

CITY OF GENEVA
FIREFIGHTERS' PENSION FUND

ACTUARIAL VALUATION
AS OF MAY 1, 2024

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING APRIL 30, 2026



FOSTER & FOSTER
ACTUARIES AND CONSULTANTS



August 13, 2024

Ms. Rita Kruse
City of Geneva Firefighters' Pension Fund

Re: Actuarial Valuation Report – City of Geneva Firefighters' Pension Fund

Dear Ms. Kruse:

We are pleased to present to the City this report of the annual actuarial valuation of the City of Geneva Firefighters' 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 4, 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.

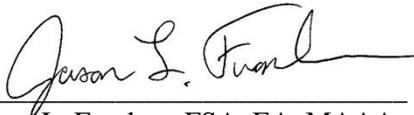
The undersigned are familiar with the immediate and long-term aspects of pension valuations and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the 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 Geneva, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Geneva Firefighters' 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 Geneva Firefighters' Pension Fund, performed as of May 1, 2024, 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, 2026.

The contribution requirements, compared with those set forth in the May 1, 2023 actuarial report, are as follows:

Valuation Date	5/1/2024	5/1/2023
Applicable to Fiscal Year Ending	<u>4/30/2026</u>	<u>4/30/2025</u>
Total Recommended Contribution	\$1,564,768	\$1,377,761
% of Projected Annual Payroll	74.6%	60.1%
Member Contributions (Est.)	(198,175)	(216,844)
% of Projected Annual Payroll	(9.5%)	(9.5%)
City Recommended Contribution	1,366,593	1,160,917
% of Projected Annual Payroll	65.1%	50.6%

As you can see, the Total Recommended Contribution shows an increase when compared to the results determined in the May 1, 2023 actuarial valuation report. The increase is attributable to assumption changes, unfavorable plan experience, the natural increase in the amortization payment due to the payroll growth assumption, and programming updates.

Plan experience was unfavorable overall on the basis of the plan's actuarial assumptions. Sources of unfavorable experience included an average salary increase of 7.20% which exceeded the 5.59% assumption, an investment return of 5.05% (Actuarial Asset Basis) which fell short of the 7.00% assumption, and more retirements than expected. These losses were offset in part by a gain associated with more turnover 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

The following assumptions were updated due to the funding policy implemented during calendar year 2024:

- The investment return assumption was reduced from 7.00% to 6.75%.
- The payroll growth assumption was reduced from 3.00% to 2.75%.

The following method was updated due to the funding policy implemented during calendar year 2024, however, it is worth noting that this will not have an impact on the contribution determination until the remaining amortization period reaches 15 years:

- The amortization of the unfunded liability will move to an open methodology amortized over 15 years. This is being phased in by simply decreasing the amortization years by 1 each year until the 15 years is reached. At that point, each year the unfunded liability will be reamortized over the 15-year period. The payment will still assume a 100% funding target.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Asmp/Mthd <u>5/1/2024</u>	Old Asmp/Mthd <u>5/1/2024</u>	<u>5/1/2023</u>
A. Participant Data			
Number Included			
Actives	19	19	22
Service Retirees	14	14	13
Beneficiaries	4	4	5
Disability Retirees	0	0	0
Terminated Vested	<u>6</u>	<u>6</u>	<u>4</u>
Total	43	43	44
Total Annual Payroll	\$2,095,985	\$2,095,985	\$2,293,427
Payroll Under Assumed Ret. Age	2,095,985	2,095,985	2,293,427
Annual Rate of Payments to:			
Service Retirees	1,109,580	1,109,580	976,052
Beneficiaries	177,405	177,405	194,105
Disability Retirees	0	0	0
Terminated Vested	67,278	67,278	4,977
B. Assets			
Actuarial Value	20,687,049	20,687,049	19,590,384
Market Value	20,318,124	20,318,124	18,277,301
C. Liabilities			
Present Value of Benefits			
Actives			
Retirement Benefits	14,910,404	14,100,745	15,293,331
Disability Benefits	1,526,943	1,449,079	1,635,316
Death Benefits	177,726	169,563	193,304
Vested Benefits	402,944	380,650	512,580
Service Retirees	17,221,410	16,762,945	14,640,960
Beneficiaries	2,082,410	2,029,639	2,079,438
Disability Retirees	0	0	0
Terminated Vested	<u>964,488</u>	<u>919,469</u>	<u>66,948</u>
Total	37,286,325	35,812,090	34,421,877

C. Liabilities - (Continued)	New Asmp/Mthd <u>5/1/2024</u>	Old Asmp/Mthd <u>5/1/2024</u>	<u>5/1/2023</u>
Present Value of Future Salaries	21,109,575	20,750,577	23,750,674
Present Value of Future Member Contributions	1,995,910	1,961,967	2,245,626
Normal Cost (Retirement)	429,204	400,142	430,074
Normal Cost (Disability)	78,467	74,515	79,780
Normal Cost (Death)	13,535	13,053	14,064
Normal Cost (Vesting)	<u>28,202</u>	<u>26,800</u>	<u>30,846</u>
Total Normal Cost	549,408	514,510	554,764
Present Value of Future Normal Costs	5,130,807	4,728,755	5,397,510
Accrued Liability (Retirement)	10,901,986	10,422,955	11,103,845
Accrued Liability (Disability)	708,890	683,802	775,309
Accrued Liability (Death)	49,602	48,139	53,772
Accrued Liability (Vesting)	226,732	216,386	304,095
Accrued Liability (Inactives)	<u>20,268,308</u>	<u>19,712,053</u>	<u>16,787,346</u>
Total Actuarial Accrued Liability	32,155,518	31,083,335	29,024,367
Unfunded Actuarial Accrued Liability (UAAL)	11,468,469	10,396,286	9,433,983
Funded Ratio (AVA / AL)	64.3%	66.6%	67.5%

	New Asmp/Mthd <u>5/1/2024</u>	Old Asmp/Mthd <u>5/1/2024</u>	<u>5/1/2023</u>
D. Actuarial Present Value of Accrued Benefits			
Vested Accrued Benefits			
Inactives	20,268,308	19,712,053	16,787,346
Actives	4,813,351	4,506,479	4,443,564
Member Contributions	<u>2,003,739</u>	<u>2,003,739</u>	<u>2,186,602</u>
Total	27,085,398	26,222,271	23,417,512
Non-vested Accrued Benefits	<u>277,161</u>	<u>261,715</u>	<u>256,335</u>
Total Present Value Accrued Benefits	27,362,559	26,483,986	23,673,847
Funded Ratio (MVA / PVAB)	74.3%	76.7%	77.2%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:			
Plan Amendments	0	0	
Assumption Changes	878,573	0	
Plan Experience	0	2,411,438	
Benefits Paid	0	(1,215,911)	
Interest	0	1,614,612	
Other	<u>0</u>	<u>0</u>	
Total	878,573	2,810,139	

	New Asmp/Mthd	Old Asmp/Mthd	
Valuation Date	5/1/2024	5/1/2024	5/1/2023
Applicable to Fiscal Year Ending	<u>4/30/2026</u>	<u>4/30/2026</u>	<u>4/30/2025</u>
E. Pension Cost			
Normal Cost ¹	\$586,493	\$550,526	\$593,597
% of Total Annual Payroll ¹	28.0	26.3	25.9
Administrative Expenses ¹	17,685	17,727	23,836
% of Total Annual Payroll ¹	0.8	0.8	1.0
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 17 years (as of 5/1/2024) ¹	960,590	872,262	760,328
% of Total Annual Payroll ¹	45.8	41.6	33.2
Total Recommended Contribution	1,564,768	1,440,515	1,377,761
% of Total Annual Payroll ¹	74.6	68.7	60.1
Expected Member Contributions ¹	(198,175)	(198,175)	(216,844)
% of Total Annual Payroll ¹	(9.5)	(9.5)	(9.5)
Expected City Contribution	1,366,593	1,242,340	1,160,917
% of Total Annual Payroll ¹	65.1	59.2	50.6
F. Past Contributions			
Plan Years Ending:	<u>4/30/2024</u>		
Total Recommended Contribution	1,269,583		
City	1,058,347		
Actual Contributions Made:			
Members (excluding buyback)	211,236		
City	<u>1,126,457</u>		
Total	1,337,693		
G. Net Actuarial (Gain)/Loss	1,083,176		

¹ Contributions developed as of 5/1/2024 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>
2024	11,468,469
2025	11,282,001
2026	11,056,530
2030	9,693,630
2034	7,389,161
2037	4,840,743
2041	0

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	4/30/2024	7.20%	5.59%
Year Ended	4/30/2023	5.03%	5.93%
Year Ended	4/30/2022	6.93%	5.58%
Year Ended	4/30/2021	1.82%	5.66%
Year Ended	4/30/2020	4.04%	5.00%

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

		<u>Actual MVA</u>	<u>Actual AVA</u>	<u>Assumed</u>
Year Ended	4/30/2024	10.56%	5.05%	7.00%
Year Ended	4/30/2023	0.67%	3.46%	7.00%
Year Ended	4/30/2022	-5.35%	5.36%	7.00%
Year Ended	4/30/2021	33.27%	7.25%	7.25%
Year Ended	4/30/2020	-7.88%	1.67%	7.25%

DEVELOPMENT OF MAY 1, 2024 AMORTIZATION PAYMENT

(1)	Unfunded Actuarial Accrued Liability as of May 1, 2023	\$9,433,983
(2)	Sponsor Normal Cost developed as of May 1, 2023	337,920
(3)	Expected administrative expenses for the year ended April 30, 2024	22,277
(4)	Expected interest on (1), (2) and (3)	684,813
(5)	Sponsor contributions to the System during the year ended April 30, 2024	1,126,457
(6)	Expected interest on (5)	39,426
(7)	Expected Unfunded Actuarial Accrued Liability as of April 30, 2024, (1)+(2)+(3)+(4)-(5)-(6)	9,313,110
(8)	Change to UAAL due to Assumption/Method Change	1,072,183
(9)	Change to UAAL due to Actuarial (Gain)/Loss	1,083,176
(10)	Unfunded Accrued Liability as of May 1, 2024	11,468,469
(11)	UAAL Subject to Amortization (100% AAL less Actuarial Assets)	11,468,469

<u>Date</u> <u>Established</u>	<u>Years</u> <u>Remaining</u>	<u>5/1/2024</u> <u>Amount</u>	<u>Amortization</u> <u>Amount</u>
5/1/2024	17	11,468,469	899,850

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of May 1, 2023	\$9,433,983
(2) Expected UAAL as of May 1, 2024	9,313,110
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	383,559
Salary Increases	401,563
Active Decrements	(12,998)
Inactive Mortality	76,544
Programming Updates	219,832
Other	<u>14,676</u>
Change in UAAL due to (Gain)/Loss	1,083,176
Change to UAAL due to Assumption/Method Change	<u>1,072,183</u>
(4) Actual UAAL as of May 1, 2024	\$11,468,469

RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of May 1, 2023	\$	1,160,917
(2) Summary of Contribution Impact by component:		
Change in Normal Cost		(43,071)
Change in Assumed Administrative Expense		(6,109)
Investment Return (Actuarial Asset Basis)		32,181
Salary Increases		33,692
New Entrants		-
Active Decrements		(1,091)
Inactive Mortality		6,422
Contributions (More) or Less than Recommended		(5,915)
Increase in Amortization Payment Due to Payroll Growth Assumption		22,810
Change in Expected Member Contributions		18,669
Assumption/Method Change		124,253
Programming Updates		18,444
Other		<u>5,391</u>
Total Change in Contribution		205,676
(3) Contribution Determined as of May 1, 2024		\$1,366,593

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.

	New Asmp/Mthd 5/1/2024	Old Asmp/Mthd 5/1/2024	5/1/2023
Valuation Date	5/1/2024	5/1/2024	5/1/2023
Applicable to Fiscal Year Ending	<u>4/30/2026</u>	<u>4/30/2026</u>	<u>4/30/2025</u>
Actuarial Accrued Liability (PUC)	31,359,621	30,262,663	27,854,787
Actuarial Value of Assets	<u>20,687,049</u>	<u>20,687,049</u>	<u>19,590,384</u>
Unfunded Actuarial Accrued Liability (UAAL)	10,672,572	9,575,614	8,264,403
UAAL Subject to Amortization	7,536,610	6,549,348	5,478,924
Normal Cost ¹	\$677,558	\$643,344	\$719,208
% of Total Annual Payroll ¹	32.3	30.7	31.4
Administrative Expenses ¹	17,685	17,727	23,836
% of Total Annual Payroll ¹	0.8	0.8	1.0
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 16 years (as of 5/1/2024) ¹	659,341	573,962	459,689
% of Total Annual Payroll ¹	31.5	27.4	20.0
Total Required Contribution	1,354,584	1,235,033	1,202,733
% of Total Annual Payroll ¹	64.6	58.9	52.4
Expected Member Contributions ¹	(198,175)	(198,175)	(216,844)
% of Total Annual Payroll ¹	(9.5)	(9.5)	(9.5)
Expected City Contribution	1,156,409	1,036,858	985,889
% of Total Annual Payroll ¹	55.1	49.4	42.9

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 5/1/2024 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
2024	29,803	1,317,751	1,347,554
2025	67,185	1,296,879	1,364,064
2026	135,705	1,311,837	1,447,542
2027	225,409	1,338,931	1,564,340
2028	314,661	1,370,348	1,685,009
2029	411,697	1,387,577	1,799,274
2030	510,914	1,468,226	1,979,140
2031	612,861	1,487,582	2,100,443
2032	704,495	1,505,378	2,209,873
2033	795,026	1,521,642	2,316,668
2034	878,897	1,539,442	2,418,339
2035	957,719	1,559,403	2,517,122
2036	1,055,145	1,573,002	2,628,147
2037	1,151,182	1,584,796	2,735,978
2038	1,240,568	1,594,480	2,835,048
2039	1,338,510	1,601,664	2,940,174
2040	1,434,324	1,605,864	3,040,188
2041	1,525,972	1,606,530	3,132,502
2042	1,636,546	1,603,040	3,239,586
2043	1,762,649	1,594,734	3,357,383
2044	1,872,127	1,580,976	3,453,103
2045	1,969,443	1,561,302	3,530,745
2046	2,065,484	1,535,383	3,600,867
2047	2,193,410	1,503,080	3,696,490
2048	2,310,620	1,464,450	3,775,070
2049	2,422,101	1,419,746	3,841,847
2050	2,541,654	1,369,426	3,911,080
2051	2,643,391	1,314,120	3,957,511
2052	2,729,732	1,254,605	3,984,337
2053	2,806,727	1,191,786	3,998,513
2054	2,872,598	1,126,558	3,999,156
2055	2,931,386	1,059,838	3,991,224
2056	2,983,084	992,512	3,975,596
2057	3,027,440	925,351	3,952,791
2058	3,064,568	859,088	3,923,656
2059	3,093,106	794,347	3,887,453
2060	3,113,448	731,601	3,845,049
2061	3,124,633	671,219	3,795,852
2062	3,126,227	613,433	3,739,660
2063	3,117,191	558,335	3,675,526

ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	6.75% per year compounded annually, net of investment related expenses.
Mortality Rate	<p>Active Lives: PubS-2010 Employee mortality, unadjusted, with generational improvements with the most recent projection scale (currently Scale MP-2021). 20% of active deaths are assumed to be in the line of duty.</p> <p>Inactive Lives: PubS-2010 Healthy Retiree mortality, adjusted by a factor of 1.081 for male retirees and unadjusted for female retirees, with generational improvements with the most recent projection scale (currently Scale MP-2021).</p> <p>Beneficiaries: PubS-2010 Survivor mortality, unadjusted for male beneficiaries and adjusted by a factor of 1.098 for female beneficiaries, with generational improvements with the most recent projection scale (currently Scale MP-2021).</p> <p>Disabled Lives: PubS-2010 Disabled mortality, adjusted by a factor of 1.178 for male disabled members and unadjusted for female disabled members, with generational improvements with the most recent projection scale (currently 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 2021 experience study performed for the Illinois Firefighters' Pension Investment Fund.
Disability Rate	See table later in this section. 80% of the disabilities are assumed to be in the line of duty. This is based on a 2021 experience study performed for the Illinois Firefighters' Pension Investment Fund.
Termination Rate	See table later in this section. This is based on a 2021 experience study performed for the Illinois Firefighters' Pension Investment Fund.
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.

Salary Increases

See table below, inclusive of inflation of 2.50%. This is based on a 2021 experience study performed for the Illinois Firefighters' Pension Investment Fund.

Salary Scale	
Service	Rate
0	12.78%
1	10.77%
2	9.77%
3	8.77%
4	7.76%
5	6.76%
6	5.26%
7	4.76%
8+	4.25%

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. Ultimately, the amortization period will be a 15-year rolling methodology, with a phase into 15 years as follows:

2024	17 Year Amortization
2025	16 Year Amortization
2026 and later	15 Year Amortization

The initial amortization amount is 100% of the Accrued Liability less the Actuarial Value of Assets.

Payroll Growth 2.75% 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	10.00%	20	0.010%	50-51	12%	50-54	3%
25	8.00%	25	0.016%	52-53	15%	55	30%
30	4.00%	30	0.068%	54-55	20%	56-59	20%
35	2.50%	35	0.220%	56-59	20%	60-62	25%
40	1.20%	40	0.420%	60-62	25%	63-64	33%
45+	1.00%	45	0.650%	63-64	33%	65-69	50%
		50	0.900%	65-69	50%	70+	100%
		55	1.240%	70+	100%		
		60	1.580%				

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 of 17 years in the 2024 valuation. This amortization period will ultimately grade down to 15 years in the 2026 valuation, at which point the methodology will maintain a 15-year rolling amortization each year. 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 129.4% on May 1, 2021 to 79.2% on May 1, 2024, 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 63.0%. 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 71.1% on May 1, 2021 to 64.3% on May 1, 2024, due mainly to the unfavorable plan experience and changes in assumptions.
- 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, 2021 to May 1, 2024. The current Net Cash Flow Ratio of 0.5% 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 4.42%, resulting in an LDROM of \$45,630,318. 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

	<u>5/1/2024</u>	<u>5/1/2023</u>	<u>5/1/2022</u>	<u>5/1/2021</u>
<u>Support Ratio</u>				
Total Actives	19	22	22	22
Total Inactives	24	22	21	17
Actives / Inactives	79.2%	100.0%	104.8%	129.4%
 <u>Asset Volatility Ratio</u>				
Market Value of Assets (MVA)	20,318,124	18,277,301	18,103,753	19,054,568
Total Annual Payroll	2,095,985	2,293,427	2,234,192	2,192,738
MVA / Total Annual Payroll	969.4%	796.9%	810.3%	869.0%
 <u>Accrued Liability (AL) Ratio</u>				
Inactive Accrued Liability	20,268,308	16,787,346	15,513,086	12,836,708
Total Accrued Liability	32,155,518	29,024,367	27,665,260	25,096,383
Inactive AL / Total AL	63.0%	57.8%	56.1%	51.1%
 <u>Funded Ratio</u>				
Actuarial Value of Assets (AVA)	20,687,049	19,590,384	18,883,395	17,853,414
Total Accrued Liability	32,155,518	29,024,367	27,665,260	25,096,383
AVA / Total Accrued Liability	64.3%	67.5%	68.3%	71.1%
 <u>Net Cash Flow Ratio</u>				
Net Cash Flow ¹	105,215	52,066	70,570	168,635
Market Value of Assets (MVA)	20,318,124	18,277,301	18,103,753	19,054,568
Ratio	0.5%	0.3%	0.4%	0.9%

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

STATEMENT OF FIDUCIARY NET POSITION
April 30, 2024

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Cash and Cash Equivalents	356,329
Total Cash and Equivalents	356,329
Receivables:	
Prepays	3,303
Total Receivable	3,303
Investments:	
Pooled/Common/Commingled Funds	19,959,317
Total Investments	19,959,317
Total Assets	20,318,949
 <u>LIABILITIES</u>	
Liabilities:	
Payable:	
Accounts Payable	825
Total Liabilities	825
Net Assets:	
Active and Retired Members' Equity	20,318,124
NET POSITION RESTRICTED FOR PENSIONS	20,318,124
TOTAL LIABILITIES AND NET ASSETS	20,318,949

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
 FOR THE YEAR ENDED April 30, 2024
 Market Value Basis

ADDITIONS

Contributions:

Member	211,236
City	1,126,457

Total Contributions 1,337,693

Investment Income:

Net Increase in Fair Value of Investments	1,583,000
Interest & Dividends	372,195
Less Investment Expense ¹	(19,587)

Net Investment Income 1,935,608

Total Additions 3,273,301

DEDUCTIONS

Distributions to Members:

Benefit Payments	1,215,911
------------------	-----------

Total Distributions 1,215,911

Administrative Expenses 16,567

Total Deductions 1,232,478

Net Increase in Net Position 2,040,823

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 18,277,301

End of the Year 20,318,124

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

ACTUARIAL ASSET VALUATION

April 30, 2024

Development of Actuarial Value of Assets

Market Value of Assets, 4/30/2024	20,318,124
(Gains)/Losses Not Yet Recognized	368,925
Actuarial Value of Assets, 4/30/2024	20,687,049
4/30/2024 Limited Actuarial Assets:	20,687,049

Development of Investment Gain/Loss

Market Value of Assets, 4/30/2023	18,277,301
Contributions Less Benefit Payments & Administrative Expenses	105,215
Expected Investment Earnings ¹	1,283,094
Actual Net Investment Earnings	1,935,608
2024 Actuarial Investment Gain/(Loss)	652,514

¹ Expected Investment Earnings = 7.00% x (18,277,301 + 0.5 x 105,215)

Gains/(Losses) Not Yet Recognized

Plan Year Ending	Gain/(Loss)	Amounts Not Yet Recognized by Valuation Year				
		2024	2025	2026	2027	2028
4/30/2021	3,703,478	740,696	0	0	0	0
4/30/2022	(2,357,675)	(943,070)	(471,535)	0	0	0
4/30/2023	(1,147,603)	(688,562)	(459,041)	(229,521)	0	0
4/30/2024	652,514	522,011	391,508	261,006	130,503	0
Total		(368,925)	(539,068)	31,485	130,503	0

Development of Asset Returns

(A) 4/30/2023 Actuarial Assets:	19,590,384
(I) Net Investment Income:	
1. Interest and Dividends	372,195
2. Realized Gains (Losses)	0
3. Change in Actuarial Value	638,842
4. Investment Expenses	(19,587)
Total	991,450
(B) 4/30/2024 Actuarial Assets:	20,687,049
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	5.05%
Market Value of Assets Rate of Return:	10.56%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(383,559)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS
 April 30, 2024
 Actuarial Asset Basis

INCOME		
Contributions:		
Member	211,236	
City	1,126,457	
Total Contributions		1,337,693
Earnings from Investments		
Interest & Dividends	372,195	
Change in Actuarial Value	638,842	
Total Earnings and Investment Gains		1,011,037
EXPENSES		
Administrative Expenses:		
Investment Related ¹	19,587	
Other	16,567	
Total Administrative Expenses		36,154
Distributions to Members:		
Benefit Payments	1,215,911	
Total Distributions		1,215,911
Change in Net Assets for the Year		1,096,665
Net Assets Beginning of the Year		19,590,384
Net Assets End of the Year ²		20,687,049

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

² Net Assets may be limited for actuarial consideration.

STATISTICAL DATA

	<u>5/1/2024</u>	<u>5/1/2023</u>	<u>5/1/2022</u>	<u>5/1/2021</u>
<u>Actives - Tier 1</u>				
Number	9	11	12	14
Average Current Age	47.5	46.5	46.2	46.3
Average Age at Employment	25.6	25.1	25.3	25.2
Average Past Service	21.9	21.4	20.9	21.1
Average Annual Salary	\$122,605	\$116,021	\$112,383	\$107,319
<u>Actives - Tier 2</u>				
Number	10	11	10	8
Average Current Age	37.8	36.0	35.7	36.0
Average Age at Employment	31.9	31.2	31.5	31.8
Average Past Service	5.9	4.8	4.2	4.2
Average Annual Salary	\$99,254	\$92,472	\$88,560	\$86,284
<u>Service Retirees</u>				
Number	14	13	13	11
Average Current Age	64.5	64.6	63.6	64.1
Average Annual Benefit	\$79,256	\$75,081	\$72,704	\$74,797
<u>Beneficiaries</u>				
Number	4	5	4	1
Average Current Age	33.0	45.5	43.4	97.3
Average Annual Benefit	\$44,351	\$38,821	\$26,753	\$16,952
<u>Disability Retirees</u>				
Number	0	0	0	0
Average Current Age	N/A	N/A	N/A	N/A
Average Annual Benefit	N/A	N/A	N/A	N/A
<u>Terminated Vested</u>				
Number	6	4	4	5
Average Current Age	39.8	40.3	39.3	37.9
Average Annual Benefit ¹	\$33,639	\$4,977	\$4,977	\$3,287

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	0	0	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	1	0	0	0	0	0	0	0	0	1
30 - 34	0	1	0	0	0	2	0	0	0	0	0	3
35 - 39	0	0	1	0	0	2	1	0	0	0	0	4
40 - 44	0	0	0	0	0	1	1	0	0	0	0	2
45 - 49	0	0	0	0	0	0	0	1	3	1	0	5
50 - 54	0	0	0	0	0	0	0	0	1	2	0	3
55 - 59	0	0	0	0	0	0	0	0	0	0	0	0
60 - 64	0	0	0	0	0	1	0	0	0	0	0	1
65+	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	2	0	0	6	2	1	4	3	0	19

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 5/1/2023	22
b. Terminations	
i. Vested (partial or full) with deferred benefits	(2)
ii. Non-vested or full lump sum distribution received	0
iii. Transferred service to other fund	0
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	0
d. Disabled	0
e. Retired	<u>(1)</u>
f. Continuing participants	19
g. New entrants	<u>0</u>
h. Total active life participants in valuation	19

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	13	5	0	4	22
Retired	1	0	0	0	1
Vested Deferred	0	0	0	2	2
Death, With Survivor	0	0	0	0	0
Death, No Survivor	0	(1)	0	0	(1)
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	14	4	0	6	24

SUMMARY OF CURRENT PLAN

Article 4 Pension Fund

The Plan is established and administered as prescribed by “Article 4. Firefighters’ 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 Fire Department elected by the Membership, and
- c.) One retired Member of the Fire Department elected by the Membership.

Credited Service

Years and fractional parts of years of service (except as noted below) as a sworn Firefighter employed by the Municipality.

Salary

Annual salary, including longevity, attached to firefighter’s rank, as established by the municipality appropriation ordinance, excluding overtime pay, bonus pay and holiday pay except for the base 8 hours of the 10 pensionable holidays which is included.

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%.

Normal Retirement

Date

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

Tier 2: Age 55 and 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 \$1,159.27 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 \$1,159.27 per month.

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 10 years of Credited Service. Tier 2: Age 50 and 10 years of Credited Service.
Benefit	Tier 1: 1.50% plus 0.10% for each year of service in excess of 10 years, times salary x service (complete years). Tier 2: Normal Retirement Benefit, reduced 6.00% for 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. Seven years of service required for non-service connected disability.
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.

Vesting (Termination)

Vesting Service Requirement	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.
Termination Benefit	Based on the monthly salary attached to the Member's rank at separation from service and equals: Tier 1: 1.50% plus 0.10% for each year of service in excess of 10 years, times salary x service (based on complete years). Tier 2: 2.50% of 4-year final average salary times creditable service.

Contributions

Employee	9.455% of Salary.
Municipality	Remaining amount necessary for payment of Normal (current year's) Cost and amortization of the accrued past service liability.