consulting Group has a conflict of interest that would impair the objectivity of our work. This report is intended for use by the Plan trustees and should not be used for any purpose other than as stated herein. This report is only valid when presented in its entirety. It must not be reproduced without permission.

The undersigned meets the Qualification Standards for Prescribed Statements of Actuarial Opinion promulgated by the American Academy of Actuaries.

Respectfully submitted,

Handwritten signature of Traci Miller Christian in black ink.

Traci Miller Christian, EA, MAAA, FCA, MSPA
Enrollment Number 20-06694

Handwritten signature of John J. Naylor IV in black ink.

John J. Naylor IV, ASA, MAAA



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Section One:

Valuation Summary

Liabilities and Funded Condition of Pension Plan

	<u>October 1, 2019</u>	<u>October 1, 2020</u>
Actuarial Accrued Liability	\$55,825,371	\$57,182,653
Actuarial Value of Assets	\$56,226,546	\$59,357,584
Funded Status of the Plan	100.7%	103.8%

City Computed Contribution Rate

The City’s recommended contribution rate was computed as a percentage of active member payroll and assumed to be payable mid-year.

	<u>October 1, 2019</u>	<u>October 1, 2020</u>
Normal Cost *	9.33%	9.21%
Amortization of Unfunded Liability	(.37)%	(2.32)%
Interest	0.29%	0.22%
Total Computed Contribution	9.25%	7.11%
Anticipated tax-based portion	12.39%	13.33%
City’s Net Computed Contribution Rate	0.00%	0.00%

*The Normal Cost is calculated NET of the anticipated percentages of payroll contributions, which are 6.9% of pay from the city and 3.1% of pay from participants.

Pension Fund Experience

The plan measured liabilities \$422,299 higher than expected by our assumptions. The Plan experienced an investment gain of \$1,711,516 on a market value basis (return 9.48%), and an investment gain of \$1,167,757 on an actuarial (five-year smoothing) basis, where returns were 8.93%. The smoothed asset gains added to a liability gain and created a total gain of \$1,590,056.

Benefit Provision Changes

An ordinance was enacted offering additional optional forms of benefit for the members. The amendment added 75% and 100% Joint and Survivor optional forms, and 5,10 and 15 year certain and life optional forms. The amendment also added a partial lump sum option (PLOP) where the members can choose to receive 25% of their retirement benefit in a lump sum. There were no other changes to the plan provisions from the prior valuation.

Assumption and Method Changes

The projection scale used to generate generational improvements to the base mortality tables was updated from MP-2018 to MP-2019.

Participant Data

	<u>October 1, 2019</u>	<u>October 1, 2020</u>
Active Members	95	94
Active Member Payroll	\$5,861,423	\$5,703,321
Average Member's Pay	61,699	60,674
Retirees and Beneficiaries*	81	82
Annual Pensions	\$2,776,792	\$2,979,204
Vested Terminated	8	8
Deferred Payments	\$166,402	\$166,402

* Includes DROP Participants

Financial Data

Actuarial Value of Assets*	\$56,226,546	\$59,357,584
Market Value of Assets	\$57,295,898	\$60,835,153

*Accumulation of DROP balances as of the valuation date are removed from this value.



Section Two:

***Actuarial Calculations –
Funding***

Actuarial Accrued Liability and Funded Status

	<u>October 1, 2019</u>	<u>October 1, 2020</u>
Active Member Contributions	1,959,127	1,768,228
Retirees and Beneficiaries	26,651,356	29,218,138
Disabled Members	5,318,110	5,309,816
Terminated Vested Members	1,413,526	1,504,589
Active Members (employer-financed portion)	<u>20,483,252</u>	<u>19,381,882</u>
Actuarial Accrued Liability	\$55,825,371	57,182,653
Actuarial Value of Assets	<u>56,226,546</u>	<u>59,357,584</u>
Unfunded Actuarial Accrued liability	(401,175)	(2,174,931)
Funded Status of the Plan	100.7%	103.8%

Computed Contribution Rates

The contribution rates shown below are expressed as a percent of active member payroll (under Normal Retirement Age.).

The normal cost can be viewed as the long-term ongoing cost of the Pension Plan.

Accrued liabilities exceeded accrued assets as of October 1, 2015. The excess was amortized as a level percent of payroll over 20 years. This amortization charge was applied to the recommended contribution. Each year since then, increases and decreases in the actuarial liability due to assumption changes and actuarial gains and losses are similarly amortized over 20 years and added to or subtracted from the recommended contribution.

Contribution Recommendation for Fiscal Year Beginning October 1, 2020:

	<u>Dollar Amount</u>	<u>As a Percent Of Current Payroll</u>
Net Normal Cost (excludes % of pay contributions)	\$525,219	9.21%
Amortization of Unfunded Liability	(132,221)	(2.32)%
Interest for one half year	12,772	0.22%
Total Computed Contribution	405,770	7.11%
Anticipated Pension Funds Collections from Property Tax Billing	\$(760,000)	(13.33)%
Additional Recommended Contribution	\$0	0.00%

Projection of Funded Status and Recommended Contributions
Assumes the Actuarial Recommended Contribution is Made Each Year

Year	Total Normal Cost	Net Normal Cost	Amortization	Recommended Contribution	Expected Tax Contribution	Additional Recommended	Payroll	Contribution as a % of Payroll	Benefit Payments	Actuarial Value of Assets	Accrued Liability	Unfunded Liability	Funded Ratio
2020	1,095,551	525,219	(132,221)	405,770	771,000	-	5,703,321	7.1%	2,967,857	59,357,584	57,182,653	(2,174,931)	103.8%
2021	1,139,373	546,228	(208,803)	348,391	779,000	-	5,931,454	5.9%	3,182,112	62,325,980	59,001,975	(3,324,005)	105.6%
2022	1,184,948	568,077	(264,657)	313,281	786,000	-	6,168,712	5.1%	3,374,720	64,847,953	60,765,005	(4,082,948)	106.7%
2023	1,232,346	590,800	(304,216)	295,898	794,000	-	6,415,460	4.6%	3,518,692	67,025,522	62,492,301	(4,533,221)	107.3%
2024	1,281,640	614,432	(379,706)	242,355	802,000	-	6,672,079	3.6%	3,706,501	69,757,684	64,233,700	(5,523,985)	108.6%
2025	1,332,905	639,009	(428,892)	216,946	810,000	-	6,938,962	3.1%	3,814,561	71,973,241	65,946,874	(6,026,366)	109.1%
2026	1,386,222	664,569	(482,127)	188,372	818,000	-	7,216,521	2.6%	3,905,020	74,256,965	67,714,431	(6,542,534)	109.7%
2027	1,441,670	691,152	(539,771)	156,301	827,000	-	7,505,181	2.1%	4,013,076	76,632,563	69,560,262	(7,072,301)	110.2%
2028	1,499,337	718,798	(602,288)	120,297	835,000	-	7,805,389	1.5%	4,127,987	79,090,007	71,473,557	(7,616,450)	110.7%
2029	1,559,311	747,550	(670,057)	80,012	843,000	-	8,117,604	1.0%	4,202,423	81,627,709	73,453,986	(8,173,724)	111.1%
2030	1,621,683	777,452	(743,561)	34,993	852,000	-	8,442,308	0.4%	4,291,103	84,293,916	75,550,159	(8,743,757)	111.6%
2031	1,686,550	808,550	(823,392)	-	860,000	-	8,780,001	0.0%	4,410,934	87,084,585	77,757,448	(9,327,137)	112.0%
2032	1,754,012	840,892	(910,078)	-	869,000	-	9,131,201	0.0%	4,498,281	89,975,962	80,053,569	(9,922,394)	112.4%
2033	1,824,173	874,528	(1,004,324)	-	877,000	-	9,496,449	0.0%	4,570,648	93,010,550	82,480,599	(10,529,951)	112.8%
2034	1,897,140	909,509	(1,106,779)	-	886,000	-	9,876,307	0.0%	4,678,464	96,213,551	85,065,388	(11,148,163)	113.1%
2035	1,973,025	945,890	(1,333,985)	-	895,000	-	10,271,359	0.0%	4,769,394	99,561,843	87,784,578	(11,777,265)	113.4%
2036	2,051,946	983,725	(1,673,199)	-	904,000	-	10,682,213	0.0%	4,845,732	103,083,873	90,667,448	(12,416,425)	113.7%
2037	2,134,024	1,023,074	(1,353,138)	-	913,000	-	11,109,502	0.0%	4,959,129	106,807,632	93,742,937	(13,064,695)	113.9%
2038	2,219,385	1,063,997	(1,472,350)	-	922,000	-	11,553,882	0.0%	5,036,494	110,709,665	96,988,663	(13,721,002)	114.1%
2039	2,308,161	1,106,557	(1,741,276)	-	931,000	-	12,016,037	0.0%	5,097,598	114,840,528	100,456,392	(14,384,136)	114.3%
2040	2,400,487	1,150,819	(1,668,693)	-	941,000	-	12,496,679	0.0%	5,114,968	119,233,720	104,180,979	(15,052,742)	114.4%
2041	2,496,507	1,196,852	(1,670,621)	-	950,000	-	12,996,546	0.0%	5,142,829	123,954,378	108,228,057	(15,726,321)	114.5%
2042	2,596,367	1,244,726	(1,722,308)	-	960,000	-	13,516,408	0.0%	5,157,784	129,013,918	112,611,689	(16,402,229)	114.6%
2043	2,700,222	1,294,515	(1,817,446)	-	969,000	-	14,057,064	0.0%	5,175,212	134,450,780	117,371,167	(17,079,613)	114.6%
2044	2,808,230	1,346,296	(1,844,587)	-	979,000	-	14,619,346	0.0%	5,208,545	140,288,061	122,532,623	(17,755,438)	114.5%

Uses 6.5% assumed rate of return and discount rate. Assumes payroll and expected tax contributions are made.

The results presented here are ESTIMATES. They are based on the data, assumptions, methods and plan provisions outlined in this report. These results are for **discussion purposes only** and should not be relied upon for purposes of making cash contributions to the Plan nor for any other purposes.

Schedule of Amortization of Unfunded Liability**Twenty-year Amortization of Historical Components of the Unfunded Actuarial Liability**

Description	Initial Amount	Remaining Period	Outstanding Balance*	Payment This Year
10/1/15 UAL	\$850,634	15	\$820,313	\$64,242
10/1/16 Change Mortality	2,034,904	16	1,990,373	147,770
10/1/16 Actuarial Gain	(523,917)	16	(512,451)	(38,046)
10/1/17 Change Mortality	(1,040,818)	17	(1,028,581)	(72,675)
10/1/17 Actuarial Gain	(2,545,234)	17	(2,515,310)	(177,720)
10/1/18 Change Withdrawal	649,332	18	646,129	43,596
10/1/18 Actuarial Gain	(740,469)	18	(736,816)	(49,714)
10/1/19 Change Mortality	708,032	19	707,247	45,708
10/1/19 Actuarial Loss	224,947	19	224,698	14,522
10/1/20 Change Mortality	(180,477)	20	(180,477)	(11,203)
10/1/20 Actuarial Gain	(1,590,056)	20	(1,590,056)	(98,701)
Total			<u>\$(2,174,931)</u>	<u>\$(132,221)</u>

*The total of the outstanding balances equals the current Unfunded Actuarial Liability.

Amounts are amortized as a level percent of pay, so will increase each year by the base salary scale, currently 4.0%.

Recommended City Contributions

These recommended contributions are in addition to anticipated percentage of payroll contributions: 6.9% from the city and 3.1% of pay from participants.

Valuation Date: October 1	Computed City Dollar Contributions	Percent of Payroll
2008	1,192,596	22.4
2009	1,432,875	24.8
2010	1,413,105	25.5
2011	1,546,257	27.8
2012	1,382,311	27.4
2013	890,916	17.8
2014	710,503	13.6
2015	658,361	12.9
2016	846,280*	16.6*
2017	595,057	11.9
2018	422,048	7.7
2019	536,166	9.3
2020	405,770	7.1%

*Generational mortality tables were first used in the 2016 valuation

Comments and Conclusion

The Plan experienced an investment gain of over \$1,711,516 on a market value basis, reflecting a return of 9.5%. Twenty percent of those gains are recognized in the actuarial (smoothed) asset value, and the remainder will be recognized over the next four years. Prior year gains and losses are also being phased into the smoothed asset value, which is currently 97.9% of the market value.

Maintaining current funding practices will keep the plan well funded.

History of Assets and Accrued Liabilities

Valuation Date October 1:	Valuation Assets	Actuarial Accrued Liabilities	Funded Ratio	Unfunded Actuarial Accrued Liabilities
2008	33,999,722	38,836,397	87.5	4,836,675
2009	34,040,208	40,953,104	83.1	6,912,896
2010	34,635,613	42,049,757	82.4	7,414,144
2011	34,604,534	44,441,255	77.9	9,836,721
2012	39,322,148	45,859,772	85.7	6,537,624
2013	42,131,291	45,675,222	92.2	3,543,931
2014	46,376,930	46,677,818	99.4	300,888
2015	46,574,127	47,424,761	98.2	850,634
2016	48,471,548	50,832,226*	95.4	2,360,678*
2017	51,220,665	49,990,363	102.5	(1,230,302)
2018	53,789,162	52,460,114	102.5	(1,329,048)
2019	56,226,546	55,825,371	100.7	(401,175)
2020	59,357,584	57,182,653	103.8	(2,174,931)

*Generational mortality was first used in the 2016 valuation.

History of Market Value Asset Returns

Year Ended Sept. 30	Rate of Investment Return	Rate of Smoothed Return
2008	(14.7%)	
2009	3.8%	
2010	9.9%	
2011	0.8%	
2012	18.8%	
2013	11.6%	
2014	8.8%	
2015	(0.9%)	2.6%
2016	10.1%	8.1%
2017	13.3%	8.1%
2018	7.6%	7.5%
2019	3.6%	7.1%
2020	9.5%	8.9%

Valuation History

2020

A city ordinance was enacted offering additional optional forms of payment to members upon retirement. New optional forms include a Joint and Survivor 75% and 100% option, and a 5, 10 and 15 year certain and life option. A PLOP feature was added so that the members can chose to elect to receive 25% of their retirement benefit in a partial lump sum.

2019

The mortality table was updated to the Public Safety 2010 (Bottom Quartile) tables for employees and annuitants, projected with generational improvements using scale MP-2018. This change increased the measurement of actuarial liability by \$708 thousand.

2018

A new withdrawal table was implemented based on an experience study that was preformed in May 2018. This change increased the actuarial liability by almost \$650 thousand.

2017

Downward adjustments in the new mortality projection scale caused the change in mortality to decrease plan liabilities by roughly \$1 million. Favorable demographic experience and asset returns produced \$2.55 million of actuarial gains.

2016

The mortality tables were updated to RP-2014 Blue Collar tables at 2006, with generational improvements using the most recently available projection scale (MP-2015), reflecting the most recently published research. This was the first year that generational mortality tables were used, and added \$2 million to the Actuarial Liability.

2015

The mortality table was updated to the RP-2014 Blue Collar table, without generational projection. The asset smoothing method was revised slightly in this valuation to base the five-year smoothing on gradual recognition of asset gains and losses, rather than adding the five-year average gain to expected assets.

2013

City Contributions were increased from 3.9% to 6.9% of payroll. Employee Contributions increased from 1.1% to 3.1% of payroll. Employees are now required to continue making employee contributions until actual separation of employment (including time in the DROP)..



Section Three:

***Retirement Plan
Benefit Provisions***

Benefit Provision Summary

Effective Date

November 6, 1956

Eligibility

All policemen and firemen of the City of North Kansas City are eligible to Participate in the Plan on their employment date unless otherwise excluded by contract.

Average Monthly Salary

Highest 36 consecutive month average out of the last 60 months prior to termination or retirement.

Normal Retirement Date

Normal Retirement is the first of the month coincident with or immediately following the attainment of age 55 and 10 years of Service. Early Retirement is age 45 with 25 Years of Service.

Benefit Formula

2.5% times Average Monthly Salary at actual retirement or termination, times Years of Service up to 20, plus 1% times Average Monthly Salary times Years of Service in excess of 20 but not exceeding 30.

Normal Form

The retirement benefit shall be payable for the Member's lifetime only with an actuarial Equivalent 50% Joint and Survivor Benefit for married participants.

Vesting

A Member who has ten or more years of service is entitled to a benefit at his Normal Retirement Date and shall be considered 100% vested. The Member's benefit at Normal Retirement Date is his accrued benefit unless the terminated Member elects to withdraw his Member contributions with interest in lieu of any other Plan benefits.

Pre-Retirement Death Benefit

A Participant's spouse is entitled to 50% of the Accrued Benefit, reduced for joint life expectancy, payable when the participant would have otherwise reached eligibility for benefits.

Duty Disability Benefit

The greater of a or b, or for Active Members who were Active Members on August 22, 1994 the greatest of a, b, and c:

- a) 50% of Average Monthly Salary for the 12 months preceding the date of retirement.
- b) Projected Normal Retirement Benefit at age 55 assuming continued employment and Average Monthly Salary at the time of disability.
- c) 60% of Average Monthly Salary calculated as of August 22, 1994 and paid until the earlier of death, recovery or Normal Retirement.

Cost of Living Adjustment (COLA)

Monthly Benefits of Members retiring or becoming disabled on or after August 23, 1994 will be increased on each January 1 thereafter. Such increase will be the lesser of the Social Security COLA as of the immediately preceding December 1 or 3%, but not less than 1%. The COLA will be prorated for benefits commencing other than on January 1.

Member Contributions

3.1% of Base Pay. Upon non-vested termination, the Member's contributions may be returned with interest at the Federal Mid-Term Rate compounded annually in effect as of each October 1.

City % of Pay Contributions

6.9% of Base Pay



Section Four:

***Actuarial Assumptions
And Methods***

Actuarial Assumptions

Economic Assumptions

- (i) Interest Rate 6.5% (net of all expenses)

- (ii) Salary Increases Salary scale consists of a 4% inflation component and an age-based merit scale that uses 2.5% increases up to age 35, 2.0% increases from age 36 to 40, 1.0% increases from age 41 to 45, and 0.0% increases after age 45.

Demographic Assumptions

- (i) Mortality Public Safety 2010 (Bottom Quartile) tables for employees and annuitants, projected with generational improvements using the scale MP-2019 for this valuation. (previously the scale MP-2018 was used.)
For disabled mortality, the Healthy Annuitant Mortality Table is set forward five years.

- (ii) Sample Rates of Termination Termination rates are based on age. Sample rates are as follows:

<u>Age</u>	<u>Annual Rates of Termination</u>
20	19.5%
28	13.0%
36	6.9%
44	4.5%
52+	0.0%

- (iii) Disability Sample annual rates of disability are as follows:

<u>Age</u>	<u>Rate</u>
25	0.15%
30	0.20%
40	0.50%
50	0.80%

(iv) Retirement	<table border="0"> <tr> <td style="text-align: center;"><u>Age</u></td> <td style="text-align: center;"><u>Percent Retiring</u></td> </tr> <tr> <td style="text-align: center;">45-49</td> <td style="text-align: center;">5%</td> </tr> <tr> <td style="text-align: center;">50-54</td> <td style="text-align: center;">10%</td> </tr> <tr> <td style="text-align: center;">Age 55</td> <td style="text-align: center;">30%</td> </tr> <tr> <td style="text-align: center;">56-64</td> <td style="text-align: center;">20%</td> </tr> <tr> <td style="text-align: center;">Age 65</td> <td style="text-align: center;">100%</td> </tr> </table>	<u>Age</u>	<u>Percent Retiring</u>	45-49	5%	50-54	10%	Age 55	30%	56-64	20%	Age 65	100%
<u>Age</u>	<u>Percent Retiring</u>												
45-49	5%												
50-54	10%												
Age 55	30%												
56-64	20%												
Age 65	100%												
(v) Marital Status	75% of participants are assumed to be married with males 3 years older than their female spouses.												
(vi) Cost of Living Increases	2.0%												
(vii) Expenses	Administrative expenses will be paid by the Plan												

Assumptions for Actuarial Projections (page 5)

(i) Normal Cost Growth	4.0% per year
(ii) Tax Contribution Increases	1.0%
(iii) Annual Payroll Growth	4.0%
(iv) Annual Investment Return	6.5%

Experience Study and Assumption Review

Demographic and economic experience studies and assumption reviews are recommended about every 5 years. Periodic studies and reviews help to ensure that the assumptions used in the valuation are based on the best information we have available to us.

The last assumption review for this plan was done in May of 2018.

Actuarial Method Used for the Valuation

Normal Cost

Normal cost and the allocation of actuarial present values between service rendered before and after the valuation date were determined using an individual entry age actuarial cost method having the following characteristics:

- ❖ The annual normal costs for each individual active member, payable from date of hire to date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;
- ❖ Each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.
- ❖ In calculating the Normal Cost for purposes of the City's recommended contribution rate, it is assumed that the employees will contribute at a rate of 3.1% of eligible payroll and the City is contributing at a rate of 6.9% of eligible payroll.

Financing of Unfunded Actuarial Accrued Liability

New components of unfunded actuarial liability arise when assumptions or methods change, when the plan is amended, or due to annually measured actuarial gains or losses. Each new component of unfunded liability is amortized over a fixed period, and as a level percent of pay.

Active member payroll is assumed to increase at the base salary increase rate for the purpose of determining the level percent-of-payroll full funding credit.

Actuarial Value of Assets.

Asset gains and losses are recognized over five years. Actuarial Value is not allowed to be less than 80% nor more than 120% of the current year's Market Value. Inasmuch as accumulated DROP balances are not valued as plan liabilities, they are removed from the Actuarial Value so contribution calculations will not be understated.

Assessment and Disclosure of Risk

The Actuarial Standards of Practice require the plan's actuary to assess certain risks to the plan. Specifically, the impact of future events that may differ significantly from the assumptions used to produce the current actuarial valuation. The purpose of this information is to make the plan sponsor aware of such risks. For a more detailed analysis of any of these items, please contact our office.

Assumptions: Actuarial assumptions such as interest rates, rates of retirement and withdrawal as well as mortality tables used for calculating the actuarially recommended contribution are important factors. Each actuarial assumption used in this valuation is reasonably related to the

past experience of the Plan and represents reasonable expectations of future experience under the Plan. With advice from the actuary, the trustees approve the assumptions for the valuation. When actual plan experience deviates from what is expected, the resulting gain or loss is amortized over future years and becomes part of the recommended contribution. If there is a decrease in the assumed future return on plan investments, the overall funding requirement, barring other mitigating circumstances, will increase. Updates to mortality tables often extend life expectancies, which also results in an increase to plan liabilities.

Contribution Risk: Funding less than the actuarially recommended contribution will not typically fully fund the Plan on a long-term basis. If the Plan is underfunded, additional contributions may be required.

Investment Risk: Plan assets include contributions and asset earnings. The Plan's investment portfolio should take into consideration the funded status of the Plan, anticipated future contribution levels, and the expected future years of the Plan. Investment performance may have a significant impact on future required contributions to fully fund the Plan on a long-term basis.

Demographic Risk: Demographic changes from year to year can have a significant impact on valuation results.



Section Five:
Valuation Data

Summary of Asset Information Submitted for the Valuation

Statement of Assets

As of October 1, 2020, the market value of Pension Plan assets was reported to be \$60,835,153.

Market Value of Assets as of October 1, 2019	\$57,295,898
a. Revenues	
(i) Employer Contributions (Tax levy + City)	771,000*
(ii) Employer Contributions (6.9% of payroll)	397,758
(iii) Employee Contributions (3.1% of payroll)	178,950
(iv) Investment Income (Net of plan expenses)	5,346,151
b. Disbursement to Members	
(i) Benefits Paid	(3,154,604)
c. Market Value as of October 1, 2020	60,835,153

* The property tax contribution had not been made as of the 10/1/20 valuation date but was made prior to the date of this report.

The plan's Deferred Retirement Option Program (DROP) has two current participants with accumulated DROP balances of \$206,327 as of the current valuation date. The computation of the plan's Actuarial Value of Assets, shown on the following page, is reduced by the amount of the accumulated balances so that recommended contribution amounts are not understated.

Actuarial Value of Assets

(1) Market Value of Assets at end of prior year	57,295,898
(2) Contributions for the year – Employer	1,168,758
Contributions for the year – Employee	178,950
(3) Benefit Payments	(3,154,604)
(4) Expected Investment Return	
On Beginning Value	3,724,233
On Contributions	12,927
On Benefit Payments	(102,525)
Total	3,634,635
(5) Expected Assets at Year-end	59,123,637
(6) Market Value of Assets at Year-end	60,835,153
(7) Excess of Market over Expected Assets	1,711,516
(8) Unrecognized gains / (losses)	
(a) 80% of the year just ended (80% x (7))	1,369,213
(b) 60% of two years prior	(979,441)
(c) 40% of three years prior	226,114
(d) 20% of four years prior	655,356
(e) Total unrec. gains / (losses) (sum of (a)–(d))	1,271,242
(9) Smoothed Asset Value (6) - (8e), 80-120% of (6)	59,563,911
(10) DROP Account Balances	206,327
(11) Actuarial Value of Assets (9) - (10)	59,357,584
Rate of Return – Actuarial Value, net of expenses	8.93%
Rate of Return – Market Value, net of expenses	9.48%

Participant Summary**Retirees and Beneficiaries Included in the Valuation**

There were 82 retirees and beneficiaries (including 2 DROP participants) included in the valuation, with annual pensions totaling \$2,979,204. The breakdown by age division is as follows:

Attained Ages	Number	Average Annual Pensions
40-44		
45-49	1	\$40,437
50-54	1	38,354
55-59	12	34,068
60-64	13	46,984
65-69	16	34,724
70-74	15	43,682
75-79	12	32,226
Over 80	12	23,607
Total	82	\$36,332

Pensions Being Paid

Valuation Date October 1	No.	Annual Pensions	% of Active Payroll	Average Pension	Discounted Value of Pensions	
					Total	Average
2012	76	2,119,575	42.0	27,979	26,339,864	346,577
2013	77	2,230,123	44.5	28,963	26,395,308	342,796
2014	77	2,241,599	43.0	29,112	26,200,434	340,265
2015	77	2,365,178	46.3	30,717	26,427,421	343,213
2016	81	2,552,718	49.9	31,515	30,693,382	378,931
2017	80	2,539,650	50.7	31,746	29,813,856	372,673
2018	80	2,623,652	47.8	32,796	30,270,741	378,384
2019	81	2,776,792	47.4	34,281	31,969,466	394,685
2020	82	2,979,204	52.2	36,332	34,527,954	421,073

Vested Terminated Members Included in the Valuation

There were 8 vested terminated members included in the valuation, with annual pensions totaling \$166,402. The breakdown is as follows:

Attained Ages	Number	Average Annual Pensions
35-39	1	\$21,225
40-44	3	22,557
45-49	1	20,709
50-54	3	18,933
55-59		
Total	8	\$20,800

Active Members – Age and Service Distribution

Age	Service							Total
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	Over 30	
20 - 24	6							6
25 - 29	14							14
30 - 34	12							12
35 - 39	6	3	10	2				21
40 - 44			6	2	1			9
45 - 49	1			2	2			5
50 - 54			1	4	2	8		15
55 - 59	1	1		2		4	1	9
60 - 64					1	1	1	3
65+								
Total	40	4	17	12	6	13	2	94

Total Active Participant Information

	2020	2019	2018
Active Members	94	95	93
Valuation Payroll	5,703,321	5,861,423	5,491,347
Average Compensation	60,674	61,699	59,047
Average Age (yrs.)	40.6	40.9	40.9
Average Service (yrs.)	11.7	12.1	12.2

Reconciliation With Prior Year

	Actives	Retirees & Beneficiaries	Disabled	Vested Terminations
October 1, 2019 Participants	95	67	14	8
Corrections				
New Participants	8			
Returned to Active				
Retirements	(4)	4		
Deaths		(3)		
New Beneficiaries				
Benefits Expire				
Terminations				
- Vested				
- Non-vested*	(5)			
October 1, 2020 Participants	94	68	14	8

* Participants who terminate without vested benefits receive a return of their contributions, accumulated with interest.

Participants who have stopped accruing benefits under the DROP are counted as retirees in this presentation.



Section Six:

Accounting Disclosures

The information presented in these schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date:	October 1, 2020
Actuarial Cost Method:	Entry Age Normal
Actuarial assumptions:	
Investment rate of return	6.5%*
Projected salary increases	4.0% base

* The long-term expected rate of return on investments was determined using a building block method in which best-estimate ranges of expected future real rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rate of return by the target asset allocation percentage and by adding expected inflation, 2.5%. Estimates of arithmetic real rates of return for each major asset class included in the Fund's target asset allocation as of September 30, 2020 are summarized below:

Asset Class	Long-Term Expected Target Asset Allocation	Real Rate of Return
Fixed Income	25%	2.0%
Equity Securities	65%	5.5%
Real Estate	10%	3.5%

Membership data is detailed in Section Five of this report.

Funding Progress

Actuarial Valuation as of Oct. 1,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (b)-(a)	Percent Funded (a)/(b)	Annual Covered Payroll (c)	Unfunded AAL as a Percentage of Covered Payroll ((b-a)/c)
2010	34.636	42.050	7.414	82.4	5.669	131.0
2011	34.605	44.441	9.837	77.9	5.571	177.0
2012	39.322	45.860	6.538	85.7	5.049	129.5
2013	42.131	45.675	3.544	92.2	5.015	70.7
2014	46.377	46.678	0.301	99.4	5.213	5.8
2015	46.574	47.425	0.851	98.2	5.112	16.6
2016	48.471	50.832	2.360	95.4	5.112	46.2
2017	51.220	49.990	(1.230)	102.5	5.008	(24.6)
2018	53.789	52.460	(1.329)	102.5	5.491	(24.2)
2019	56.226	55.825	(0.401)	100.7	5.861	(6.8)
2020	59.358	57.183	(2.175)	103.8	5.703	(38.1)

Dollar amounts in millions.

Schedule of Contributions

Year Ended	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution	Contribution Deficiency (Excess)	Covered Employee Payroll	Contributions as a Percentage of Covered Employee Payroll
9/30/2015	1,070,230	1,043,030	27,200	5,213,425	20.01%
9/30/2016	1,011,064	1,047,105	(36,041)	5,111,644	20.48%
9/30/2017	1,199,032	1,195,815	3,217	5,112,351	23.39%
9/30/2018	940,605	1,093,914	(153,309)	5,007,936	21.84%
9/30/2019	800,951	1,126,830	(325,878)	5,491,347	20.52%
9/30/2020	936,047	1,168,758	(232,711)	5,861,423	19.94%

Pension Expense for Year Ended September 30, 2020

Service cost	\$ 1,120,285
Interest on the total pension liability	3,598,943
Employee contributions	(178,950)
Projected earnings on pension plan investments	(3,634,635)
Pension plan administrative expense	148,175
Outflows / (inflows) of resources recognized in the current year due to	
Difference between expected and actual experience	(182,900)
Changes of assumptions	259,826
Difference between projected and actual earnings on plan investments	<u>(1,108,826)</u>
Pension expense	<u>\$ 21,918</u>

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
Balances at 9/30/19	<u>\$ 55,825,371</u>	<u>\$ 57,295,898</u>	<u>\$ (1,470,527)</u>
Changes for the year			
Service cost	1,120,285		1,120,285
Interest	3,598,943		3,598,943
Difference between expected and actual experience	(26,865)		(26,865)
Contributions - employer		1,168,758	(1,168,758)
Contributions - employee		178,950	(178,950)
Net investment income		5,494,326	(5,494,326)
Benefit payments, including refunds	(3,154,604)	(3,154,604)	
Administrative expense		(148,175)	148,175
Changes of Assumptions	(180,477)		(180,477)
Other changes	--	--	--
Net changes	<u>\$ 1,357,282</u>	<u>\$ 3,539,255</u>	<u>\$ (2,181,973)</u>
Balances at 9/30/20	<u>\$ 57,182,653</u>	<u>\$ 60,835,153</u>	<u>\$ (3,652,500)</u>

Statement of Outflows and Inflows Arising During the Current Period

1. Difference between expected and actual experience of the TPL (gains) / losses	\$ (26,865)
2. Assumption Changes	(180,477)
3. Recognition period: Average of the expected remaining service lives of all plan participants (in years)	4.728
4. Difference between expected and actual return on plan investments	(1,711,516)
5. Outflow (Inflow) of Resources to be recognized in the current pension expense:	
a. for the difference between expected and actual experience of the TPL, (1) / (3)	(5,682)
b. for assumption changes, (2) / (3)	(38,172)
c. for the difference between expected and actual return on plan investments, (4) / 5	(342,303)

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

	Current Single Discount Rate		
	1% Decrease 5.5%	Assumption 6.5%	1% Increase 7.5%
Total Pension Liability	\$63,833,152	\$57,182,653	\$51,643,384
Plan Fiduciary Net Position	60,835,153	60,835,153	60,835,153
Net Pension Liability / (Asset)	\$ 2,997,999	\$ (3,652,500)	\$ (9,191,769)

Deferred Outflows and Deferred Inflows of Resources to be Recognized in Future Years

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 556,806	\$ 915,946
Changes in Assumptions	1,295,490	661,464
Net difference between projected and actual earnings on pension plan investments		1,271,242
Total	\$ 1,852,296	\$ 2,848,652

Year	Net Deferred Outflows of Resources
2021	\$ (654,282)
2022	93,831
2023	(119,065)
2024	(316,840)
2025	--
Thereafter	--
Total	\$ (996,356)



Section Seven:

Glossary of Terms

Glossary of Terms

Accrued Benefit

The benefit earned by a participant payable in the form of a monthly benefit commencing at normal retirement age.

Actuarial Accrued Liability

The actuarial present value of benefits earned as of the valuation date.

Actuarial Gain or Loss

The difference between the plan's actual experience and expected experience based on the actuarial assumptions used in the valuation.

Actuarial Value of Assets

The value of assets as determined by the actuary for the purpose of the valuation. This may or may not include a method of smoothing investment gains and losses over time.

Amortization

The spreading of liabilities or costs over a period of years. A plan's unfunded actuarial accrued liability is amortized over a period of years.

Entry Age Normal Actuarial Cost Method

An actuarial method for determining the annual normal cost and the actuarial accrued liability of a pension plan. Under this method, the annual normal cost is the level amount that would have to be contributed each year from the time each employee entered employment so that his pension will be fully funded by his assumed retirement age.

Normal Cost

That portion of the actuarial present value of plan benefits and expenses allocated to the valuation year.

Present Value

The value of a benefit payment or series of benefit payments determined as of the valuation date by the application of a particular set of actuarial assumptions. It is the single sum which reflects the time value of money (through discounts for investment yield) and the probabilities of payment (taking into account death, disability, withdrawal and age at retirement).

Unfunded Actuarial Accrued Liability

The excess of the actuarial accrued liability over the actuarial value of assets.

Vested Benefit

A benefit that is not forfeited if the participant leaves employment.