

CITY OF ROCHELLE  
POLICE PENSION FUND  
ACTUARIAL VALUATION  
AS OF JANUARY 1, 2022  
CONTRIBUTIONS APPLICABLE TO THE  
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2023



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS



August 19, 2022

Board of Trustees  
City of Rochelle Police Pension Fund

Re: Actuarial Valuation Report – City of Rochelle Police Pension Fund

Dear Board:

We are pleased to present to the Board this report of the annual actuarial valuation of the City of Rochelle Police Pension Fund. 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. Use of the results for other purposes may not be applicable and could produce significantly different results.

The valuation has 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 Article 3, Illinois Pension Code, 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 Board, 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.

In performing the analysis, we used third-party software to model (calculate) the underlying liabilities and costs. These results are reviewed in the aggregate and for individual sample lives. The output from the software is either used directly or input into internally developed models to generate the costs. All internally developed models are reviewed as part of the process. As a result of this review, we believe that the models have produced reasonable results. We do not believe there are any material inconsistencies among assumptions or unreasonable output produced due to the aggregation of assumptions.

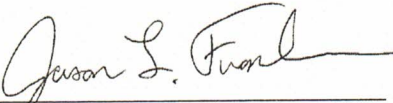
The undersigned are familiar with the immediate and long-term aspects of pension valuations and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the 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 Rochelle, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Rochelle Police Pension Fund. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

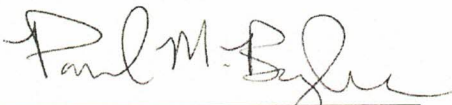
If there are any questions, concerns, or comments about any of the items contained in this report, please contact us at 630-620-0200.

Respectfully submitted,

Foster & Foster, Inc.

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Enclosures

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## SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Rochelle Police Pension Fund, performed as of January 1, 2022, has been completed and the results are presented in this report. The contribution amounts set forth herein are applicable to the plan/fiscal year ended December 31, 2023.

The contribution requirements, compared with those set forth in the January 1, 2021 actuarial report, are as follows:

Valuation Date	1/1/2022	1/1/2021
Applicable to Fiscal Year Ending	<u>12/31/2023</u>	<u>12/31/2022</u>
Total Recommended Contribution	\$1,115,573	\$1,066,518
% of Projected Annual Payroll	63.0%	62.9%
Member Contributions (Est.)	(175,400)	(167,961)
% of Projected Annual Payroll	(9.9%)	(9.9%)
City Recommended Contribution	940,173	898,557
% of Projected Annual Payroll	53.1%	53.0%

As you can see, the Total Recommended Contribution shows an increase when compared to the results determined in the January 1, 2021 actuarial valuation report. The increase is primarily attributable to an the natural increase in the amortization payment due to payroll growth assumption and assumption changes reflected in this valuation.

Plan experience was unfavorable overall on the basis of the plan's actuarial assumptions. Sources of unfavorable experience included lower than expected inactive mortality and less turnover than expected. These losses were offset in part by gains associated with an investment return of 8.08% (Actuarial Asset Basis) which exceeded the 6.75% assumption and an average salary increase of 4.43% which fell short of the 4.76% assumption.

## CHANGES SINCE PRIOR VALUATION

### Plan Changes Since Prior Valuation

There were no plan changes since the prior valuation.

### Actuarial Assumption/Method Changes Since Prior Valuation

Based on the results of the 2022 experience study performed for the Illinois Police Officers' Pension Investment Fund, the following assumption changes were made:

- Updated mortality, retirement, disability, and termination rate tables.
- Updated assumed salary increase rates.
- Reduced assumed payroll growth rate from 3.50% to 3.25%.

There were no method changes since the prior valuation.

# COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Assump <u>1/1/2022</u>	Old Assump <u>1/1/2022</u>	<u>1/1/2021</u>
A. Participant Data			
Number Included			
Actives	21	21	21
Service Retirees	10	10	10
Beneficiaries	7	7	7
Disability Retirees	0	0	0
Terminated Vested	<u>1</u>	<u>1</u>	<u>1</u>
Total	39	39	39
Total Annual Payroll	\$1,769,926	\$1,769,926	\$1,694,867
Payroll Under Assumed Ret. Age	1,769,926	1,769,926	1,694,867
Annual Rate of Payments to:			
Service Retirees	573,711	573,711	557,001
Beneficiaries	297,407	297,407	297,407
Disability Retirees	0	0	0
Terminated Vested	0	0	0
B. Assets			
Actuarial Value	14,049,923	14,049,923	12,776,018
Market Value	14,516,584	14,516,584	13,251,724
C. Liabilities			
Present Value of Benefits			
Actives			
Retirement Benefits	13,540,853	13,210,463	12,025,833
Disability Benefits	856,401	919,928	911,582
Death Benefits	107,128	115,296	118,411
Vested Benefits	476,101	533,434	669,269
Service Retirees	7,791,635	7,943,373	7,892,244
Beneficiaries	2,820,956	2,892,877	2,948,992
Disability Retirees	0	0	0
Terminated Vested	<u>28,835</u>	<u>28,835</u>	<u>28,835</u>
Total	25,621,909	25,644,206	24,595,166

C. Liabilities - (Continued)	New Assump <u>1/1/2022</u>	Old Assump <u>1/1/2022</u>	<u>1/1/2021</u>
Present Value of Future Salaries	14,675,501	15,147,120	15,649,200
Present Value of Future Member Contributions	1,454,342	1,501,080	1,550,836
Normal Cost (Retirement)	370,625	359,896	338,209
Normal Cost (Disability)	62,147	64,947	61,503
Normal Cost (Death)	5,627	6,195	6,426
Normal Cost (Vesting)	<u>30,997</u>	<u>31,989</u>	<u>37,916</u>
Total Normal Cost	469,396	463,027	444,054
Present Value of Future Normal Costs	3,623,323	3,619,634	3,755,501
Accrued Liability (Retirement)	10,632,981	10,348,548	9,079,104
Accrued Liability (Disability)	376,781	405,354	381,867
Accrued Liability (Death)	59,502	61,735	62,388
Accrued Liability (Vesting)	287,896	343,850	446,235
Accrued Liability (Inactives)	<u>10,641,426</u>	<u>10,865,085</u>	<u>10,870,071</u>
Total Actuarial Accrued Liability	21,998,586	22,024,572	20,839,665
Unfunded Actuarial Accrued Liability (UAAL)	7,948,663	7,974,649	8,063,647
Funded Ratio (AVA / AL)	63.9%	63.8%	61.3%



	New Assump <u>1/1/2022</u>	Old Assump <u>1/1/2022</u>	<u>1/1/2021</u>
D. Actuarial Present Value of Accrued Benefits			
Vested Accrued Benefits			
Inactives	10,641,426	10,865,085	10,870,071
Actives	3,926,523	3,773,152	2,840,624
Member Contributions	<u>2,008,980</u>	<u>2,008,980</u>	<u>1,834,982</u>
Total	16,576,929	16,647,217	15,545,677
Non-vested Accrued Benefits	<u>914,006</u>	<u>850,483</u>	<u>988,215</u>
Total Present Value Accrued Benefits	17,490,935	17,497,700	16,533,892
Funded Ratio (MVA / PVAB)	83.0%	83.0%	80.1%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:			
Plan Amendments	0	0	
Assumption Changes	(6,765)	0	
Plan Experience	0	748,286	
Benefits Paid	0	(871,116)	
Interest	0	1,086,638	
Other	<u>0</u>	<u>0</u>	
Total	(6,765)	963,808	

Valuation Date	New Assump 1/1/2022	Old Assump 1/1/2022	1/1/2021
Applicable to Fiscal Year Ending	<u>12/31/2023</u>	<u>12/31/2023</u>	<u>12/31/2022</u>

#### E. Pension Cost

Normal Cost <sup>1</sup>	\$501,080	\$494,281	\$474,028
% of Total Annual Payroll <sup>1</sup>	28.3	27.9	28.0
Administrative Expenses <sup>1</sup>	21,577	21,577	24,225
% of Total Annual Payroll <sup>1</sup>	1.2	1.2	1.4
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 19 years (as of 1/1/2022) <sup>1</sup>	592,916	583,397	568,265
% of Total Annual Payroll <sup>1</sup>	33.5	33.0	33.5
Total Recommended Contribution % of Total Annual Payroll <sup>1</sup>	1,115,573 63.0	1,099,255 62.1	1,066,518 62.9
Expected Member Contributions <sup>1</sup> % of Total Annual Payroll <sup>1</sup>	(175,400) (9.9)	(175,400) (9.9)	(167,961) (9.9)
Expected City Contribution % of Total Annual Payroll <sup>1</sup>	940,173 53.1	923,855 52.2	898,557 53.0

#### F. Past Contributions

Plan Years Ending:	<u>12/31/2021</u>
Total Recommended Contribution City	1,057,766 883,768
Actual Contributions Made:	
Members (excluding buyback)	173,998
City	<u>949,365</u>
Total	1,123,363

G. Net Actuarial (Gain)/Loss	29,924
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<sup>1</sup> Contributions developed as of 1/1/2022 displayed above have been adjusted to account for assumed interest.

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

<u>Year</u>	<u>Projected Unfunded Accrued Liability</u>
2022	7,948,663
2023	7,892,282
2024	7,812,825
2028	7,217,976
2033	5,637,671
2037	3,416,805
2041	0

I. (i) 5 Year Comparison of Actual and Assumed Salary Increases

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/31/2021	4.43%	4.76%
Year Ended	12/31/2020	3.45%	4.45%
Year Ended	12/31/2019	2.09%	4.45%
Year Ended	12/31/2018	3.00%	4.46%
Year Ended	12/31/2017	5.47%	5.45%

(ii) 5 Year Comparison of Investment Return on Actuarial Value

		<u>Actual MVA</u>	<u>Actual AVA</u>	<u>Assumed</u>
Year Ended	12/31/2021	7.73%	8.08%	6.75%
Year Ended	12/31/2020	9.56%	7.02%	6.75%
Year Ended	12/31/2019	17.07%	4.39%	6.75%
Year Ended	12/31/2018	-5.39%	2.61%	6.75%
Year Ended	12/31/2017	11.74%	4.19%	6.75%

# DEVELOPMENT OF JANUARY 1, 2022 AMORTIZATION PAYMENT

(1)	Unfunded Actuarial Accrued Liability as of January 1, 2021	\$8,063,647
(2)	Sponsor Normal Cost developed as of January 1, 2021	276,093
(3)	Expected administrative expenses for the year ended December 31, 2021	22,693
(4)	Expected interest on (1), (2) and (3)	563,698
(5)	Sponsor contributions to the System during the year ended December 31, 2021	949,365
(6)	Expected interest on (5)	32,041
(7)	Expected Unfunded Actuarial Accrued Liability as of December 31, 2021, (1)+(2)+(3)+(4)-(5)-(6)	7,944,725
(8)	Change to UAAL due to Assumption Change	(25,986)
(9)	Change to UAAL due to Actuarial (Gain)/Loss	29,924
(10)	Unfunded Accrued Liability as of January 1, 2022	7,948,663
(11)	UAAL Subject to Amortization (100% AAL less Actuarial Assets)	7,948,663

<u>Date Established</u>	<u>Years Remaining</u>	<u>1/1/2022 Amount</u>	<u>Amortization Amount</u>
1/1/2022	19	7,948,663	555,425



## DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of January 1, 2021	\$8,063,647
(2) Expected UAAL as of January 1, 2022	7,944,725
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	(171,659)
Salary Increases	(89,488)
Active Decrements	20,017
Inactive Mortality	102,489
Other	<u>168,565</u>
Change in UAAL due to (Gain)/Loss	29,924
Change to UAAL due to Assumption Change	<u>(25,986)</u>
(4) Actual UAAL as of January 1, 2022	\$7,948,663

## RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of January 1, 2021	\$ 898,557
(2) Summary of Contribution Impact by component:	
Change in Normal Cost	20,253
Change in Assumed Administrative Expense	(2,648)
Investment Return (Actuarial Asset Basis)	(12,558)
Salary Increases	(6,547)
New Entrants	-
Active Decrements	1,464
Inactive Mortality	7,498
Contributions (More) or Less than Recommended	(4,961)
Increase in Amortization Payment Due to Payroll Growth Assumption	19,889
Change in Expected Member Contributions	(7,439)
Assumption Change	16,318
Other	<u>10,347</u>
Total Change in Contribution	41,616
(3) Contribution Determined as of January 1, 2022	\$940,173

# PROJECTION OF BENEFIT PAYMENTS

Year	Payments for Current Actives	Payments for Current Inactives	Total Payments
2022	39,244	892,098	931,342
2023	108,331	871,157	979,488
2024	181,843	878,142	1,059,985
2025	259,768	884,042	1,143,810
2026	343,113	888,663	1,231,776
2027	430,796	891,798	1,322,594
2028	507,818	893,227	1,401,045
2029	585,755	892,725	1,478,480
2030	658,408	890,052	1,548,460
2031	729,521	884,956	1,614,477
2032	790,339	877,186	1,667,525
2033	844,568	866,495	1,711,063
2034	924,527	852,654	1,777,181
2035	1,021,748	835,463	1,857,211
2036	1,143,563	814,773	1,958,336
2037	1,258,145	790,494	2,048,639
2038	1,353,921	762,596	2,116,517
2039	1,453,289	731,138	2,184,427
2040	1,542,237	696,311	2,238,548
2041	1,629,158	658,423	2,287,581
2042	1,704,241	617,917	2,322,158
2043	1,772,490	575,332	2,347,822
2044	1,861,719	531,330	2,393,049
2045	1,941,162	486,655	2,427,817
2046	2,026,521	442,065	2,468,586
2047	2,095,250	398,310	2,493,560
2048	2,153,843	356,077	2,509,920
2049	2,221,748	315,960	2,537,708
2050	2,283,266	278,452	2,561,718
2051	2,332,331	243,889	2,576,220
2052	2,375,107	212,460	2,587,567
2053	2,411,288	184,200	2,595,488
2054	2,441,274	159,010	2,600,284
2055	2,465,339	136,688	2,602,027
2056	2,482,190	116,992	2,599,182
2057	2,491,554	99,659	2,591,213
2058	2,492,948	84,419	2,577,367
2059	2,485,880	71,035	2,556,915
2060	2,469,467	59,286	2,528,753
2061	2,443,209	48,979	2,492,188

## ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	6.75% per year compounded annually, net of investment related expenses.
Mortality Rate	<p><b>Active Lives:</b> PubS-2010 Employee mortality, unadjusted, with generational improvements with most recent projection scale (currently Scale MP-2021). 10% of active deaths are assumed to be in the line of duty.</p> <p><b>Inactive Lives:</b> PubS-2010 Healthy Retiree mortality, adjusted by a factor of 1.15 for male retirees and unadjusted for female retirees, with generational improvements with most recent projection scale (currently Scale MP-2021).</p> <p><b>Beneficiaries:</b> PubS-2010 Survivor mortality, unadjusted for male beneficiaries and adjusted by a factor of 1.15 for female beneficiaries, with generational improvements with most recent projection scale (currently Scale MP-2021).</p> <p><b>Disabled Lives:</b> PubS-2010 Disabled mortality, adjusted by a factor of 1.08 for male disabled members and unadjusted for female disabled members, with generational improvements with most recent projection scale (currently Scale MP-2021).</p> <p>The mortality assumptions sufficiently accommodate anticipated future mortality improvements.</p>
Retirement Age	See table at end of this section. This is based on a 2022 experience study performed for the Illinois Police Officers' Pension Investment Fund.
Disability Rate	See table at end of this section. 60% of the disabilities are assumed to be in the line of duty. This is based on a 2022 experience study performed for the Illinois Police Officers' Pension Investment Fund.
Termination Rate	See table at end of this section. This is based on a 2022 experience study performed for the Illinois Police Officers' Pension Investment Fund.



## Salary Increases

See table below. This is based on a 2022 experience study performed for the Illinois Police Officers' Pension Investment Fund.

Salary Scale	
Service	Rate
0	11.00%
1	9.50%
2	8.00%
3	7.50%
4	7.00%
5	6.00%
6	5.00%
7 - 11	4.00%
12 - 29	3.75%
30+	3.50%

## Inflation

2.50%.

## Cost-of-Living Adjustment

Tier 1: 3.00% per year after age 55. Those that retire prior to age 55 receive an increase of 1/12 of 3.00% for each full month since benefit commencement upon reaching age 55.

Tier 2: 1.25% per year after the later of attainment of age 60 or first anniversary of retirement.

## Marital Status

80% of Members are assumed to be married.

## Spouse's Age

Males are assumed to be three years older than females.

## Funding Method

Entry Age Normal Cost Method.

## Actuarial Asset Method

Investment gains and losses are smoothed over a 5-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 UAAL is amortized according to a Level Percentage of Payroll method over a period ending in 2040. The initial amortization amount is 100% of the Accrued Liability less the Actuarial Value of Assets.

## Payroll Growth

3.25% per year.

## Administrative Expenses

Expenses paid out of the fund other than investment-related expenses are assumed to be equal to those paid in the previous year.

### Decrement Tables

% Terminating During the Year		% Becoming Disabled During the Year		% Retiring During the Year (Tier 1)		% Retiring During the Year (Tier 2)	
Service	Rate	Age	Rate	Age	Rate	Age	Rate
0	13.00%	20	0.000%	50 - 54	20%	50 - 54	5%
1	8.00%	25	0.029%	55 - 62	25%	55	40%
2	7.00%	30	0.133%	63	33%	56 - 62	25%
3	6.00%	35	0.247%	64	40%	63	33%
4	5.00%	40	0.399%	65 - 69	55%	64	40%
5	4.50%	45	0.561%	70+	100%	65 - 69	55%
6	4.00%	50	0.675%			70+	100%
7	3.50%	55	0.855%				
8	3.00%	60	1.093%				
9	2.50%						
10	2.25%						
11	2.00%						
12	1.75%						
13	1.50%						
14+	1.25%						

## GLOSSARY

Total Annual Payroll is the projected annual rate of pay for the fiscal year following 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.

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.

Total Recommended Contribution is equal to the Normal Cost plus an amount sufficient to amortize the Unfunded Accrued Liability over a period ending in 2040. The recommended amount is adjusted for interest according to the timing of contributions during the year.

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 increased from 100.0% on January 1, 2019 to 116.7% on January 1, 2022, indicating that the plan has experienced a significant growth in active population.
- 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 48.4%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors can be made up over a longer time horizon than would be needed for a more mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has increased from 59.3% on January 1, 2019 to 63.9% on January 1, 2022, due mainly to favorable plan experience.
- 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, increased from -1.9% on January 1, 2019 to 1.6% on January 1, 2022. The current Net Cash Flow Ratio of 1.6% indicates that contributions are generally 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>1/1/2022</u>	<u>1/1/2021</u>	<u>1/1/2020</u>	<u>1/1/2019</u>
<u>Support Ratio</u>				
Total Actives	21	21	19	19
Total Inactives	18	18	19	19
Actives / Inactives	116.7%	116.7%	100.0%	100.0%

### Asset Volatility Ratio

Market Value of Assets (MVA)	14,516,584	13,251,724	12,094,641	10,474,205
Total Annual Payroll	1,769,926	1,694,867	1,536,261	1,504,844
MVA / Total Annual Payroll	820.2%	781.9%	787.3%	696.0%

### Accrued Liability (AL) Ratio

Inactive Accrued Liability	10,641,426	10,870,071	11,445,486	11,557,073
Total Accrued Liability	21,998,586	20,839,665	20,348,536	19,531,999
Inactive AL / Total AL	48.4%	52.2%	56.2%	59.2%

### Funded Ratio

Actuarial Value of Assets (AVA)	14,049,923	12,776,018	11,937,971	11,586,805
Total Accrued Liability	21,998,586	20,839,665	20,348,536	19,531,999
AVA / Total Accrued Liability	63.9%	61.3%	58.7%	59.3%

### Net Cash Flow Ratio

Net Cash Flow <sup>1</sup>	232,034	234	(154,591)	(202,081)
Market Value of Assets (MVA)	14,516,584	13,251,724	12,094,641	10,474,205
Ratio	1.6%	0.0%	-1.3%	-1.9%

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

STATEMENT OF FIDUCIARY NET POSITION  
December 31, 2021

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Cash and Short-Term Investments	816,753
Total Cash and Equivalents	816,753
Receivables:	
Accrued Past Due Interest	35,016
Total Receivable	35,016
Investments:	
Corporate Bonds	2,582,021
U.S. Gov't and Agency Obligations	2,333,261
Stocks	5,674,398
Mutual Funds	3,075,135
Total Investments	13,664,815
Total Assets	14,516,584
<u>LIABILITIES</u>	
Liabilities:	
Total Liabilities	0
Net Assets:	
Active and Retired Members' Equity	14,516,584
NET POSITION RESTRICTED FOR PENSIONS	14,516,584
TOTAL LIABILITIES AND NET ASSETS	14,516,584

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED December 31, 2021  
Market Value Basis

ADDITIONS

Contributions:

Member	173,998
City	949,365

Total Contributions	1,123,363
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Investment Income:

Net Increase in Fair Value of Investments	626,847
Interest & Dividends	440,471
Less Investment Expense <sup>1</sup>	(34,492)

Net Investment Income	1,032,826
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Total Additions	2,156,189
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DEDUCTIONS

Distributions to Members:

Benefit Payments	871,116
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Total Distributions	871,116
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Administrative Expenses	20,213
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Total Deductions	891,329
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Net Increase in Net Position	1,264,860
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NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year	13,251,724
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End of the Year	14,516,584
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<sup>1</sup> Investment Related expenses include investment advisory, custodial and performance monitoring fees.



# ACTUARIAL ASSET VALUATION

December 31, 2021

## Development of Actuarial Value of Assets

Market Value of Assets, 12/31/2021	14,516,584
(Gains)/Losses Not Yet Recognized	(466,661)
Actuarial Value of Assets, 12/31/2021	14,049,923
12/31/2021 Limited Actuarial Assets:	14,049,923

## Development of Investment Gain/Loss

Market Value of Assets, 12/31/2020	13,251,724
Contributions Less Benefit Payments & Administrative Expenses	232,034
Expected Investment Earnings <sup>1</sup>	902,323
Actual Net Investment Earnings	1,032,826
2021 Actuarial Investment Gain/(Loss)	130,503

<sup>1</sup> Expected Investment Earnings = 6.75% x (13,251,724 + 0.5 x 232,034)

## Gains/(Losses) Not Yet Recognized

Plan Year Ending	Gain/(Loss)	Amounts Not Yet Recognized by Valuation Year				
		2021	2022	2023	2024	2025
12/31/2018	(1,356,533)	(271,307)	0	0	0	0
12/31/2019	1,073,236	429,294	214,647	0	0	0
12/31/2020	340,453	204,272	136,181	68,091	0	0
12/31/2021	130,503	104,402	78,302	52,201	26,101	0
Total		466,661	429,130	120,292	26,101	0

## Development of Asset Returns

(A) 12/31/2020 Actuarial Assets:	12,776,018
(I) Net Investment Income:	
1. Interest and Dividends	440,471
2. Realized Gains (Losses)	0
3. Change in Actuarial Value	635,892
4. Investment Expenses	(34,492)
Total	1,041,871
(B) 12/31/2021 Actuarial Assets:	14,049,923
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	8.08%
Market Value of Assets Rate of Return:	7.73%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	171,659

# CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

December 31, 2021  
Actuarial Asset Basis

INCOME		
Contributions:		
Member	173,998	
City	949,365	
Total Contributions		1,123,363
Earnings from Investments		
Interest & Dividends	440,471	
Change in Actuarial Value	635,892	
Total Earnings and Investment Gains		1,076,363
EXPENSES		
Administrative Expenses:		
Investment Related <sup>1</sup>	34,492	
Other	20,213	
Total Administrative Expenses		54,705
Distributions to Members:		
Benefit Payments	871,116	
Total Distributions		871,116
Change in Net Assets for the Year		1,273,905
Net Assets Beginning of the Year		12,776,018
Net Assets End of the Year <sup>2</sup>		14,049,923

<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.

## STATISTICAL DATA

	<u>1/1/2022</u>	<u>1/1/2021</u>	<u>1/1/2020</u>	<u>1/1/2019</u>
<u>Actives - Tier 1</u>				
Number	17	17	16	16
Average Current Age	45.7	44.7	43.7	42.7
Average Age at Employment	28.2	28.2	27.3	27.8
Average Past Service	17.5	16.5	16.4	14.9
Average Annual Salary	\$87,534	\$85,175	\$83,758	\$82,021
<u>Actives - Tier 2</u>				
Number	4	4	3	3
Average Current Age	33.4	32.4	38.1	37.1
Average Age at Employment	28.2	28.2	33.1	33.4
Average Past Service	5.2	4.2	5.0	3.7
Average Annual Salary	\$70,460	\$61,724	\$65,378	\$64,168
<u>Service Retirees</u>				
Number	10	10	11	11
Average Current Age	70.7	69.7	69.7	68.7
Average Annual Benefit	\$57,371	\$55,700	\$54,569	\$52,882
<u>Beneficiaries</u>				
Number	7	7	7	7
Average Current Age	71.7	70.7	70.3	69.3
Average Annual Benefit	\$42,487	\$42,487	\$42,487	\$42,487
<u>Disability Retirees</u>				
Number	0	0	0	0
Average Current Age	N/A	N/A	N/A	N/A
Average Annual Benefit	N/A	N/A	N/A	N/A
<u>Terminated Vested</u>				
Number	1	1	1	1
Average Current Age	45.6	44.6	43.6	42.6
Average Annual Benefit <sup>1</sup>	N/A	N/A	N/A	N/A

<sup>1</sup> Average Annual Benefit for Terminated Vested members reflects the benefit for members entitled to a future annual benefit from the plan.

# AGE AND SERVICE DISTRIBUTION

## PAST SERVICE

AGE	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+	Total
15 - 19	0	0	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0	0	0
25 - 29	0	1	0	0	0	0	0	0	0	0	0	1
30 - 34	0	1	0	0	0	1	0	0	0	0	0	2
35 - 39	0	0	0	0	0	1	3	1	0	0	0	5
40 - 44	0	0	0	0	0	0	1	1	0	0	0	2
45 - 49	0	0	0	1	0	0	0	2	2	0	0	5
50 - 54	0	0	0	0	0	0	0	2	2	1	0	5
55 - 59	0	0	0	0	0	0	0	0	1	0	0	1
60 - 64	0	0	0	0	0	0	0	0	0	0	0	0
65+	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	1	0	2	4	6	5	1	0	21

## VALUATION PARTICIPANT RECONCILIATION

### 1. Active lives

a. Number in prior valuation 1/1/2021	21
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>0</u>
f. Continuing participants	21
g. New entrants	<u>0</u>
h. Total active life participants in valuation	21

### 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 Deferred	<u>Total</u>
a. Number prior valuation	10	7	0	1	18
Retired	0	0	0	0	0
Vested Deferred	0	0	0	0	0
Death, With Survivor	0	0	0	0	0
Death, No Survivor	0	0	0	0	0
Disabled	0	0	0	0	0
Refund of Contributions	0	0	0	0	0
Rehires	0	0	0	0	0
Expired Annuities	0	0	0	0	0
Data Corrections	0	0	0	0	0
Hired/Termed in Same Year	0	0	0	0	0
b. Number current valuation	10	7	0	1	18



## SUMMARY OF CURRENT PLAN

### Article 3 Pension Fund

The Plan is established and administered as prescribed by “Article 3. Police Pension Fund – Municipalities 500,000 and Under” of the Illinois Pension Code.

### Plan Administration

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

- a.) Two members appointed by the Municipality,
- b.) Two active Members of the Police Department elected by the Membership, and
- c.) One retired Member of the Police Department elected by the Membership.

### Credited Service

Complete years of service as a sworn police officer employed by the Municipality.

### Normal Retirement

#### Date

**Tier 1:** Age 50 and 20 years of Credited Service.

**Tier 2:** Age 55 with 10 years of Credited Service.

#### Benefit

**Tier 1:** 50% of annual salary attached to rank on last day of service plus 2.50% of annual salary for each year of service over 20 years, up to a maximum of 75% of salary. The minimum monthly benefit is \$1,000 per month.

**Tier 2:** 2.50% per year of service times the average salary for the 48 consecutive months of service within the last 60 months of service in which the total salary was the highest prior to retirement times the number of years of service, up to a maximum of 75% of average salary. The minimum monthly benefit is \$1,000 per month.

For Tier 2 participants, the salary is capped at a rate of \$106,800 as of 2011, indexed annually at a rate of CPI-U, but not to exceed 3.00%.

#### Form of Benefit

**Tier 1:** For married retirees, an annuity payable for the life of the Member; upon the death of the member, 100% of the Member's benefit payable to the spouse until death. For unmarried retirees, the normal form is a Single Life Annuity.

**Tier 2:** Same as above, but with 66 2/3% of benefit continued to spouse.

### Early Retirement

Date	<b>Tier 1:</b> Age 60 and 8 years of Credited Service. <b>Tier 2:</b> Age 50 with 10 years of Credited Service.
Benefit	<b>Tier 1:</b> Normal Retirement benefit with no minimum. <b>Tier 2:</b> Normal Retirement benefit, reduced 6.00% each year before age 55, with no minimum benefit.
Form of Benefit	Same as Normal Retirement

### Disability Benefit

Eligibility	Total and permanent as determined by the Board of Trustees.
Benefit Amount	A maximum of: <ul style="list-style-type: none"><li>a.) 65% of salary attached to the rank held by Member on last day of service, and;</li><li>b.) The monthly retirement pension that the Member is entitled to receive if he or she retired immediately.</li></ul>

For non-service connected disabilities, a benefit of 50% of salary attached to rank held by Member on last day of service.

### Cost-of-Living Adjustment

#### **Tier 1:**

*Retirees:* An annual increase equal to 3.00% per year after age 55. Those that retire prior to age 55 receive an increase of 1/12 of 3.00% for each full month since benefit commencement upon reaching age 55.

*Disabled Retirees:* An annual increase equal to 3.00% per year of the original benefit amount beginning at age 60. Those that become disabled prior to age 60 receive an increase of 3.00% of the original benefit amount for each year since benefit commencement upon reaching age 60.

**Tier 2:** An annual increase each January 1 equal to 3.00% per year or one-half of the annual unadjusted percentage increase in the consumer price index-u for the 12 months ending with the September preceding each November 1, whichever is less, of the original pension after the attainment of age 60 or first anniversary of pension start date whichever is later.

### Pre-Retirement Death Benefit

Service Incurred	100% of salary attached to rank held by Member on last day of service.
Non-Service Incurred	A maximum of: <ul style="list-style-type: none"><li>a.) 54% of salary attached to the rank held by Member on last day of service, and;</li><li>b.) The monthly retirement pension earned by the deceased Member at the time of death, regardless of whether death occurs before or after age 50.</li></ul>

For non-service deaths with less than 10 years of service, a refund of member contributions is provided.

### Vesting (Termination)

Vesting Service Requirement	<b>Tier 1:</b> 8 years. <b>Tier 2:</b> 10 years.
Non-Vested Benefit	Refund of Member Contributions.
Vested Benefit	Either the termination benefit, payable upon reaching age 60 (55 for Tier 2), provided contributions are not withdrawn, or a refund of member contributions. The termination benefit is 2.50% of annual salary held in the year prior to termination (4-year final average salary for Tier 2) times creditable service.

### Contributions

Employee	9.91% of Salary.
Municipality	Remaining amount necessary for payment of Normal (current year's) Cost and amortization of the accrued past service liability.