



Columbia Police and Firemen's Retirement Fund

Valuation Results as of September 30, 2020

June 7, 2021

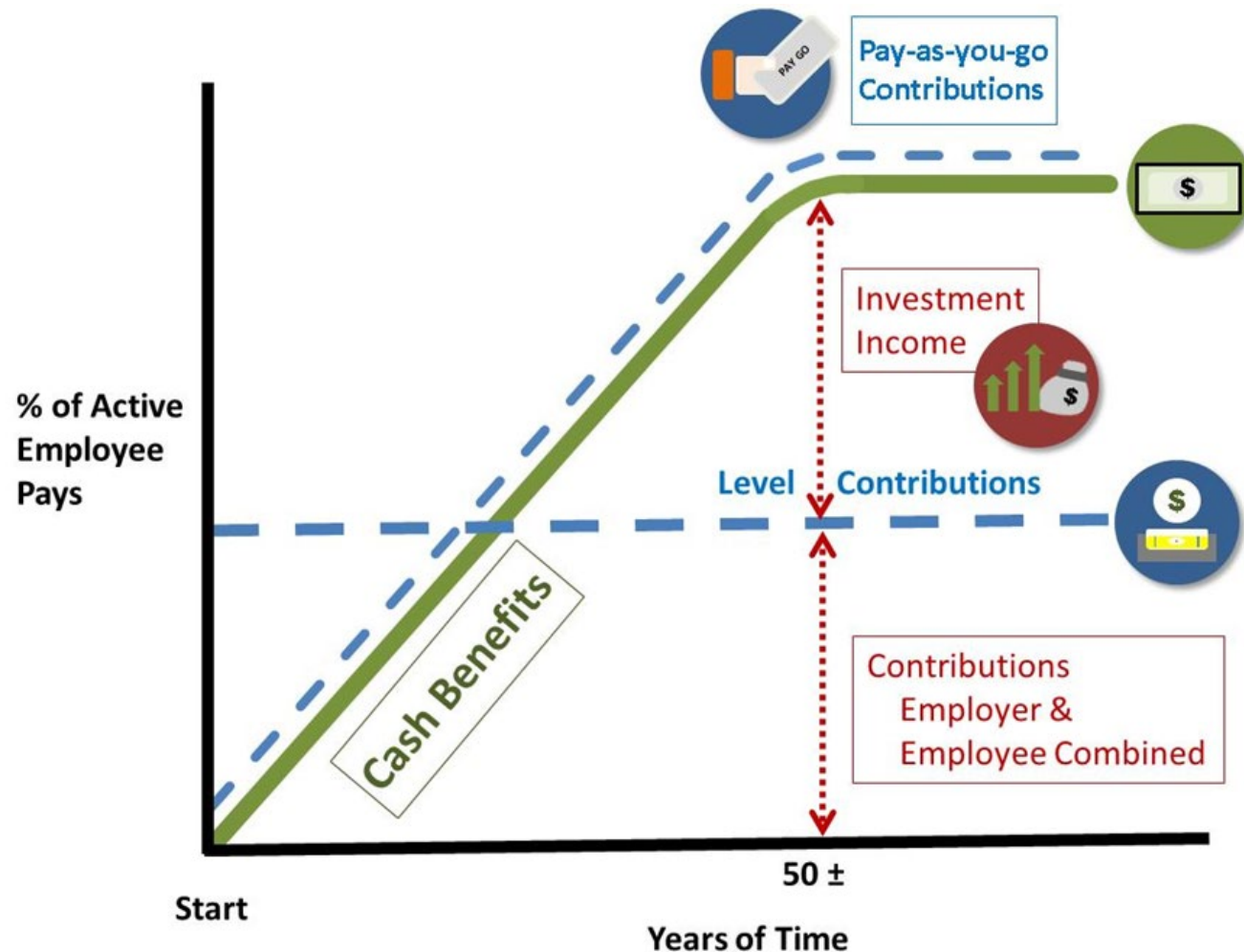
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Purpose of the Valuation (Cover Letter)

- This presentation provides the results of the September 30, 2020 actuarial valuation of the City of Columbia Police and Firemen's Retirement Fund
- Purpose of the valuation is twofold
 - Determine the employer contribution rates for the fiscal year ending September 30, 2022
 - Measure the funding progress in relation to the actuarial cost method (i.e., what portion of the actuarial accrued liabilities are covered by the funding value of assets)

Financing Increasing Benefit Obligations



Actuarial Valuation Process

- The actuarial valuation is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:
 - **Census Data**, furnished by the plan administrator
 - Retired lives now receiving benefits
 - Former members with vested benefits not yet payable
 - Active members (including DROP members)
 - **Asset Data**, furnished by the plan administrator
 - **Benefit Provisions**
 - **Actuarial Assumptions**
 - **Actuarial Funding Method**

Active Members, Including DROP Members

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Police Fund

Year Ended	Number	Valuation Payroll	Averages		
			Age	Service	Pay
9/30/2016	151	\$8,947,152	38.0 yrs.	10.1 yrs.	\$ 59,253
9/30/2017	151	8,645,882	37.4	9.9	57,257
9/30/2018	161	9,073,800	36.7	9.1	56,359
9/30/2019	157	9,131,578	36.8	9.2	58,163
9/30/2020	160	9,882,239	36.8	9.1	61,764

Fire Fund

Year Ended	Number	Valuation Payroll	Averages		
			Age	Service	Pay
9/30/2016	139	\$ 8,605,280	38.1 yrs.	9.6 yrs.	\$ 61,908
9/30/2017	142	8,598,788	38.8	10.2	60,555
9/30/2018	141	8,784,183	39.2	10.6	62,299
9/30/2019	137	8,724,771	39.9	11.2	63,684
9/30/2020	137	9,592,099	40.3	11.4	70,015

Retirees and Beneficiaries (Page B-13)

Police Fund

Year Ended	Added to Rolls		Removed from Rolls		Rolls End of Year		Benefits as % of Active Member Payroll	% Change in Annual Benefits
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits		
9/30/2016	3	\$ 98,788	2	\$ 22,233	153	\$ 4,380,484	48.96 %	+ 2
9/30/2017	7	271,315	0	0	160	4,651,799	53.80	+ 6
9/30/2018	9	353,325	4	27,216	165	4,977,908	54.86	+ 7
9/30/2019	9	403,539	3	72,787	171	5,308,660	58.14	+ 7
9/30/2020	8	326,665	3	39,099	176	5,596,226	56.63	+ 5

Fire Fund

Year Ended	Added to Rolls		Removed from Rolls		Rolls End of Year		Benefits as % of Active Member Payroll	% Change in Annual Benefits
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits		
9/30/2016	15	\$ 864,648	4	\$ 140,717	158	\$ 6,492,704	75.45 %	+ 13
9/30/2017	1	159,972	3	52,737	156	6,599,939	76.75	+ 2
9/30/2018	6	389,099	3	112,088	159	6,876,950	78.29	+ 4
9/30/2019	5	338,213	4	52,568	160	7,162,595	82.09	+ 4
9/30/2020	6	467,161	5	156,110	161	7,473,646	77.91	+ 4

Funding Value of Assets (Page B-19)

Valuation Date September 30:	2019	2020	2021	2022	2023
A. Funding Value Beginning of Year	\$ 136,171,521	\$ 143,322,626			
B. Market Value End of Year	143,111,081	151,153,269			
C. Market Value Beginning of Year	138,172,000	143,111,081			
D. Non-Investment Net Cash Flow	(2,501,498)	(1,612,627)			
E. Investment Income					
E1. Market Total: B - C - D	7,440,579	9,654,815			
E2. Assumed Rate of Investment Return	7.00%	7.00%			
E3. Amount for Immediate Recognition	9,444,454	9,976,142			
E4. Amount for Phased-In Recognition: E1 – E3	(2,003,875)	(321,327)			
F. Phased-In Recognition of Investment Income					
F1. Current Year: 0.25 x E4	(500,969)	(80,332)			
F2. First Prior Year	90,688	(500,969)	\$ (80,332)		
F3. Second Prior Year	1,109,985	90,688	(500,969)	\$ (80,332)	
F4. Third Prior Year	(491,555)	1,109,986	90,687	(500,968)	\$ (80,331)
F5. Total Phase-In Amount	208,149	619,373	(490,614)	(581,300)	(80,331)
G. Funding Value End of Year:					
G1. Preliminary Funding Value End of Year: A + D + E3 + F5	\$ 143,322,626	\$ 152,305,514			
G2. Corridor Percent	25%	25%			
G3. Upper Corridor Limit: (100% + G2) x B	\$ 178,888,851	\$ 188,941,586			
G4. Lower Corridor Limit: (100% - G2) x B	\$ 107,333,311	\$ 113,364,952			
G5. Funding Value End of Year	\$ 143,322,626	\$ 152,305,514			
H. Difference between Market & Funding Value	(211,545)	(1,152,245)			
I. Recognized Rate of Return	7.2%	7.4%			
J. Market Rate of Return	5.4%	6.8%			
K. Ratio of Funding Value to Market Value	100.1%	100.8%			

Computed Employer Contribution Rates (Page A-1)

Contributions for	% of Active Payroll					
	Police			Fire		
	Pre 10/1/2012	Pst 10/1/2012	Police Total*	Pre 10/1/2012	Pst 10/1/2012	Fire Total*
Normal Cost of Benefits:						
Age & service	21.58%	12.35%	17.47%	36.03%	16.85%	29.02%
Casualty	1.96	2.32	2.12	6.76	3.90	5.71
Refunds of member contributions	0.48	0.60	0.53	0.61	0.15	0.44
Administrative expenses	0.35	0.35	0.35	0.35	0.35	0.35
Total	24.37%	15.62%	20.47%	43.75%	21.25%	35.52%
Less Member Contributions	3.50%	4.50%	3.94%	16.32%	4.00%	11.94%
Employer Normal Cost	20.87%	11.12%	16.53%	27.43%	17.25%	23.58%
Unfunded Actuarial Accrued Liabilities (26-year amortization)	26.42%	26.42%	26.42%	39.60%	39.60%	39.60%
TOTAL COMPUTED EMPLOYER CONTRIBUTION RATE	47.29%	37.54%	42.95%	67.03%	56.85%	63.18%



* Weighted average.

Computed Actuarial Accrued Liabilities (Page A-2)

	<u>Police</u>	<u>Fire</u>	<u>Total Fund</u>
Computed Actuarial Accrued Liabilities:			
Retirees and Beneficiaries	\$ 69,547,968	\$ 105,530,238	\$ 175,078,206
Active Members, LOA Members & Vested Terminated Members	<u>35,531,418</u>	<u>54,784,161</u>	<u>90,315,579</u>
Total	105,079,386	160,314,399	265,393,785
Funding Value of Assets*	<u>59,055,588</u>	<u>93,249,926</u>	<u>152,305,514</u>
Unfunded Actuarial Accrued Liabilities	\$ 46,023,798	\$ 67,064,473	\$ 113,088,271
Total Percent Funded	56%	58%	57%
9/30/2020			

* The Police and Firemen's Retirement Fund is treated as two separate funds for purposes of accounting and administration, with assets pooled for investment purposes.



Summary of Risk Measures (Page A-12)

Police Fund

Valuation Date September 30,	Funded Ratio		UAAL	Total Funding Value			Standard Deviation of
	Based on AVA	Based on MVA	Amortization Period	Total UAAL / Total Payroll	of Assets / Total Payroll	Total AAL / Total Payroll	Investment Return / Total Payroll
2017	56 %	56 %	29	4.8	6.1	10.8	88 %
2018	56	57	28	4.7	5.9	10.6	87
2019	56	56	27	4.8	6.2	11.0	89
2020	56	56	26	4.7	6.0	10.6	86

Fire Fund

Valuation Date September 30,	Funded Ratio		UAAL	Total Funding Value			Standard Deviation of
	Based on AVA	Based on MVA	Amortization Period	Total UAAL / Total Payroll	of Assets / Total Payroll	Total AAL / Total Payroll	Investment Return / Total Payroll
2017	56 %	56 %	29	7.2	9.1	16.3	132 %
2018	56	57	28	7.3	9.4	16.6	138
2019	57	57	27	7.4	10.0	17.4	145
2020	58	58	26	7.0	9.7	16.7	140

Summary (Page A-8)

- For the Police group, the total computed employer contribution rate as a % of payroll for fiscal year 2022 is 42.95% compared with 43.84% for fiscal year 2021
 - Decrease was primarily due to total payroll increasing by approximately 8.2% versus the 3.25% it was expected to increase. The normal cost decreased as more active members came into the post 10/1/2012 benefit plan.
- For the Fire group, the total computed employer contribution rate as a % of payroll is 63.18% for fiscal year 2022 compared with 65.31% for fiscal year 2021
 - Decrease was primarily due to total payroll increasing by approximately 9.9% versus the 3.25% it was expected to increase. The normal cost decreased as more active members came into the post 10/1/2012 benefit plan.

Summary (Page A-8)

- The Missouri Local Government Employees Retirement System (LAGERS) recently adopted updated mortality tables for use in their annual valuations. Beginning with the September 30, 2021 valuations for the City of Columbia Police and Fire Retirement Fund (both the GASB Statement Nos. 67 and 68 valuation and the annual funding valuation), these mortality tables will be used.
- Given the fact that the last Experience Study (i.e., review of economic and demographic assumptions) was last completed after the September 30, 2015 annual valuation, we recommend that the Boards have an updated Experience Study performed prior to the next annual valuation.

Disclaimers

- This presentation is intended to be used in conjunction with the September 30, 2020 actuarial valuation report. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
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