CITY OF ROCHELLE
POLICE PENSION FUND

ACTUARIAL VALUATION
AS OF JANUARY 1, 2023

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2024

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

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May 18, 2023

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.

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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.

By: Jason L. Franken
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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, 2023, 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, 2024.

The contribution requirements, compared with those set forth in the January 1, 2022 actuarial report, are as follows:

Valuation Date	1/1/2023	1/1/2022
Applicable to Fiscal Year Ending	12/31/2024	12/31/2023
Total Recommended Contribution	$1,187,872	$1,115,573
% of Projected Annual Payroll	67.0%	63.0%
Member Contributions (Est.)	(175,650)	(175,400)
% of Projected Annual Payroll	(9.9%)	(9.9%)
City Recommended Contribution	1,012,222	940,173
% of Projected Annual Payroll	57.1%	53.1%

As you can see, the Total Recommended Contribution shows an increase when compared to the results determined in the January 1, 2022 actuarial valuation report. The increase is mainly attributable to net unfavorable plan experience and the natural increase in the amortization payment due to the payroll growth assumption. The increase was offset in part by a decrease in normal cost associated with the retirement of 4 employees.

Plan experience was unfavorable overall on the basis of the plan's actuarial assumptions. Sources of unfavorable experience included an investment return of 3.30% (Actuarial Asset Basis) which fell short of the 6.75% assumption, an average salary increase of 10.21% which exceeded the 4.75% assumption, and more retirements than expected. These losses were offset in part by a gain associated with higher than expected inactive mortality.

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

There were no assumption or method changes since the prior valuation.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	1/1/2023	1/1/2022
A. Participant Data		
Number Included		
Actives	21	21
Service Retirees	13	10
Beneficiaries	8	7
Disability Retirees	0	0
Terminated Vested	1	1
Total	43	39
Total Annual Payroll	$1,772,454	$1,769,926
Payroll Under Assumed Ret. Age	1,772,454	1,769,926
Annual Rate of Payments to:		
Service Retirees	746,704	573,711
Beneficiaries	355,137	297,407
Disability Retirees	0	0
Terminated Vested	0	0
B. Assets		
Actuarial Value	14,653,731	14,049,923
Market Value	12,856,643	14,516,584
C. Liabilities		
Present Value of Benefits		
Actives		
Retirement Benefits	11,729,829	13,540,853
Disability Benefits	907,286	856,401
Death Benefits	115,782	107,128
Vested Benefits	563,352	476,101
Service Retirees	11,110,485	7,791,635
Beneficiaries	3,174,535	2,820,956
Disability Retirees	0	0
Terminated Vested	28,835	28,835
Total	27,630,104	25,621,909

C. Liabilities - (Continued)	1/1/2023	1/1/2022
Present Value of Future Salaries	17,274,310	14,675,501
Present Value of Future Member Contributions	1,711,884	1,454,342
Normal Cost (Retirement)	344,197	370,625
Normal Cost (Disability)	59,346	62,147
Normal Cost (Death)	6,448	5,627
Normal Cost (Vesting)	37,557	30,997
Total Normal Cost	447,548	469,396
Present Value of Future Normal Costs	4,010,281	3,623,323
Accrued Liability (Retirement)	8,581,683	10,632,981
Accrued Liability (Disability)	357,358	376,781
Accrued Liability (Death)	51,865	59,502
Accrued Liability (Vesting)	315,062	287,896
Accrued Liability (Inactives)	14,313,855	10,641,426
Total Actuarial Accrued Liability	23,619,823	21,998,586
Unfunded Actuarial Accrued Liability (UAAL)	8,966,092	7,948,663
Funded Ratio (AVA / AL)	62.0%	63.9%

	1/1/2023	1/1/2022
D. Actuarial Present Value of Accrued Benefits		
Vested Accrued Benefits		
Inactives	14,313,855	10,641,426
Actives	2,937,093	3,926,523
Member Contributions	1,622,927	2,008,980
Total	18,873,875	16,576,929
Non-vested Accrued Benefits	686,907	914,006
Total Present Value Accrued Benefits	19,560,782	17,490,935
Funded Ratio (MVA / PVAB)	65.7%	83.0%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:		
Plan Amendments	0	
Assumption Changes	0	
Plan Experience	1,943,247	
Benefits Paid	(1,019,626)	
Interest	1,146,226	
Other	0	
Total	2,069,847	

Valuation Date	1/1/2023	1/1/2022
Applicable to Fiscal Year Ending	12/31/2024	12/31/2023
E. Pension Cost		
Normal Cost [1]	$477,757	$501,080
% of Total Annual Payroll [1]	27.0	28.3
Administrative Expenses [1]	14,636	21,577
% of Total Annual Payroll [1]	0.8	1.2
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 18 years (as of 1/1/2023) [1]	695,479	592,916
% of Total Annual Payroll [1]	39.2	33.5
Total Recommended Contribution	1,187,872	1,115,573
% of Total Annual Payroll [1]	67.0	63.0
Expected Member Contributions [1]	(175,650)	(175,400)
% of Total Annual Payroll [1]	(9.9)	(9.9)
Expected City Contribution	1,012,222	940,173
% of Total Annual Payroll [1]	57.1	53.1
F. Past Contributions		
Plan Years Ending:	12/31/2022	
Total Recommended Contribution	1,072,620	
City	898,557	
Actual Contributions Made:		
Members (excluding buyback)	174,063	
City	997,569	
Total	1,171,632	
G. Net Actuarial (Gain)/Loss	1,177,395	

[1] Contributions developed as of 1/1/2023 displayed above have been adjusted to account for assumed interest.

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

Year	Projected Unfunded Accrued Liability
2023	8,966,092
2024	8,875,824
2025	8,756,859
2029	7,937,454
2033	6,404,709
2037	3,881,664
2041	0

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

		Actual	Assumed
Year Ended	12/31/2022	10.21%	4.75%
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%

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

		Actual MVA	Actual AVA	Assumed
Year Ended	12/31/2022	-12.33%	3.30%	6.75%
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%

DEVELOPMENT OF JANUARY 1, 2023 AMORTIZATION PAYMENT

(1)	Unfunded Actuarial Accrued Liability as of January 1, 2022	$7,948,663
(2)	Sponsor Normal Cost developed as of January 1, 2022	293,996
(3)	Expected administrative expenses for the year ended December 31, 2022	20,213
(4)	Expected interest on (1), (2) and (3)	557,062
(5)	Sponsor contributions to the System during the year ended December 31, 2022	997,569
(6)	Expected interest on (5)	33,668
(7)	Expected Unfunded Actuarial Accrued Liability as of December 31, 2022, (1)+(2)+(3)+(4)-(5)-(6)	7,788,697
(8)	Change to UAAL due to Assumption Change	0
(9)	Change to UAAL due to Actuarial (Gain)/Loss	1,177,395
(10)	Unfunded Accrued Liability as of January 1, 2023	8,966,092
(11)	UAAL Subject to Amortization (100% AAL less Actuarial Assets)	8,966,092

Date Established	Years Remaining	1/1/2023 Amount	Amortization Amount
1/1/2023	18	8,966,092	651,503

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1)	Unfunded Actuarial Accrued Liability (UAAL) as of January 1, 2022	$7,948,663
(2)	Expected UAAL as of January 1, 2023	7,788,697
(3)	Summary of Actuarial (Gain)/Loss, by component:	
	Investment Return (Actuarial Asset Basis)	487,524
	Salary Increases	457,808
	Active Decrements	482,678
	Inactive Mortality	(69,995)
	Other	(180,620)
	Change in UAAL due to (Gain)/Loss	1,177,395
	Change to UAAL due to Assumption Change	0
(4)	Actual UAAL as of January 1, 2023	$8,966,092

RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1)	Contribution Determined as of January 1, 2022	$ 940,173
(2)	Summary of Contribution Impact by component:	
	Change in Normal Cost	(23,323)
	Change in Assumed Administrative Expense	(6,941)
	Investment Return (Actuarial Asset Basis)	37,816
	Salary Increases	35,511
	New Entrants	1,953
	Active Decrements	37,440
	Inactive Mortality	(5,429)
	Contributions (More) or Less than Recommended	(7,939)
	Increase in Amortization Payment Due to Payroll Growth Assumption	19,270
	Change in Expected Member Contributions	(250)
	Assumption Change	-
	Other	(16,059)
	Total Change in Contribution	72,049
(3)	Contribution Determined as of January 1, 2023	$1,012,222

PROJECTION OF BENEFIT PAYMENTS

Year	Payments for Current Actives	Payments for Current Inactives	Total Payments
2023	28,950	1,121,728	1,150,678
2024	73,206	1,098,057	1,171,263
2025	126,702	1,102,208	1,228,910
2026	187,773	1,109,303	1,297,076
2027	252,541	1,120,840	1,373,381
2028	307,805	1,131,715	1,439,520
2029	367,884	1,135,375	1,503,259
2030	424,651	1,137,323	1,561,974
2031	481,578	1,137,365	1,618,943
2032	526,729	1,135,295	1,662,024
2033	571,305	1,130,907	1,702,212
2034	645,317	1,123,983	1,769,300
2035	738,359	1,114,291	1,852,650
2036	857,568	1,101,571	1,959,139
2037	969,670	1,085,567	2,055,237
2038	1,061,958	1,066,044	2,128,002
2039	1,158,948	1,042,845	2,201,793
2040	1,245,827	1,015,935	2,261,762
2041	1,331,089	985,427	2,316,516
2042	1,404,949	951,589	2,356,538
2043	1,472,071	914,822	2,386,893
2044	1,566,924	875,683	2,442,607
2045	1,652,715	834,833	2,487,548
2046	1,751,541	792,932	2,544,473
2047	1,833,463	750,621	2,584,084
2048	1,901,021	708,476	2,609,497
2049	1,989,258	666,949	2,656,207
2050	2,085,617	626,360	2,711,977
2051	2,161,793	586,875	2,748,668
2052	2,224,452	548,522	2,772,974
2053	2,279,053	511,219	2,790,272
2054	2,342,295	474,776	2,817,071
2055	2,396,546	438,979	2,835,525
2056	2,437,005	403,707	2,840,712
2057	2,469,092	368,925	2,838,017
2058	2,493,264	334,654	2,827,918
2059	2,509,520	300,991	2,810,511
2060	2,517,715	268,064	2,785,779
2061	2,516,515	236,036	2,752,551
2062	2,506,015	205,136	2,711,151

ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	6.75% per year compounded annually, net of investment related expenses.
Mortality Rate	***Active Lives:*** 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. ***Inactive Lives:*** 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). ***Beneficiaries:*** 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). ***Disabled Lives:*** 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). The mortality assumptions sufficiently accommodate anticipated future mortality improvements.
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	
Service	Rate
0	13.00%
1	8.00%
2	7.00%
3	6.00%
4	5.00%
5	4.50%
6	4.00%
7	3.50%
8	3.00%
9	2.50%
10	2.25%
11	2.00%
12	1.75%
13	1.50%
14+	1.25%

% Becoming Disabled During the Year	
Age	Rate
20	0.000%
25	0.029%
30	0.133%
35	0.247%
40	0.399%
45	0.561%
50	0.675%
55	0.855%
60	1.093%

% Retiring During the Year (Tier 1)	
Age	Rate
50 - 54	20%
55 - 62	25%
63	33%
64	40%
65 - 69	55%
70+	100%

% Retiring During the Year (Tier 2)	
Age	Rate
50 - 54	5%
55	40%
56 - 62	25%
63	33%
64	40%
65 - 69	55%
70+	100%

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.

Accrued Actuarial Liability is determined according to the plan's actuarial cost method. This amount represents the portion of the anticipated future benefits allocated to years prior to the valuation date.

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

Market Value of Assets is the fair market value of plan assets as of the valuation date. This amount may be adjusted to produce an Actuarial Value of Assets for plan funding purposes.

Actuarial Value of Assets is the asset value used in the valuation to determine contribution requirements. It represents the plan's Market Value of Assets, with adjustments according to the Actuarial Asset Method. These adjustments produce a "smoothed" value that is likely to be less volatile from year to year than the Market Value of Assets.

Unfunded Accrued Liability is the excess of the Accrued Actuarial Liability over the Actuarial Value of Assets.

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.

(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.

- <u>Investment Return</u>: 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.

- <u>Salary Increases</u>: 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.

- <u>Payroll Growth</u>: 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.

- <u>Demographic Assumptions:</u> 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 decreased from 100.0% on January 1, 2020 to 95.5% on January 1, 2023, indicating that the plan has been rapidly maturing.

- 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 60.6%. 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 increased from 58.7% on January 1, 2020 to 62.0% on January 1, 2023, due mainly to overall favorable plan experience during the period.

- 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 -1.3% on January 1, 2020 to 1.1% on January 1, 2023. The current Net Cash Flow Ratio of 1.1% 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

	1/1/2023	1/1/2022	1/1/2021	1/1/2020
Support Ratio				
Total Actives	21	21	21	19
Total Inactives	22	18	18	19
Actives / Inactives	95.5%	116.7%	116.7%	100.0%
Asset Volatility Ratio				
Market Value of Assets (MVA)	12,856,643	14,516,584	13,251,724	12,094,641
Total Annual Payroll	1,772,454	1,769,926	1,694,867	1,536,261
MVA / Total Annual Payroll	725.4%	820.2%	781.9%	787.3%
Accrued Liability (AL) Ratio				
Inactive Accrued Liability	14,313,855	10,641,426	10,870,071	11,445,486
Total Accrued Liability	23,619,823	21,998,586	20,839,665	20,348,536
Inactive AL / Total AL	60.6%	48.4%	52.2%	56.2%
Funded Ratio				
Actuarial Value of Assets (AVA)	14,653,731	14,049,923	12,776,018	11,937,971
Total Accrued Liability	23,619,823	21,998,586	20,839,665	20,348,536
AVA / Total Accrued Liability	62.0%	63.9%	61.3%	58.7%
Net Cash Flow Ratio				
Net Cash Flow [1]	138,295	232,034	234	(154,591)
Market Value of Assets (MVA)	12,856,643	14,516,584	13,251,724	12,094,641
Ratio	1.1%	1.6%	0.0%	-1.3%

[1] Determined as total contributions minus benefit payments and administrative expenses.

STATEMENT OF FIDUCIARY NET POSITION
December 31, 2022

ASSETS	MARKET VALUE
Cash and Cash Equivalents:	
Cash and Short-Term Investments	189,016
Total Cash and Equivalents	189,016
Total Receivable	0
Investments:	
Pooled/Common/Commingled Funds	12,667,627
Total Investments	12,667,627
Total Assets	12,856,643
LIABILITIES	
Total Liabilities	0
Net Assets:	
Active and Retired Members' Equity	12,856,643
NET POSITION RESTRICTED FOR PENSIONS	12,856,643
TOTAL LIABILITIES AND NET ASSETS	12,856,643

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED December 31, 2022
Market Value Basis

<u>ADDITIONS</u>		
Contributions:		
Member	174,063	
City	997,569	
Total Contributions		1,171,632
Investment Income:		
Net Increase in Fair Value of Investments		(1,928,349)
Interest & Dividends		161,251
Less Investment Expense [1]		(31,138)
Net Investment Income		(1,798,236)
Total Additions		(626,604)
<u>DEDUCTIONS</u>		
Distributions to Members:		
Benefit Payments	1,019,626	
Total Distributions		1,019,626
Administrative Expenses		13,711
Total Deductions		1,033,337
Net Increase in Net Position		(1,659,941)
NET POSITION RESTRICTED FOR PENSIONS		
Beginning of the Year		14,516,584
End of the Year		12,856,643

[1] Investment Related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION
December 31, 2022

Development of Actuarial Value of Assets

Market Value of Assets, 12/31/2022	12,856,643
(Gains)/Losses Not Yet Recognized	1,797,088
Actuarial Value of Assets, 12/31/2022	14,653,731
12/31/2022 Limited Actuarial Assets:	14,653,731

Development of Investment Gain/Loss

Market Value of Assets, 12/31/2021	14,516,584
Contributions Less Benefit Payments & Administrative Expenses	138,295
Expected Investment Earnings[1]	984,537
Actual Net Investment Earnings	(1,798,236)
2022 Actuarial Investment Gain/(Loss)	(2,782,773)

[1] Expected Investment Earnings = 6.75% x (14,516,584 + 0.5 x 138,295)

Gains/(Losses) Not Yet Recognized

Plan Year Ending	Gain/(Loss)	Amounts Not Yet Recognized by Valuation Year 2022	2023	2024	2025	2026
12/31/2019	1,073,236	214,647	0	0	0	0
12/31/2020	340,453	136,181	68,091	0	0	0
12/31/2021	130,503	78,302	52,201	26,101	0	0
12/31/2022	(2,782,773)	(2,226,218)	(1,669,664)	(1,113,109)	(556,555)	0
Total		(1,797,088)	(1,549,372)	(1,087,008)	(556,555)	0

Development of Asset Returns

(A) 12/31/2021 Actuarial Assets:	14,049,923
(I) Net Investment Income:	
1. Interest and Dividends	161,251
2. Realized Gains (Losses)	0
3. Change in Actuarial Value	335,400
4. Investment Expenses	(31,138)
Total	465,513
(B) 12/31/2022 Actuarial Assets:	14,653,731
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	3.30%
Market Value of Assets Rate of Return:	-12.33%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(487,524)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS
December 31, 2022
Actuarial Asset Basis

INCOME		
Contributions:		
Member	174,063	
City	997,569	
Total Contributions		1,171,632
Earnings from Investments		
Interest & Dividends	161,251	
Change in Actuarial Value	335,400	
Total Earnings and Investment Gains		496,651
EXPENSES		
Administrative Expenses:		
Investment Related[1]	31,138	
Other	13,711	
Total Administrative Expenses		44,849
Distributions to Members:		
Benefit Payments	1,019,626	
Total Distributions		1,019,626
Change in Net Assets for the Year		603,808
Net Assets Beginning of the Year		14,049,923
Net Assets End of the Year[2]		14,653,731

[1] Investment Related expenses include investment advisory, custodial and performance monitoring fees.
[2] Net Assets may be limited for actuarial consideration.

STATISTICAL DATA

	1/1/2023	1/1/2022	1/1/2021	1/1/2020
Actives - Tier 1				
Number	13	17	17	16
Average Current Age	44.8	45.7	44.7	43.7
Average Age at Employment	27.5	28.2	28.2	27.3
Average Past Service	17.3	17.5	16.5	16.4
Average Annual Salary	$93,147	$87,534	$85,175	$83,758
Actives - Tier 2				
Number	8	4	4	3
Average Current Age	31.4	33.4	32.4	38.1
Average Age at Employment	28.0	28.2	28.2	33.1
Average Past Service	3.4	5.2	4.2	5.0
Average Annual Salary	$70,192	$70,460	$61,724	$65,378
Service Retirees				
Number	13	10	10	11
Average Current Age	65.4	70.7	69.7	69.7
Average Annual Benefit	$57,439	$57,371	$55,700	$54,569
Beneficiaries				
Number	8	7	7	7
Average Current Age	73.4	71.7	70.7	70.3
Average Annual Benefit	$44,392	$42,487	$42,487	$42,487
Disability Retirees				
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
Terminated Vested				
Number	1	1	1	1
Average Current Age	46.6	45.6	44.6	43.6
Average Annual Benefit [1]	N/A	N/A	N/A	N/A

[1] 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	1	0	0	0	0	0	0	0	0	0	0	1
25 - 29	2	0	1	0	0	0	0	0	0	0	0	3
30 - 34	1	0	1	0	0	1	0	0	0	0	0	3
35 - 39	0	0	0	0	0	1	1	3	0	0	0	5
40 - 44	0	0	0	0	0	0	1	1	0	0	0	2
45 - 49	0	0	0	0	1	0	0	1	2	0	0	4
50 - 54	0	0	0	0	0	0	0	1	1	1	0	3
55 - 59	0	0	0	0	0	0	0	0	0	0	0	0
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	4	0	2	0	1	2	2	6	3	1	0	21

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 1/1/2022	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	(4)
f. Continuing participants	17
g. New entrants	4
h. Total active life participants in valuation	21

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

	Service Retirees, Vested Receiving Benefits	Receiving Death Benefits	Receiving Disability Benefits	Vested Deferred	Total
a. Number prior valuation	10	7	0	1	18
Retired	4	0	0	0	4
Vested Deferred	0	0	0	0	0
Death, With Survivor	(1)	1	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	13	8	0	1	22

SUMMARY OF CURRENT PLAN

<u>Article 3 Pension Fund</u>

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

<u>Plan Administration</u>

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.

<u>Credited Service</u>

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

<u>Normal Retirement</u>

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: **Tier 1**: Age 60 and 8 years of Credited Service.

Tier 2: Age 50 with 10 years of Credited Service.

Benefit: **Tier 1:** Normal Retirement benefit with no minimum.

Tier 2: 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:

a.) 65% of salary attached to the rank held by Member on last day of service, and;
b.) The monthly retirement pension that the Member is entitled to receive if he or she retired immediately.

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: a.) 54% of salary attached to the rank held by Member on last day of service, and; 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. For non-service deaths with less than 10 years of service, a refund of member contributions is provided.

Vesting (Termination)

Vesting Service Requirement	**Tier 1:** 8 years. **Tier 2**: 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.