CITY OF WASHINGTON
POLICE PENSION FUND

ACTUARIAL VALUATION
AS OF MAY 1, 2023

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING APRIL 30, 2025

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

October 24, 2023

Ms. Joan E. Baxter
City of Washington Police Pension Fund

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

Dear Ms. Baxter:

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

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 Washington, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Washington 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

Jason L. Franken, FSA, EA, MAAA

By: Heidi Andorfer

Heidi E. Andorfer, FSA, EA, MAAA

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Enclosures

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SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Washington Police Pension Fund, performed as of May 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 April 30, 2025.

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

Valuation Date	5/1/2023	5/1/2022
Applicable to Fiscal Year Ending	4/30/2025	4/30/2024
Total Recommended Contribution	$1,034,185	$959,481
% of Projected Annual Payroll	60.0%	58.9%
Member Contributions (Est.)	(170,684)	(161,527)
% of Projected Annual Payroll	(9.9%)	(9.9%)
City Recommended Contribution	863,501	797,954
% of Projected Annual Payroll	50.1%	49.0%

As you can see, the Total Recommended Contribution shows an increase when compared to the results determined in the May 1, 2022 actuarial valuation report. The increase is mainly attributable to unfavorable plan experience and the natural increase in the amortization payment due to the payroll growth assumption.

Plan experience was unfavorable overall on the basis of the plan's actuarial assumptions. Sources of unfavorable experience included an investment return of 4.09% (Actuarial Asset Basis) which fell short of the 6.75% assumption, more retirements than expected, and lower than expected inactive mortality. There were no significant sources of favorable experience.

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

	5/1/2023	5/1/2022
A. Participant Data		
Number Included		
Actives	23	22
Service Retirees	10	9
Beneficiaries	4	4
Disability Retirees	0	0
Terminated Vested	4	4
Total	41	39
Total Annual Payroll	$1,722,340	$1,629,944
Payroll Under Assumed Ret. Age	1,722,340	1,629,944
Annual Rate of Payments to:		
Service Retirees	629,219	555,758
Beneficiaries	162,201	162,201
Disability Retirees	0	0
Terminated Vested	0	0
B. Assets		
Actuarial Value	9,851,630	9,325,564
Market Value	9,237,750	8,906,853
C. Liabilities		
Present Value of Benefits		
Actives		
Retirement Benefits	8,167,758	8,243,370
Disability Benefits	881,548	823,864
Death Benefits	125,982	116,344
Vested Benefits	501,942	446,456
Service Retirees	10,344,714	8,945,836
Beneficiaries	1,340,930	1,382,405
Disability Retirees	0	0
Terminated Vested	14,864	14,864
Total	21,377,738	19,973,139

C. Liabilities - (Continued)	5/1/2023	5/1/2022
Present Value of Future Salaries	19,746,696	17,926,921
Present Value of Future Member Contributions	1,956,898	1,776,558
Normal Cost (Retirement)	299,190	294,810
Normal Cost (Disability)	56,459	54,667
Normal Cost (Death)	7,792	7,098
Normal Cost (Vesting)	36,010	33,982
Total Normal Cost	399,451	390,557
Present Value of Future Normal Costs	4,120,069	3,863,826
Accrued Liability (Retirement)	5,012,809	5,267,577
Accrued Liability (Disability)	280,737	263,708
Accrued Liability (Death)	36,620	36,505
Accrued Liability (Vesting)	226,995	198,418
Accrued Liability (Inactives)	11,700,508	10,343,105
Total Actuarial Accrued Liability	17,257,669	16,109,313
Unfunded Actuarial Accrued Liability (UAAL)	7,406,039	6,783,749
Funded Ratio (AVA / AL)	57.1%	57.9%

	5/1/2023	5/1/2022
D. Actuarial Present Value of Accrued Benefits		
Vested Accrued Benefits		
Inactives	11,700,508	10,343,105
Actives	1,115,427	1,334,883
Member Contributions	1,238,276	1,227,880
Total	14,054,211	12,905,868
Non-vested Accrued Benefits	253,316	375,006
Total Present Value Accrued Benefits	14,307,527	13,280,874
Funded Ratio (MVA / PVAB)	64.6%	67.1%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:		
Plan Amendments	0	
Assumption Changes	0	
Plan Experience	895,411	
Benefits Paid	(740,234)	
Interest	871,476	
Other	0	
Total	1,026,653	

Valuation Date	5/1/2023	5/1/2022
Applicable to Fiscal Year Ending	4/30/2025	4/30/2024
E. Pension Cost		
Normal Cost [1]	$426,414	$416,920
% of Total Annual Payroll [1]	24.7	25.6
Administrative Expenses [1]	8,599	16,361
% of Total Annual Payroll [1]	0.5	1.0
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 17 years (as of 5/1/2023) [1]	599,172	526,200
% of Total Annual Payroll [1]	34.8	32.3
Total Recommended Contribution	1,034,185	959,481
% of Total Annual Payroll [1]	60.0	58.9
Expected Member Contributions [1]	(170,684)	(161,527)
% of Total Annual Payroll [1]	(9.9)	(9.9)
Expected City Contribution	863,501	797,954
% of Total Annual Payroll [1]	50.1	49.0
F. Past Contributions		
Plan Years Ending:	4/30/2023	
Total Recommended Contribution	885,772	
City	713,027	
Actual Contributions Made:		
Members (excluding buyback)	172,745	
City	715,118	
Total	887,863	
G. Net Actuarial (Gain)/Loss	643,307	

[1] Contributions developed as of 5/1/2023 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	7,406,039
2024	7,306,775
2025	7,181,337
2029	6,367,040
2033	4,905,832
2036	3,238,899
2040	0

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

		Actual	Assumed
Year Ended	4/30/2023	4.42%	5.76%
Year Ended	4/30/2022	6.74%	5.54%
Year Ended	4/30/2021	4.20%	5.44%
Year Ended	4/30/2020	4.68%	5.67%
Year Ended	4/30/2019	3.67%	6.04%

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

		Actual MVA	Actual AVA	Assumed
Year Ended	4/30/2023	2.11%	4.09%	6.75%
Year Ended	4/30/2022	-3.11%	-2.03%	6.75%
Year Ended	4/30/2021	17.89%	6.74%	6.75%
Year Ended	4/30/2020	0.20%	3.54%	6.75%
Year Ended	4/30/2019	4.44%	4.27%	6.75%

DEVELOPMENT OF MAY 1, 2023 AMORTIZATION PAYMENT

(1)	Unfunded Actuarial Accrued Liability as of May 1, 2022	$6,783,749
(2)	Sponsor Normal Cost developed as of May 1, 2022	229,030
(3)	Expected administrative expenses for the year ended April 30, 2023	15,326
(4)	Expected interest on (1), (2) and (3)	473,880
(5)	Sponsor contributions to the System during the year ended April 30, 2023	715,118
(6)	Expected interest on (5)	24,135
(7)	Expected Unfunded Actuarial Accrued Liability as of April 30, 2023, (1)+(2)+(3)+(4)-(5)-(6)	6,762,732
(8)	Change to UAAL due to Assumption Change	0
(9)	Change to UAAL due to Actuarial (Gain)/Loss	643,307
(10)	Unfunded Accrued Liability as of May 1, 2023	7,406,039
(11)	UAAL Subject to Amortization (100% AAL less Actuarial Assets)	7,406,039

Date Established	Years Remaining	5/1/2023 Amount	Amortization Amount
5/1/2023	17	7,406,039	561,285

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1)	Unfunded Actuarial Accrued Liability (UAAL) as of May 1, 2022	$6,783,749
(2)	Expected UAAL as of May 1, 2023	6,762,732
(3)	Summary of Actuarial (Gain)/Loss, by component:	
	Investment Return (Actuarial Asset Basis)	250,083
	Salary Increases	(36,655)
	Active Decrements	124,500
	Inactive Mortality	80,692
	Other	224,687
	Change in UAAL due to (Gain)/Loss	643,307
	Change to UAAL due to Assumption Change	0
(4)	Actual UAAL as of May 1, 2023	$7,406,039

RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1)	Contribution Determined as of May 1, 2022	$ 797,954
(2)	Summary of Contribution Impact by component:	
	Change in Normal Cost	9,494
	Change in Assumed Administrative Expense	(7,762)
	Investment Return (Actuarial Asset Basis)	20,232
	Salary Increases	(2,966)
	New Entrants	950
	Active Decrements	10,072
	Inactive Mortality	6,528
	Contributions (More) or Less than Recommended	(175)
	Increase in Amortization Payment Due to Payroll Growth Assumption	17,101
	Change in Expected Member Contributions	(9,157)
	Assumption Change	-
	Other	21,230
	Total Change in Contribution	65,547
(3)	Contribution Determined as of May 1, 2023	$863,501

STATUTORY MINIMUM REQUIRED CONTRIBUTION

Contribution requirements shown on this page are calculated according to statutory minimum funding requirements of the Illinois Pension Code. We do not believe this method is sufficient to fund future benefits; as such, we recommend funding according to the contributions developed in Section E of this report.

Valuation Date	5/1/2023
Applicable to Fiscal Year Ending	4/30/2025
Actuarial Accrued Liability (PUC)	16,446,277
Actuarial Value of Assets	9,851,630
Unfunded Actuarial Accrued Liability (UAAL)	6,594,647
UAAL Subject to Amortization	4,950,019
Normal Cost [1]	$441,677
% of Total Annual Payroll [1]	25.6
Administrative Expenses [1]	8,599
% of Total Annual Payroll [1]	0.5
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 17 years (as of 5/1/2023) [1]	400,472
% of Total Annual Payroll [1]	23.3
Total Required Contribution	850,748
% of Total Annual Payroll [1]	49.4
Expected Member Contributions [1]	(170,684)
% of Total Annual Payroll [1]	(9.9)
Expected City Contribution	680,064
% of Total Annual Payroll [1]	39.5

Assumptions and Methods:

Actuarial Cost Method	Projected Unit Credit
Amortization Method	90% Funding by 2040

All other assumptions and methods are as described in the Actuarial Assumptions and Methods section.

[1] Contributions developed as of 5/1/2023 displayed above have been adjusted to account for assumed interest.

PROJECTION OF BENEFIT PAYMENTS

Year	Payments for Current Actives	Payments for Current Inactives	Total Payments
2023	26,303	801,310	827,613
2024	47,742	798,196	845,938
2025	71,943	813,023	884,966
2026	97,178	826,031	923,209
2027	119,551	838,725	958,276
2028	140,030	851,021	991,051
2029	164,868	862,830	1,027,698
2030	203,213	874,061	1,077,274
2031	251,390	884,620	1,136,010
2032	296,936	894,399	1,191,335
2033	346,911	903,278	1,250,189
2034	399,082	911,112	1,310,194
2035	455,958	917,718	1,373,676
2036	509,726	922,877	1,432,603
2037	570,759	926,317	1,497,076
2038	650,088	927,737	1,577,825
2039	724,098	926,795	1,650,893
2040	792,201	923,120	1,715,321
2041	859,244	916,351	1,775,595
2042	946,634	906,149	1,852,783
2043	1,043,266	892,223	1,935,489
2044	1,119,313	874,358	1,993,671
2045	1,195,705	852,466	2,048,171
2046	1,260,987	826,577	2,087,564
2047	1,338,938	796,826	2,135,764
2048	1,407,622	763,442	2,171,064
2049	1,487,522	726,705	2,214,227
2050	1,558,779	687,011	2,245,790
2051	1,632,438	644,838	2,277,276
2052	1,712,857	600,706	2,313,563
2053	1,811,305	555,163	2,366,468
2054	1,904,056	508,810	2,412,866
2055	1,970,696	462,272	2,432,968
2056	2,036,117	416,195	2,452,312
2057	2,087,373	371,219	2,458,592
2058	2,123,034	327,923	2,450,957
2059	2,150,757	286,823	2,437,580
2060	2,171,151	248,331	2,419,482
2061	2,184,351	212,780	2,397,131
2062	2,191,947	180,387	2,372,334

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.

- 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 decreased from 131.3% on May 1, 2020 to 127.8% on May 1, 2023, indicating that the plan has been 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 67.8%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors will need to be made up for over a shorter time horizon than would be needed for a less mature plan.

- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has decreased from 59.3% on May 1, 2020 to 57.1% on May 1, 2023, due mainly to 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, stayed approximately the same from May 1, 2020 to May 1, 2023. The current Net Cash Flow Ratio of 1.5% indicates that contributions are generally covering the plan's benefit payments and administrative expenses.

Low Default-Risk Obligation Measure

ASOP No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions, was revised as of December 2021 to include a "low-default-risk obligation measure" (LDROM). This liability measure is consistent with the determination of the actuarial accrued liability shown on page 8 in terms of member data, plan provisions, and assumptions/methods, including the use of the Entry Age Normal Cost Method, except that the interest rate is tied to low-default-risk fixed income securities. The S&P Municipal Bond 20 Year High Grade Rate Index (daily rate closest to, but not later than, the measurement date) was selected to represent a current market rate of low risk but longer-term investments that could be included in a low-risk asset portfolio. The interest rate used in this valuation was 4.14%, resulting in an LDROM of $25,349,525. The LDROM should not be considered the "correct" liability measurement; it simply shows a possible outcome if the Board elected to hold a very low risk asset portfolio. Given that plan benefits are paid over time through the combination of contributions and investment returns, prudent investments selected by the Board help to balance asset accumulation through these two sources.

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

	5/1/2023	5/1/2022	5/1/2021	5/1/2020
Support Ratio				
Total Actives	23	22	22	21
Total Inactives	18	17	16	16
Actives / Inactives	127.8%	129.4%	137.5%	131.3%
Asset Volatility Ratio				
Market Value of Assets (MVA)	9,237,750	8,906,853	9,838,568	8,247,378
Total Annual Payroll	1,722,340	1,629,944	1,645,994	1,521,288
MVA / Total Annual Payroll	536.3%	546.5%	597.7%	542.1%
Accrued Liability (AL) Ratio				
Inactive Accrued Liability	11,700,508	10,343,105	9,528,961	9,493,244
Total Accrued Liability	17,257,669	16,109,313	15,526,140	14,856,346
Inactive AL / Total AL	67.8%	64.2%	61.4%	63.9%
Funded Ratio				
Actuarial Value of Assets (AVA)	9,851,630	9,325,564	9,506,948	8,803,784
Total Accrued Liability	17,257,669	16,109,313	15,526,140	14,856,346
AVA / Total Accrued Liability	57.1%	57.9%	61.2%	59.3%
Net Cash Flow Ratio				
Net Cash Flow [1]	141,885	11,375	106,261	154,984
Market Value of Assets (MVA)	9,237,750	8,906,853	9,838,568	8,247,378
Ratio	1.5%	0.1%	1.1%	1.9%

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

STATEMENT OF FIDUCIARY NET POSITION
April 30, 2023

ASSETS	MARKET VALUE
Cash and Cash Equivalents:	
Checking Account	6,209
Certificates of Deposit	331,886
Money Market	1,098,148
Total Cash and Equivalents	1,436,243
Receivables:	
Accrued Past Due Interest	895
Total Receivable	895
Investments:	
Pooled/Common/Commingled Funds	7,800,612
Total Investments	7,800,612
Total Assets	9,237,750
LIABILITIES	
Total Liabilities	0
Net Assets:	
Active and Retired Members' Equity	9,237,750
NET POSITION RESTRICTED FOR PENSIONS	9,237,750
TOTAL LIABILITIES AND NET ASSETS	9,237,750

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED April 30, 2023
Market Value Basis

ADDITIONS		
Contributions:		
Member	172,745	
Miscellaneous Member Revenue	2,311	
City	715,118	
Total Contributions		890,174
Investment Income:		
Miscellaneous Income	51	
Net Realized Gain (Loss)	522,925	
Unrealized Gain (Loss)	(426,212)	
Net Increase in Fair Value of Investments		96,764
Interest & Dividends		99,627
Less Investment Expense [1]		(7,379)
Net Investment Income		189,012
Total Additions		1,079,186
DEDUCTIONS		
Distributions to Members:		
Benefit Payments	738,323	
Refund of Contributions/Transfers	1,911	
Total Distributions		740,234
Administrative Expenses		8,055
Total Deductions		748,289
Net Increase in Net Position		330,897
NET POSITION RESTRICTED FOR PENSIONS		
Beginning of the Year		8,906,853
End of the Year		9,237,750

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

ACTUARIAL ASSET VALUATION
April 30, 2023

Development of Actuarial Value of Assets

Market Value of Assets, 4/30/2023	9,237,750
(Gains)/Losses Not Yet Recognized	613,880
Actuarial Value of Assets, 4/30/2023	9,851,630
4/30/2023 Limited Actuarial Assets:	9,851,630

Development of Investment Gain/Loss

Market Value of Assets, 4/30/2022	8,906,853
Contributions Less Benefit Payments & Administrative Expenses	141,885
Expected Investment Earnings[1]	606,001
Actual Net Investment Earnings	189,012
2023 Actuarial Investment Gain/(Loss)	(416,989)

[1] Expected Investment Earnings = 6.75% x (8,906,853 + 0.5 x 141,885)

Gains/(Losses) Not Yet Recognized

Plan Year		Amounts Not Yet Recognized by Valuation Year				
Ending	Gain/(Loss)	2023	2024	2025	2026	2027
4/30/2020	(533,705)	(106,741)	0	0	0	0
4/30/2021	924,645	369,858	184,929	0	0	0
4/30/2022	(905,676)	(543,406)	(362,270)	(181,135)	0	0
4/30/2023	(416,989)	(333,591)	(250,193)	(166,796)	(83,398)	0
Total		(613,880)	(427,534)	(347,931)	(83,398)	0

Development of Asset Returns

(A) 4/30/2022 Actuarial Assets:	9,325,564
(I) Net Investment Income:	
1. Interest and Dividends	99,678
2. Realized Gains (Losses)	522,925
3. Change in Actuarial Value	(231,043)
4. Investment Expenses	(7,379)
Total	384,181
(B) 4/30/2023 Actuarial Assets:	9,851,630
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	4.09%
Market Value of Assets Rate of Return:	2.11%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(250,083)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS
April 30, 2023
Actuarial Asset Basis

INCOME		
Contributions:		
Member	172,745	
Miscellaneous Member Revenue	2,311	
City	715,118	
Total Contributions		890,174
Earnings from Investments		
Interest & Dividends	99,627	
Miscellaneous Income	51	
Net Realized Gain (Loss)	522,925	
Change in Actuarial Value	(231,043)	
Total Earnings and Investment Gains		391,560
EXPENSES		
Administrative Expenses:		
Investment Related[1]	7,379	
Other	8,055	
Total Administrative Expenses		15,434
Distributions to Members:		
Benefit Payments	738,323	
Refund of Contributions/Transfers	1,911	
Total Distributions		740,234
Change in Net Assets for the Year		526,066
Net Assets Beginning of the Year		9,325,564
Net Assets End of the Year[2]		9,851,630

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

STATISTICAL DATA

	5/1/2023	5/1/2022	5/1/2021	5/1/2020
Actives - Tier 1				
Number	7	8	10	10
Average Current Age	43.5	43.7	43.6	42.6
Average Age at Employment	27.2	27.4	27.8	27.8
Average Past Service	16.3	16.3	15.8	14.8
Average Annual Salary	$84,777	$83,431	$79,942	$77,792
Actives - Tier 2				
Number	16	14	12	11
Average Current Age	33.3	33.6	35.4	35.1
Average Age at Employment	28.3	29.0	30.4	30.3
Average Past Service	5.0	4.6	5.0	4.8
Average Annual Salary	$70,556	$68,750	$70,548	$67,579
Service Retirees				
Number	10	9	8	8
Average Current Age	63.9	64.1	63.8	62.8
Average Annual Benefit	$62,922	$61,751	$61,221	$59,437
Beneficiaries				
Number	4	4	4	4
Average Current Age	74.6	73.6	72.6	71.6
Average Annual Benefit	$40,550	$40,550	$40,550	$40,550
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	4	4	4	4
Average Current Age	36.2	35.2	35.6	34.6
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	1	0	0	0	0	0	0	0	0	0	2
25 - 29	1	3	0	0	0	1	0	0	0	0	0	5
30 - 34	0	0	1	0	1	0	0	0	0	0	0	2
35 - 39	0	0	0	1	0	0	4	0	0	0	0	5
40 - 44	0	0	0	0	0	1	2	1	0	0	0	4
45 - 49	0	0	0	0	0	3	0	0	0	0	0	3
50 - 54	0	0	0	0	0	0	0	0	2	0	0	2
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	2	4	1	1	1	5	6	1	2	0	0	23

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 5/1/2022	22
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	(1)
f. Continuing participants	21
g. New entrants	2
h. Total active life participants in valuation	23

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	9	4	0	4	17
Retired	1	0	0	0	1
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	4	0	4	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	**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.