

CITY OF AURORA  
POLICE PENSION FUND  
ACTUARIAL VALUATION  
AS OF DECEMBER 31, 2021  
CONTRIBUTIONS APPLICABLE TO THE  
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2023  
GASB 67/68 DISCLOSURE INFORMATION  
AS OF DECEMBER 31, 2021



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS



April 15, 2022

Ms. Linda Read  
City of Aurora

Re: Actuarial Valuation Report (including GASB Statements No. 67 and No. 68) – City of Aurora  
Police Pension Fund

Dear Ms. Read:

We are pleased to present to the City this report of the annual actuarial valuation of the City of Aurora Police Pension Fund. Included are the related results for GASB Statements No. 67 and No. 68. 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. The calculation of the liability for GASB results was performed for the purpose of satisfying the requirements of GASB Statements No. 67 and No. 68. Use of the results for other purposes may not be applicable and could produce significantly different results.

The valuations have 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 reflect 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 valuations, 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 valuations, 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.

The total pension liability, net pension liability, and certain sensitivity information shown in the GASB results are based on an actuarial valuation performed as of the valuation date.

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.

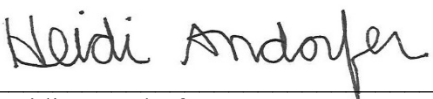
To our knowledge, no associate of Foster & Foster, Inc. working on valuations of the program has any direct financial interest or indirect material interest in the City of Aurora, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Aurora Police Pension Fund. 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, FSA, EA, MAAA

By:   
Heidi E. Andorfer, FSA, EA, MAAA

JLF/lke  
Enclosures

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SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Aurora Police Pension Fund, performed as of December 31, 2021, 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 December 31, 2020 actuarial report, are as follows:

Valuation Date	12/31/2021	12/31/2020
Applicable to Fiscal Year Ending	<u>12/31/2023</u>	<u>12/31/2022</u>
Total Recommended Contribution	\$21,606,905	\$21,542,155
% of Projected Annual Payroll	65.4%	65.1%
Member Contributions (Est.)	(3,273,399)	(3,277,827)
% of Projected Annual Payroll	(9.9%)	(9.9%)
City Recommended Contribution	18,333,506	18,264,328
% of Projected Annual Payroll	55.5%	55.2%

As you can see, the Total Recommended Contribution shows an increase when compared to the results determined in the December 31, 2020 actuarial valuation report. The increase is attributable to the natural increase in the amortization payment due to the payroll growth assumption. The increase was offset in part by favorable plan experience.

Plan experience was favorable overall on the basis of the plan's actuarial assumptions. The primary source of favorable experience was an investment return of 9.91% (Actuarial Asset Basis) which exceeded the 6.50% assumption. This gain was offset in part by a loss associated with more retirements than expected.

## 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

	<u>12/31/2021</u>	<u>12/31/2020</u>
A. Participant Data		
Number Included		
Actives	297	307
Service Retirees	207	197
Beneficiaries	37	34
Disability Retirees	17	18
Terminated Vested	<u>47</u>	<u>34</u>
Total	605	590
Total Annual Payroll	\$33,031,272	\$33,075,951
Payroll Under Assumed Ret. Age	33,031,272	33,075,951
Annual Rate of Payments to:		
Service Retirees	18,148,958	16,741,513
Beneficiaries	1,959,188	1,745,139
Disability Retirees	896,777	932,554
Terminated Vested	559,825	239,728
B. Assets		
Actuarial Value	295,449,780	266,152,376
Market Value	317,119,099	283,055,530
C. Liabilities		
Present Value of Benefits		
Actives		
Retirement Benefits	227,204,356	228,030,392
Disability Benefits	17,948,682	17,743,837
Death Benefits	2,381,568	2,448,509
Vested Benefits	13,391,036	15,268,569
Service Retirees	293,599,380	271,117,250
Beneficiaries	16,239,264	14,986,901
Disability Retirees	15,416,512	16,101,918
Terminated Vested	<u>8,656,676</u>	<u>3,770,141</u>
Total	594,837,474	569,467,517

C. Liabilities - (Continued)	<u>12/31/2021</u>	<u>12/31/2020</u>
Present Value of Future Salaries	327,196,561	331,713,647
Present Value of Future Member Contributions	32,425,179	32,872,822
Normal Cost (Retirement)	7,810,556	7,734,633
Normal Cost (Disability)	949,245	927,750
Normal Cost (Death)	143,627	143,323
Normal Cost (Vesting)	<u>788,101</u>	<u>810,590</u>
Total Normal Cost	9,691,529	9,616,296
Present Value of Future Normal Costs	92,741,046	92,696,375
Accrued Liability (Retirement)	147,720,011	148,674,931
Accrued Liability (Disability)	10,651,249	10,796,491
Accrued Liability (Death)	1,359,710	1,438,767
Accrued Liability (Vesting)	8,453,626	9,884,743
Accrued Liability (Inactives)	<u>333,911,832</u>	<u>305,976,210</u>
Total Actuarial Accrued Liability	502,096,428	476,771,142
Unfunded Actuarial Accrued Liability (UAAL)	206,646,648	210,618,766
Funded Ratio (AVA / AL)	58.8%	55.8%



	<u>12/31/2021</u>	<u>12/31/2020</u>
D. Actuarial Present Value of Accrued Benefits		
Vested Accrued Benefits		
Inactives	333,911,832	305,976,210
Actives	65,871,775	68,475,966
Member Contributions	<u>33,487,276</u>	<u>33,345,384</u>
Total	433,270,883	407,797,560
Non-vested Accrued Benefits	<u>8,768,675</u>	<u>9,048,481</u>
Total Present Value Accrued Benefits	442,039,558	416,846,041
Funded Ratio (MVA / PVAB)	71.7%	67.9%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:		
Plan Amendments	0	
Assumption Changes	0	
Plan Experience	19,324,458	
Benefits Paid	(20,557,805)	
Interest	26,426,864	
Other	<u>0</u>	
Total	25,193,517	

Valuation Date	12/31/2021	12/31/2020
Applicable to Fiscal Year Ending	<u>12/31/2023</u>	<u>12/31/2022</u>

E. Pension Cost

Normal Cost <sup>1</sup>	\$10,321,478	\$10,241,355
% of Total Annual Payroll <sup>1</sup>	31.2	31.0
Administrative Expenses <sup>1</sup>	82,971	71,288
% of Total Annual Payroll <sup>1</sup>	0.3	0.2
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 19 years (as of 12/31/2021) <sup>1</sup>	11,202,456	11,229,512
% of Total Annual Payroll <sup>1</sup>	33.9	33.9
Total Recommended Contribution	21,606,905	21,542,155
% of Total Annual Payroll <sup>1</sup>	65.4	65.1
Expected Member Contributions <sup>1</sup>	(3,273,399)	(3,277,827)
% of Total Annual Payroll <sup>1</sup>	(9.9)	(9.9)
Expected City Contribution	18,333,506	18,264,328
% of Total Annual Payroll <sup>1</sup>	55.5	55.2

F. Past Contributions

Plan Years Ending:	<u>12/31/2021</u>
Total Recommended Contribution	22,996,268
City	18,689,926
Actual Contributions Made:	
Members (excluding buyback)	4,306,342
City	<u>19,110,147</u>
Total	23,416,489

G. Net Actuarial (Gain)/Loss (4,750,693)

<sup>1</sup> Contributions developed as of 12/31/2021 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> <sup>1</sup>
2021	156,437,005
2022	155,402,954
2023	153,909,604
2027	142,420,561
2032	111,402,616
2036	67,567,287
2040	0

<sup>1</sup> Target funded percentage is less than 100% so not all of the Unfunded Actuarial Accrued Liability is amortized.

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/30/2021	5.79%	5.25%
Year Ended	12/31/2020	3.13%	5.07%
Year Ended	12/31/2019	1.46%	4.79%
Year Ended	12/31/2018	13.31%	4.68%
Year Ended	12/31/2017	2.79%	5.38%

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

		<u>Actual MVA</u>	<u>Actual AVA</u>	<u>Assumed</u>
Year Ended	12/30/2021	11.00%	9.91%	6.50%
Year Ended	12/31/2020	11.08%	8.96%	6.50%
Year Ended	12/31/2019	16.73%	6.57%	6.50%
Year Ended	12/31/2018	-3.34%	4.88%	6.50%
Year Ended	12/31/2017	14.84%	7.66%	6.75%

DEVELOPMENT OF DECEMBER 31, 2021 AMORTIZATION PAYMENT

(1)	Unfunded Actuarial Accrued Liability as of December 31, 2020	\$210,618,766
(2)	Sponsor Normal Cost developed as of December 31, 2020	6,338,469
(3)	Expected administrative expenses for the year ended December 30, 2021	66,937
(4)	Expected interest on (1), (2) and (3)	14,104,396
(5)	Sponsor contributions to the System during the year ended December 30, 2021	19,110,147
(6)	Expected interest on (5)	621,080
(7)	Expected Unfunded Actuarial Accrued Liability as of December 31, 2021, (1)+(2)+(3)+(4)-(5)-(6)	211,397,341
(8)	Change to UAAL due to Benefits/Assumption Change	0
(9)	Change to UAAL due to Actuarial (Gain)/Loss	(4,750,693)
(10)	Unfunded Accrued Liability as of December 31, 2021	206,646,648
(11)	UAAL Subject to Amortization (90% AAL less Actuarial Assets)	156,437,005

<u>Date</u> <u>Established</u>	<u>Years</u> <u>Remaining</u>	<u>12/31/2021</u> <u>Amount</u>	<u>Amortization</u> <u>Amount</u>
12/31/2021	19	156,437,005	10,518,738

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of December 31, 2020	\$210,618,766
(2) Expected UAAL as of December 31, 2021	211,397,341
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	(9,126,347)
Salary Increases	963,426
Active Decrements	2,871,516
Inactive Mortality	1,206,699
Other	<u>(665,987)</u>
Change in UAAL due to (Gain)/Loss	(4,750,693)
Change to UAAL due to Benefits/Assumption Change	<u>0</u>
(4) Actual UAAL as of December 31, 2021	\$206,646,648

## RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of December 31, 2020	\$ 18,264,328
(2) Summary of Contribution Impact by component:	
Change in Normal Cost	80,123
Change in Assumed Administrative Expense	11,683
Investment Return (Actuarial Asset Basis)	(494,746)
Salary Increases	52,228
New Entrants	1,474
Active Decrements	155,667
Inactive Mortality	65,416
Contributions (More) or Less than Recommended	(32,166)
Increase in Amortization Payment Due to Payroll Growth Assumption	393,033
Change in Expected Member Contributions	4,428
Benefits/Assumption Change	-
Other	<u>(167,962)</u>
Total Change in Contribution	69,178
(3) Contribution Determined as of December 31, 2021	\$18,333,506

PROJECTION OF BENEFIT PAYMENTS

Year	Payments for Current Actives	Payments for Current Inactives	Total Payments
2021	600,661	21,217,153	21,817,814
2022	1,452,481	21,331,096	22,783,577
2023	2,370,845	21,944,266	24,315,111
2024	3,345,195	22,410,365	25,755,560
2025	4,449,371	22,928,359	27,377,730
2026	5,668,114	23,292,953	28,961,067
2027	6,916,160	23,669,499	30,585,659
2028	8,141,340	24,034,402	32,175,742
2029	9,464,270	24,313,430	33,777,700
2030	10,853,540	24,565,053	35,418,593
2031	12,327,763	24,865,319	37,193,082
2032	13,852,142	25,029,079	38,881,221
2033	15,365,263	25,150,930	40,516,193
2034	16,935,899	25,279,748	42,215,647
2035	18,483,361	25,325,678	43,809,039
2036	20,025,210	25,285,848	45,311,058
2037	21,578,107	25,210,775	46,788,882
2038	23,118,926	25,052,533	48,171,459
2039	24,603,348	24,831,802	49,435,150
2040	26,069,286	24,547,522	50,616,808
2041	27,589,359	24,199,262	51,788,621
2042	29,129,878	23,842,788	52,972,666
2043	30,632,806	23,369,812	54,002,618
2044	32,262,712	22,836,229	55,098,941
2045	33,863,706	22,244,364	56,108,070
2046	35,367,095	21,596,953	56,964,048
2047	36,883,380	20,897,067	57,780,447
2048	38,453,371	20,148,318	58,601,689
2049	39,835,215	19,354,466	59,189,681
2050	41,075,656	18,518,995	59,594,651
2051	42,137,762	17,645,123	59,782,885
2052	43,074,814	16,735,838	59,810,652
2053	43,860,944	15,794,258	59,655,202
2054	44,481,050	14,823,942	59,304,992
2055	44,904,597	13,828,977	58,733,574
2056	45,157,685	12,814,287	57,971,972
2057	45,251,404	11,785,950	57,037,354
2058	45,185,090	10,751,389	55,936,479
2059	44,951,721	9,719,519	54,671,240
2060	44,542,491	8,700,958	53,243,449

## ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	6.50% per year compounded annually, net of investment related expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.
Mortality Rate	<p><b><i>Active Lives:</i></b> PubS-2010 Employee mortality, projected 5 years past the valuation date with Scale MP-2021. 10% of active deaths are assumed to be in the line of duty.</p> <p><b><i>Inactive Lives:</i></b> PubS-2010 Healthy Retiree mortality, projected 5 years past the valuation date with Scale MP-2021.</p> <p><b><i>Beneficiaries:</i></b> PubS-2010 Survivor mortality, projected 5 years past the valuation date with Scale MP-2021.</p> <p><b><i>Disabled Lives:</i></b> PubS-2010 Disabled mortality, projected 5 years past the valuation date with Scale MP-2021.</p> <p>The mortality assumptions sufficiently accommodate anticipated future mortality improvements.</p>
Retirement Age	See table later in this section. This is based on a 2017 experience study performed for the State of Illinois Department of Insurance.
Disability Rate	See table later in this section. 60% of the disabilities are assumed to be in the line of duty. This is based on a 2017 experience study performed for the State of Illinois Department of Insurance.
Termination Rate	See table later in this section. This is based on a 2017 experience study performed for the State of Illinois Department of Insurance.
Inflation	2.50%.
Cost-of-Living Adjustment	<p><u>Tier 1:</u> 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.</p> <p><u>Tier 2:</u> 1.25% per year after the later of attainment of age 60 or first anniversary of retirement.</p>



Salary Increases

See table below. This is based on a 2017 experience study performed for the State of Illinois Department of Insurance.

Salary Scale	
Service	Rate
0	11.00%
1	10.75%
2	8.75%
3	8.50%
4	7.00%
5	6.25%
6	5.25%
7	4.25%
8 - 16	4.00%
17 - 32	3.75%
32+	3.50%

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 90% of the Accrued Liability less the Actuarial Value of Assets.

Payroll Growth

3.50% 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

<u>% Terminating During the Year</u>		<u>% Becoming Disabled During the Year</u>		<u>% Retiring During the Year (Tier 1)</u>		<u>% Retiring During the Year (Tier 2)</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	14.00%	20	0.000%	50 - 51	15%	50 - 54	5%
25	10.40%	25	0.030%	52 - 54	20%	55	40%
30	5.60%	30	0.140%	55 - 64	25%	56 - 64	25%
35	3.10%	35	0.260%	65 - 69	40%	65 - 69	40%
40	1.90%	40	0.420%	70+	100%	70+	100%
45	1.50%	45	0.590%				
50	1.50%	50	0.710%				
56+	0.00%	55	0.900%				
		60	1.150%				

## 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 by 2040. The recommended amount is adjusted for interest according to the timing of contributions during the year.

Projected Unit Credit Actuarial Cost Method (Level Percent of Compensation) is the method used to determine recommended contributions under the Plan. The use of this method involves the systematic funding of the Normal Cost (described above) and the Unfunded Accrued (Past Service) Liability. The actuarial accrued liability is the present value of accrued benefits, utilizing projected salary for active Plan Participants.

## 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 115.5% on December 31, 2018 to 96.4% on December 31, 2021, 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 66.5%. 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 51.7% on December 31, 2018 to 58.8% on December 31, 2021, 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, stayed approximately the same from December 31, 2018 to December 31, 2021. The current Net Cash Flow Ratio of 0.9% 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>12/31/2021</u>	<u>12/31/2020</u>	<u>12/31/2019</u>	<u>12/31/2018</u>
<u>Support Ratio</u>				
Total Actives	297	307	310	283
Total Inactives	308	283	253	245
Actives / Inactives	96.4%	108.5%	122.5%	115.5%

Asset Volatility Ratio

Market Value of Assets (MVA)	317,119,099	283,055,530	252,307,391	214,221,293
Total Annual Payroll	33,031,272	33,075,951	34,473,751	32,478,915
MVA / Total Annual Payroll	960.1%	855.8%	731.9%	659.6%

Accrued Liability (AL) Ratio

Inactive Accrued Liability	333,911,832	305,976,210	262,385,478	253,283,243
Total Accrued Liability	502,096,428	476,771,142	452,624,869	434,904,104
Inactive AL / Total AL	66.5%	64.2%	58.0%	58.2%

Funded Ratio

Actuarial Value of Assets (AVA)	295,449,780	266,152,376	241,711,630	224,797,363
Total Accrued Liability	502,096,428	476,771,142	452,624,869	434,904,104
AVA / Total Accrued Liability	58.8%	55.8%	53.4%	51.7%

Net Cash Flow Ratio

Net Cash Flow <sup>1</sup>	2,780,777	2,653,755	2,075,420	2,092,259
Market Value of Assets (MVA)	317,119,099	283,055,530	252,307,391	214,221,293
Ratio	0.9%	0.9%	0.8%	1.0%

<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	10,430,732
Total Cash and Equivalents	10,430,732
Receivables:	
Pension Service Credit	52,539
From City	6,070
Accrued Past Due Interest	556,289
Total Receivable	614,898
Investments:	
Fixed Income Securities	108,767,954
International Equity Securities	51,258,442
Real Estate Investment Trusts	29,373,814
Domestic Equity Securities	116,747,785
Total Investments	306,147,995
Total Assets	317,193,625
 <u>LIABILITIES</u>	
Liabilities:	
Payable:	
Accounts Payable	74,040
To Municipality	486
Total Liabilities	74,526
Net Assets:	
Active and Retired Members' Equity	317,119,099
NET POSITION RESTRICTED FOR PENSIONS	317,119,099
TOTAL LIABILITIES AND NET ASSETS	317,193,625

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

ADDITIONS

Contributions:

Member	4,306,342
City	19,110,147

Total Contributions 23,416,489

Investment Income:

Net Increase in Fair Value of Investments	26,861,393
Interest & Dividends	5,038,866
Less Investment Expense <sup>1</sup>	(617,467)

Net Investment Income 31,282,792

Total Additions 54,699,281

DEDUCTIONS

Distributions to Members:

Benefit Payments	20,557,805
------------------	------------

Total Distributions 20,557,805

Administrative Expenses 77,907

Total Deductions 20,635,712

Net Increase in Net Position 34,063,569

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 283,055,530

End of the Year 317,119,099

<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	317,119,099
(Gains)/Losses Not Yet Recognized	<u>(21,669,319)</u>
Actuarial Value of Assets, 12/31/2021	295,449,780
12/31/2021 Limited Actuarial Assets:	295,449,780

Development of Investment Gain/Loss

Market Value of Assets, 12/31/2020	283,055,530
Contributions Less Benefit Payments & Administrative Expenses	2,780,777
Expected Investment Earnings <sup>1</sup>	18,488,985
Actual Net Investment Earnings	<u>31,282,792</u>
2021 Actuarial Investment Gain/(Loss)	12,793,807

<sup>1</sup> Expected Investment Earnings = 6.50% x (283,055,530 + 0.5 x 2,780,777)

Gains/(Losses) Not Yet Recognized

Plan Year	Gain/(Loss)	Amounts Not Yet Recognized by Valuation Year				
Ending		2021	2022	2023	2024	2025
12/31/2018	(21,690,795)	(4,338,159)	0	0	0	0
12/31/2019	22,018,843	8,807,537	4,403,769	0	0	0
12/31/2020	11,608,158	6,964,895	4,643,263	2,321,632	0	0
12/31/2021	12,793,807	10,235,046	7,676,284	5,117,523	2,558,761	0
Total		21,669,319	16,723,316	7,439,155	2,558,761	0

Development of Asset Returns

(A) 12/31/2020 Actuarial Assets:	266,152,376
(I) Net Investment Income:	
1. Interest and Dividends	5,038,866
2. Realized Gains (Losses)	0
3. Change in Actuarial Value	22,095,228
4. Investment Expenses	<u>(617,467)</u>
Total	26,516,627
(B) 12/31/2021 Actuarial Assets:	295,449,780
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	9.91%
Market Value of Assets Rate of Return:	11.00%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	9,126,347

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS  
December 31, 2021  
Actuarial Asset Basis

INCOME		
Contributions:		
Member	4,306,342	
City	19,110,147	
Total Contributions		23,416,489
Earnings from Investments		
Interest & Dividends	5,038,866	
Change in Actuarial Value	22,095,228	
Total Earnings and Investment Gains		27,134,094
EXPENSES		
Administrative Expenses:		
Investment Related <sup>1</sup>	617,467	
Other	77,907	
Total Administrative Expenses		695,374
Distributions to Members:		
Benefit Payments	20,557,805	
Total Distributions		20,557,805
Change in Net Assets for the Year		29,297,404
Net Assets Beginning of the Year		266,152,376
Net Assets End of the Year <sup>2</sup>		295,449,780

<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>12/31/2021</u>	<u>12/31/2020</u>	<u>12/31/2019</u>	<u>12/31/2018</u>
<u>Actives - Tier 1</u>				
Number	172	187	214	218
Average Current Age	45.4	44.8	44.8	43.9
Average Age at Employment	25.6	25.7	25.8	26.1
Average Past Service	19.8	19.1	19.0	17.8
Average Annual Salary	\$127,122	\$123,670	\$122,212	\$121,651
<u>Actives - Tier 2</u>				
Number	125	120	96	65
Average Current Age	30.5	29.6	29.3	29.0
Average Age at Employment	26.7	26.6	26.5	26.4
Average Past Service	3.8	3.0	2.8	2.6
Average Annual Salary	\$89,331	\$82,914	\$86,671	\$91,677
<u>Service Retirees</u>				
Number	207	197	176	172
Average Current Age	65.1	64.8	66.3	65.5
Average Annual Benefit	\$87,676	\$84,982	\$82,282	\$80,108
<u>Beneficiaries</u>				
Number	37	34	30	29
Average Current Age	78.9	77.8	78.3	77.7
Average Annual Benefit	\$52,951	\$51,328	\$49,484	\$48,501
<u>Disability Retirees</u>				
Number	17	18	17	17
Average Current Age	57.5	56.6	55.6	54.6
Average Annual Benefit	\$52,752	\$51,809	\$49,519	\$49,187
<u>Terminated Vested</u>				
Number	47	34	30	27
Average Current Age	34.6	34.5	35.8	35.0
Average Annual Benefit <sup>1</sup>	\$55,983	\$39,955	\$46,381	\$43,607

<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	5	7	0	2	0	0	0	0	0	0	0	14
25 - 29	4	9	14	4	3	9	0	0	0	0	0	43
30 - 34	6	4	9	5	1	17	7	0	0	0	0	49
35 - 39	2	2	3	1	2	10	16	13	0	0	0	49
40 - 44	0	0	0	0	0	3	8	29	6	0	0	46
45 - 49	0	0	0	0	0	0	5	19	18	11	0	53
50 - 54	0	0	0	0	0	0	0	8	11	13	1	33
55 - 59	0	0	0	0	0	0	0	0	3	1	1	5
60 - 64	0	0	0	0	0	0	0	0	0	2	2	4
65+	0	0	0	0	0	0	0	0	0	0	1	1
<b>Total</b>	<b>17</b>	<b>22</b>	<b>26</b>	<b>12</b>	<b>6</b>	<b>39</b>	<b>36</b>	<b>69</b>	<b>38</b>	<b>27</b>	<b>5</b>	<b>297</b>

## VALUATION PARTICIPANT RECONCILIATION

### 1. Active lives

a. Number in prior valuation 12/31/2020	307
b. Terminations	
i. Vested (partial or full) with deferred benefits	(13)
ii. Non-vested or full lump sum distribution received	(3)
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>(11)</u>
f. Continuing participants	280
g. New entrants	<u>17</u>
h. Total active life participants in valuation	297

### 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 <u>Deferred</u>	<u>Total</u>
a. Number prior valuation	197	34	18	34	283
Retired	11	0	0	0	11
Vested Deferred	0	0	0	13	13
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	(2)	(2)
Rehires	0	0	0	0	0
Expired Annuities	0	0	0	0	0
Data Corrections	0	2	(1)	0	1
Hired/Termed in Same Year	0	0	0	2	2
b. Number current valuation	207	37	17	47	308

## 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 (8-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.



## SUMMARY

Valuation Date	12/31/2021	12/31/2020
Measurement Date	12/31/2021	12/31/2020
Plan Membership:		
Inactives Currently Receiving Benefits	261	249
Inactives Not Yet Receiving Benefits	47	34
Active Plan Members	<u>297</u>	<u>307</u>
Total	605	590
Covered Payroll	\$ 33,031,272	\$ 33,075,951
Net Pension Liability		
Total Pension Liability	\$ 628,809,409	\$ 612,380,673
Plan Fiduciary Net Position	<u>317,119,099</u>	<u>283,055,530</u>
Net Pension Liability	\$ 311,690,310	\$ 329,325,143
Plan Fiduciary Net Position		
As a Percentage of Total Pension Liability	50.43%	46.20%
Net Pension Liability		
As a Percentage of Covered Payroll	943.62%	995.70%
Total Pension Expense	\$ 32,006,444	\$ 36,342,037
Development of Single Discount Rate		
Single Discount Rate	5.17%	5.00%
Long-Term Expected Rate of Return	6.50%	6.50%
High-quality Municipal Bond Rate	2.25%	1.93%
Number of Years Future Benefit Payments		
Are Expected to be Paid	43	43

SCHEDULE OF CHANGES IN NET PENSION LIABILITY  
PLAN AND CITY REPORTING

GASB 68 Reporting Period Ending	12/31/2021	12/31/2020
Measurement Date	<u>12/31/2021</u>	<u>12/31/2020</u>
Total Pension Liability		
Service Cost	12,361,775	10,865,501
Interest	30,705,349	29,997,844
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	10,403,631	5,029,412
Changes of Assumptions	(16,484,214)	65,760,266
Benefit Payments, Including Refunds of Employee Contributions	<u>(20,557,805)</u>	<u>(18,474,060)</u>
Net Change in Total Pension Liability	16,428,736	93,178,963
Total Pension Liability - Beginning	<u>612,380,673</u>	<u>519,201,710</u>
Total Pension Liability - Ending (a)	\$ 628,809,409	\$ 612,380,673
 Plan Fiduciary Net Position		
Contributions - Employer	19,110,147	17,695,679
Contributions - Employee	4,306,342	3,499,073
Net Investment Income	31,282,792	28,094,385
Benefit Payments, Including Refunds of Employee Contributions	(20,557,805)	(18,474,060)
Administrative Expense	<u>(77,907)</u>	<u>(66,937)</u>
Net Change in Plan Fiduciary Net Position	34,063,569	30,748,140
Plan Fiduciary Net Position - Beginning	<u>283,055,530</u>	<u>252,307,390</u>
Plan Fiduciary Net Position - Ending (b)	\$ 317,119,099	\$ 283,055,530
 Net Pension Liability - Ending (a) - (b)	\$ 311,690,310	\$ 329,325,143
 Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	50.43%	46.20%
 Covered Payroll	\$ 33,031,272	\$ 33,075,951
Net Pension Liability as a Percentage of Covered Payroll	943.62%	995.70%

STATEMENT OF CHANGES IN NET PENSION LIABILITY  
CITY REPORTING

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Balances at December 31, 2020	\$612,380,673	\$283,055,530	\$329,325,143
Changes for a Year:			
Service Cost	12,361,775	-	12,361,775
Interest	30,705,349	-	30,705,349
Differences Between Expected and Actual Experience	10,403,631	-	10,403,631
Changes of Assumptions	(16,484,214)	-	(16,484,214)
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	19,110,147	(19,110,147)
Contributions - Employee	-	4,306,342	(4,306,342)
Net Investment Income	-	31,282,792	(31,282,792)
Benefit Payments, Including Refunds of Employee Contributions	(20,557,805)	(20,557,805)	-
Administrative Expense	-	(77,907)	77,907
Net Changes	16,428,736	34,063,569	(17,634,833)
Balances at December 31, 2021	\$628,809,409	\$317,119,099	\$311,690,310

*Sensitivity of Net Pension Liability to changes in the Discount Rate:*

	Current Discount		
	1% Decrease	Rate	1% Increase
	4.17%	5.17%	6.17%
Sponsor's Net Pension Liability	\$ 418,548,738	\$ 311,690,310	\$ 226,366,466

*Pension Plan Fiduciary Net Position*

Detailed information about the Pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF  
RESOURCES RELATED TO PENSIONS  
YEAR-END DECEMBER 31, 2021

For the year ended December 31, 2021, the Sponsor will recognize a pension expense of \$32,006,444. On December 31, 2021, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience	17,933,534	3,175,969
Changes of assumptions	67,390,340	14,981,605
Net difference between projected and actual earnings on pension plan investments	0	21,669,319
Total	\$85,323,874	\$39,826,893

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year-ended December 31:

2022	\$13,972,869
2023	\$5,240,735
2024	\$7,431,182
2025	\$9,752,814
2026	\$9,099,381
Thereafter	\$0

COMPONENTS OF PENSION EXPENSE  
YEAR-END DECEMBER 31, 2021

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$329,325,143	\$ 32,104,393	\$108,132,504	
Total Pension Liability Factors:				
Service Cost	12,361,775	-	-	12,361,775
Interest	30,705,349	-	-	30,705,349
Changes in Benefit Terms	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions	10,403,631	-	10,403,631	-
Current Year Amortization	-	(1,481,809)	(5,535,738)	4,053,929
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	(16,484,214)	16,484,214	-	-
Current Year Amortization	-	(3,369,749)	(19,000,205)	15,630,456
Benefit Payments, Including Refunds of Employee Contributions	(20,557,805)	-	-	-
Net Change	16,428,736	11,632,656	(14,132,312)	62,751,509
Plan Fiduciary Net Position:				
Contributions - Employer	19,110,147	-	-	-
Contributions - Employee	4,306,342	-	-	(4,306,342)
Projected Net Investment Income	18,488,985	-	-	(18,488,985)
Difference Between Projected and Actual Earnings on Pension Plan Investments	12,793,807	12,793,807	-	-
Current Year Amortization	-	(12,365,804)	(4,338,159)	(8,027,645)
Benefit Payments, Including Refunds of Employee Contributions	(20,557,805)	-	-	-
Administrative Expenses	(77,907)	-	-	77,907
Net Change	34,063,569	428,003	(4,338,159)	(30,745,065)
Ending Balance	\$311,690,310	\$ 44,165,052	\$ 89,662,033	\$ 32,006,444

AMORTIZATION SCHEDULE – EXPERIENCE

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Year Base Established	Differences Between Expected and Actual Experience	Recognition Period (Years)	2021	2022	2023	2024	2025	Thereafter
2021	\$ 10,403,631	6	\$ 1,733,936	\$ 1,733,939	\$ 1,733,939	\$ 1,733,939	\$ 1,733,939	\$ 1,733,939
2020	\$ 5,029,412	7	\$ 718,487	\$ 718,487	\$ 718,487	\$ 718,487	\$ 718,487	\$ 718,487
2019	\$ (3,953,040)	7	\$ (564,720)	\$ (564,720)	\$ (564,720)	\$ (564,720)	\$ (564,720)	\$ -
2018	\$ 17,014,213	6	\$ 2,835,702	\$ 2,835,702	\$ 2,835,702	\$ -	\$ -	\$ -
2017	\$ (1,622,956)	6	\$ (270,493)	\$ (270,493)	\$ -	\$ -	\$ -	\$ -
2016	\$ (4,526,173)	7	\$ (646,596)	\$ (646,596)	\$ -	\$ -	\$ -	\$ -
2015	\$ 1,733,291	7	\$ 247,613	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			4,053,929	3,806,319	4,723,408	1,887,706	1,887,706	2,452,426

AMORTIZATION SCHEDULE – CHANGES OF ASSUMPTIONS

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions

Year Base Established	Effects of Changes in Assumptions	Recognition Period (Years)	2021	2022	2023	2024	2025	Thereafter
2021	\$ (16,484,214)	6	\$ (2,747,369)	\$ (2,747,369)	\$ (2,747,369)	\$ (2,747,369)	\$ (2,747,369)	\$ (2,747,369)
2020	\$ 65,760,266	7	\$ 9,394,324	\$ 9,394,324	\$ 9,394,324	\$ 9,394,324	\$ 9,394,324	\$ 9,394,324
2019	\$ 26,438,399	7	\$ 3,776,914	\$ 3,776,914	\$ 3,776,914	\$ 3,776,914	\$ 3,776,914	\$ -
2018	\$ (3,734,280)	6	\$ (622,380)	\$ (622,380)	\$ (622,380)	\$ -	\$ -	\$ -
2017	\$ 11,050,031	6	\$ 1,841,672	\$ 1,841,672	\$ -	\$ -	\$ -	\$ -
2016	\$ 24,285,746	7	\$ 3,469,392	\$ 3,469,392	\$ -	\$ -	\$ -	\$ -
2015	\$ 3,625,322	7	\$ 517,903	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$15,630,456	\$15,112,553	\$ 9,801,489	\$10,423,869	\$10,423,869	\$ 6,646,955

AMORTIZATION SCHEDULE – INVESTMENTS

Increase (Decrease) in Pension Expense Arising from the Recognition of the Differences Between Projected and Actual Earnings on Pension Plan Investments

Year Base Established	Differences		Increase (Decrease) in Pension Expense Arising from the Recognition of the Differences Between Projected and Actual Earnings on Pension Plan Investments						
	Between Projected and Actual Earnings	Recognition Period (Years)	2021	2022	2023	2024	2025	Thereafter	
2021	\$ (12,793,807)	5	\$ (2,558,763)	\$(2,558,761)	\$(2,558,761)	\$(2,558,761)	\$(2,558,761)	\$ -	
2020	\$ (11,608,158)	5	\$ (2,321,632)	\$(2,321,632)	\$(2,321,632)	\$(2,321,632)	\$ -	\$ -	
2019	\$ (22,018,843)	5	\$ (4,403,769)	\$(4,403,769)	\$(4,403,769)	\$ -	\$ -	\$ -	
2018	\$ 21,690,795	5	\$ 4,338,159	\$ 4,338,159	\$ -	\$ -	\$ -	\$ -	
2017	\$ (15,408,200)	5	\$ (3,081,640)	\$ -	\$ -	\$ -	\$ -	\$ -	
Net Increase (Decrease) in Pension Expense			\$ (8,027,645)	\$(4,946,003)	\$(9,284,162)	\$(4,880,393)	\$(2,558,761)	\$ -	



SCHEDULE OF CONTRIBUTIONS

Plan Year-End	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
12/31/2021	18,689,926	19,110,147	(420,221)	33,031,272	57.85%
12/31/2020	17,917,637	17,695,679	221,958	33,075,951	53.50%

The following assumptions were used to determine the Actuarially Determined Contribution for the plan year ending December 31, 2021:

Calculation Timing	The Actuarially Determined Contribution is calculated using a December 31, 2019 valuation date.
Interest Rate	6.50%
Mortality Rate	<p><b>Active Lives:</b> PubS-2010 Employee mortality, projected 5 years past the valuation date with Scale MP-2019. 10% of active deaths are assumed to be in the line of duty.</p> <p><b>Inactive Lives:</b> PubS-2010 Healthy Retiree mortality, projected 5 years past the valuation date with Scale MP-2019.</p> <p><b>Beneficiaries:</b> PubS-2010 Survivor mortality, projected 5 years past the valuation date with Scale MP-2019.</p> <p><b>Disabled Lives:</b> PubS-2010 Disabled mortality, projected 5 years past the valuation date with Scale MP-2019.</p>
Assumptions	All other assumptions and methods used for determining the Actuarially Determined Contribution can be found in the December 31, 2019 Actuarial Valuation Report for the City of Aurora Police Pension Fund prepared by Foster & Foster Actuaries and Consultants.

SCHEDULE OF INVESTMENT RETURNS

For the year ended December 31, 2021, the annual money-weighted return on Pension Plan investments, net of pension plan investment expense, was 11.08 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Plan Year-End	Annual Money-Weighted Rate of Return Net of Investment Expense
12/31/2021	11.08%
12/31/2020	11.12%

ASSUMPTIONS – GASB PENSION LIABILITY AND PENSION EXPENSE

The GASB 67/GASB 68 Pension Liability as of December 31, 2021 and GASB 68 Pension Expense were determined as follows:

Valuation Date	December 31, 2021
Measurement Date	December 31, 2021
GASB 68 Expense Measurement Period	January 1, 2021 - December 31, 2021
Reporting Period	January 1, 2021 - December 31, 2021
Discount Rate	5.17%
Inflation	2.50%
Salary Increases	Service-based rates
Other Assumptions	A summary of complete assumptions can be found in the accompanying Actuarial Valuation as of December 31, 2021 for the City of Aurora Police Pension Fund prepared by Foster & Foster Actuaries and Consultants.

The GASB 67/GASB 68 Total Pension Liability and GASB 68 Pension Expense reflect the following assumption changes:

- The discount rate was updated from 5.00% to 5.17%.

NOTES TO THE FINANCIAL STATEMENTS

*Support for Long-Term Expected Rate of Return*

The Long-Term Expected Rate of Return on Pension Plan investments can be determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Pension Plan investment expenses and inflation) are developed for each major asset class.

These ranges are combined to produce the Long-Term Expected Rate of Return by weighting the expected future real rates of return by target asset allocation percentage and by adding expected inflation.

Best estimates of geometric real rates of return for each major asset class included in the Pension Plan’s target asset allocation adopted as of December 31, 2021, as provided by Marquette Associates, Inc., are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return <sup>1</sup>
Fixed Income	37.00%	1.60%
U.S. Equity	35.00%	5.20%
International Equity	16.00%	5.60%
Real Estate - Core	10.00%	4.90%
Cash	2.00%	0.20%
Total	100.00%	

<sup>1</sup> Please note that the implied long-term expected return of the total portfolio provided by the investment advisor would suggest that the Discount Rate is not supported. We will continue to monitor this in light of longer time horizons and the impact of Consolidation.

Inflation rate of investment advisor 2.50%

*Concentrations*

The Plan did not hold investments in any one organization that represent 5 percent or more of the Pension Plan’s fiduciary net position.

### *Discount Rate*

The Discount Rate used to measure the Total Pension Liability was 5.17 percent.

The projection of cash flows used to determine the Discount Rate assumed that current Plan Member and Sponsor contributions will be made at the current contribution rate. Future Member's contributions in excess of their normal cost were also included.

Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to provide future benefit payments for 43 years. These payments were discounted using a Discount Rate equal to the Long-Term Expected Rate of return of 6.50 percent.

Future benefit payments beyond 43 years were discounted using a high-quality municipal bond rate of 2.25 percent. The high-quality municipal bond rate was based on the daily rate closest to, but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index.

The single equivalent Discount Rate was 5.17 percent.

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.
- c.) One retired member of the Police Department elected by the Membership.

Benefits Provided

The Plan provides retirement, termination, disability and death benefits.

A summary of the benefit provisions can be found in the accompanying Actuarial Valuation as of December 31, 2021 for the City of Aurora Police Pension Fund prepared by Foster & Foster Actuaries and Consultants.