

CITY OF GENEVA  
FIREFIGHTERS' PENSION FUND

ACTUARIAL VALUATION  
AS OF MAY 1, 2020

CONTRIBUTIONS APPLICABLE TO THE  
PLAN/FISCAL YEAR ENDING APRIL 30, 2022

GASB 67/68 DISCLOSURE INFORMATION  
AS OF APRIL 30, 2020



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS

June 26, 2020

Ms. Rita Kruse  
Finance Manager  
City of Geneva  
22 South First Street  
Geneva, IL 60134

Re: Actuarial Valuation Report (including GASB Statements No. 67 and No. 68) – 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. 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 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.

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.

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.

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.

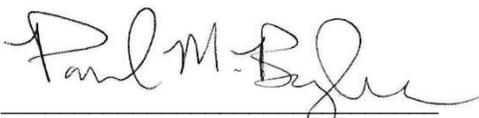
If there are any questions, concerns, or comments about any of the items contained in this report, please contact us at 630-620-0200.

Respectfully submitted,

Foster & Foster, Inc.

By:   
Jason L. Franken, FSA, EA, MAAA

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

By:   
Paul M. Baugher, 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, 2020, 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, 2022.

The contribution requirements, compared with those set forth in the May 1, 2019 actuarial report, are as follows:

Valuation Date Applicable to Fiscal Year Ending	5/1/2020 <u>4/30/2022</u>	5/1/2019 <u>4/30/2021</u>
Total Recommended Contribution	\$1,002,124	\$956,334
% of Projected Annual Payroll	46.5%	47.6%
Member Contributions (Est.)	203,616	189,906
% of Projected Annual Payroll	9.5%	9.5%
City Recommended Contribution	798,508	766,428
% of Projected Annual Payroll	37.0%	38.1%

As you can see, the Total Recommended Contribution shows an increase when compared to the results determined in the May 1, 2019 actuarial valuation report. The increase is attributable to the increase in the normal cost resulting from an increase in active membership, unfavorable plan experience, Tier 2 benefit changes and the natural increase in the amortization payment due to the payroll growth assumption. The increase was largely offset by the net impact of assumption changes reflected in this valuation.

Plan experience was unfavorable overall on the basis of the plan's actuarial assumptions. The primary source of unfavorable experience was an investment return of 1.67% (Actuarial Asset Basis) which fell short of the 7.25% assumption. This loss was offset in part by gains associated with an average salary increase of 4.04% which fell short of the 5.00% assumption and fewer retirements than expected.

## CHANGES SINCE PRIOR VALUATION

### Plan Changes Since Prior Valuation

As a result of Public Act 101-0610, signed into law on December 18, 2019, the following updates were made to the Tier 2 benefits:

- The surviving spouse benefit for non-line of duty death was updated to mirror Tier 1 benefits, whereby Tier 2 surviving spouses will now receive 54% of final average salary, even prior to achieving vesting at 10 years of service.
- The pensionable salary cap increased retroactive to 2011 to alleviate safe harbor concerns, updating the annual adjustment to be CPI-U instead of 50% of CPI-U. The 3% annual growth cap remains in place.
- The final average salary was increased from averaging the highest consecutive 96 of the last 120 months of salary to averaging the highest consecutive 48 of the last 60 months of salary.

### Actuarial Assumption/Method Changes Since Prior Valuation

The following assumptions were changed since the prior valuation:

- Updated salary increase rates to use the table developed in the 2017 experience study prepared by the Department of Insurance.
- Updated payroll growth rate from 5.00% to 4.50%.

There were no method changes since the prior valuation.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Bfts/Assump <u>5/1/2020</u>	Old Bfts/Assump <u>5/1/2020</u>	<u>5/1/2019</u>
A. Participant Data			
Number Included			
Actives	22	22	21
Service Retirees	11	11	11
Beneficiaries	1	1	1
Disability Retirees	0	0	0
Terminated Vested	<u>5</u>	<u>5</u>	<u>5</u>
Total	39	39	38
Total Annual Payroll	\$2,153,532	\$2,153,532	\$2,008,525
Payroll Under Assumed Ret. Age	2,153,532	2,146,914	2,008,525
Annual Rate of Payments to:			
Service Retirees	801,061	801,061	779,983
Beneficiaries	16,952	16,952	16,952
Disability Retirees	0	0	0
Terminated Vested	3,287	3,287	3,287
B. Assets			
Actuarial Value	16,483,533	16,483,533	16,031,027
Market Value	14,150,435	14,150,435	15,169,457
C. Liabilities			
Present Value of Benefits			
Actives			
Retirement Benefits	13,414,846	14,254,981	13,354,334
Disability Benefits	1,559,702	1,587,003	1,545,869
Death Benefits	198,357	170,376	158,139
Vested Benefits	595,958	600,958	584,252
Service Retirees	12,288,527	12,288,527	12,168,685
Beneficiaries	51,939	51,939	55,632
Disability Retirees	0	0	0
Terminated Vested	<u>40,059</u>	<u>40,059</u>	<u>38,070</u>
Total	28,149,388	28,993,843	27,904,981

C. Liabilities - (Continued)	New Bfts/Assump <u>5/1/2020</u>	Old Bfts/Assump <u>5/1/2020</u>	<u>5/1/2019</u>
Present Value of Future Salaries	22,717,554	22,563,806	22,467,283
Present Value of Future Member Contributions	2,147,945	2,133,408	2,124,282
Normal Cost (Retirement)	375,960	395,435	373,617
Normal Cost (Disability)	84,708	85,036	79,494
Normal Cost (Death)	14,390	11,708	10,105
Normal Cost (Vesting)	<u>29,313</u>	<u>30,054</u>	<u>26,610</u>
Total Normal Cost	504,371	522,233	489,826
Present Value of Future Normal Costs	4,966,427	5,067,075	5,056,497
Accrued Liability (Retirement)	9,593,544	10,295,160	9,382,978
Accrued Liability (Disability)	763,620	794,855	758,213
Accrued Liability (Death)	51,080	53,970	51,100
Accrued Liability (Vesting)	394,192	402,258	393,806
Accrued Liability (Inactives)	<u>12,380,525</u>	<u>12,380,525</u>	<u>12,262,387</u>
Total Actuarial Accrued Liability	23,182,961	23,926,768	22,848,484
Unfunded Actuarial Accrued Liability (UAAL)	6,699,428	7,443,235	6,817,457
Funded Ratio (AVA / AL)	71.1%	68.9%	70.2%

	New Bfts/Assump <u>5/1/2020</u>	Old Bfts/Assump <u>5/1/2020</u>	<u>5/1/2019</u>
D. Actuarial Present Value of Accrued Benefits			
Vested Accrued Benefits			
Inactives	12,380,525	12,380,525	12,262,387
Actives	3,617,516	3,604,044	3,014,719
Member Contributions	<u>2,136,765</u>	<u>2,136,765</u>	<u>1,933,865</u>
Total	18,134,806	18,121,334	17,210,971
Non-vested Accrued Benefits	<u>456,520</u>	<u>456,375</u>	<u>458,263</u>
Total Present Value Accrued Benefits	18,591,326	18,577,709	17,669,234
Funded Ratio (MVA / PVAB)	76.1%	76.2%	85.9%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:			
Plan Amendments	15,076	0	
Assumption Changes	(1,459)	0	
New Accrued Benefits	0	460,560	
Benefits Paid	0	(803,961)	
Interest	0	1,251,876	
Other	<u>0</u>	<u>0</u>	
Total	13,617	908,475	

	New Bfts/Assump	Old Bfts/Assump	
Valuation Date	5/1/2020	5/1/2020	5/1/2019
Applicable to Fiscal Year Ending	<u>4/30/2022</u>	<u>4/30/2022</u>	<u>4/30/2021</u>

#### E. Pension Cost

Normal Cost <sup>1</sup>	\$540,938	\$560,095	\$525,338
% of Total Annual Payroll <sup>1</sup>	25.1	26.1	26.2
Administrative Expenses <sup>1</sup>	22,991	22,991	19,506
% of Total Annual Payroll <sup>1</sup>	1.1	1.1	1.0
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 21 years (as of 5/1/2020) <sup>1</sup>	438,195	466,065	411,490
% of Total Annual Payroll <sup>1</sup>	20.3	21.7	20.4
Total Recommended Contribution	1,002,124	1,049,151	956,334
% of Total Annual Payroll <sup>1</sup>	46.5	48.9	47.6
Expected Member Contributions <sup>1</sup>	203,616	202,991	189,906
% of Total Annual Payroll <sup>1</sup>	9.5	9.5	9.5
Expected City Contribution	798,508	846,160	766,428
% of Total Annual Payroll <sup>1</sup>	37.0	39.4	38.1

#### F. Past Contributions

Plan Years Ending:	<u>4/30/2020</u>
Total Recommended Contribution	897,149
City	694,249
Actual Contributions Made:	
Members (excluding buyback)	202,900
City	<u>805,975</u>
Total	1,008,875

G. Net Actuarial (Gain)/Loss 626,194

<sup>1</sup> Contributions developed as of 5/1/2020 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>
2020	6,699,428
2021	6,746,942
2022	6,778,182
2027	6,610,941
2032	5,633,264
2036	3,924,935
2041	0

I. (i) 3 Year Comparison of Actual and Assumed Salary Increases

		<u>Actual</u>	<u>Assumed</u>
Year Ended	4/30/2020	4.04%	5.00%
Year Ended	4/30/2019	4.62%	5.00%
Year Ended	4/30/2018	4.73%	5.00%

(ii) 3 Year Comparison of Investment Return on Actuarial Value

		<u>Actual</u>	<u>Assumed</u>
Year Ended	4/30/2020	1.67%	7.25%
Year Ended	4/30/2019	4.11%	7.25%
Year Ended	4/30/2018	4.87%	7.25%

DEVELOPMENT OF MAY 1, 2020 AMORTIZATION PAYMENT

(1) Unfunded Actuarial Accrued Liability as of May 1, 2019	\$6,817,457
(2) Sponsor Normal Cost developed as of May 1, 2019	299,920
(3) Expected administrative expenses for the year ended April 30, 2020	18,187
(4) Expected interest on (1), (2) and (3)	516,669
(5) Sponsor contributions to the System during the year ended April 30, 2020	805,975
(6) Expected interest on (5)	29,217
(7) Expected Unfunded Actuarial Accrued Liability as of April 30, 2020, (1)+(2)+(3)+(4)-(5)-(6)	6,817,041
(8) Change to UAAL due to Benefits/Assumption Change	(743,807)
(9) Change to UAAL due to Actuarial (Gain)/Loss	626,194
(10) Unfunded Accrued Liability as of May 1, 2020	6,699,428
(11) UAAL Subject to Amortization (100% AAL less Actuarial Assets)	6,699,428

<u>Date</u> <u>Established</u>	<u>Years</u> <u>Remaining</u>	<u>5/1/2020</u> <u>Amount</u>	<u>Amortization</u> <u>Amount</u>
5/1/2020	21	6,699,428	408,573

## DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of May 1, 2019	\$6,817,457
(2) Expected UAAL as of May 1, 2020	6,817,041
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	899,871
Salary Increases	(293,053)
Active Decrements	(74,280)
Inactive Mortality	67,877
Other	<u>25,779</u>
Change in UAAL due to (Gain)/Loss	626,194
Change to UAAL due to Benefits Change	76,537
Change to UAAL due to Assumption Change	<u>(820,344)</u>
(4) Actual UAAL as of May 1, 2020	\$6,699,428

RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of May 1, 2019	\$ 766,428
(2) Summary of Contribution Impact by component:	
Change in Normal Cost	34,757
Change in Assumed Administrative Expense	3,485
Investment Return (Actuarial Asset Basis)	56,346
Salary Increases	(18,350)
New Entrants	-
Active Decrements	(4,651)
Inactive Mortality	4,250
Contributions (More) or Less than Recommended	(7,249)
Increase in Amortization Payment Due to Payroll Growth Assumption	20,575
Change in Expected Member Contributions	(13,085)
Benefits Change	70,062
Assumption Change	(117,714)
Other	<u>3,654</u>
Total Change in Contribution	32,080
(3) Contribution Determined as of May 1, 2020	\$798,508

## 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 Bfts/Assump 5/1/2020	Old Bfts/Assump 5/1/2020	5/1/2019
Applicable to Fiscal Year Ending	<u>4/30/2022</u>	<u>4/30/2022</u>	<u>4/30/2021</u>
Actuarial Accrued Liability (PUC)	22,283,730	23,046,987	21,973,083
Actuarial Value of Assets	<u>16,483,533</u>	<u>16,483,533</u>	<u>16,031,027</u>
Unfunded Actuarial Accrued Liability (UAAL)	5,800,197	6,563,454	5,942,056
UAAL Subject to Amortization	3,571,824	4,258,755	3,744,748
Normal Cost <sup>1</sup>	\$614,477	\$634,657	\$605,048
% of Total Annual Payroll <sup>1</sup>	28.5	29.6	30.1
Administrative Expenses <sup>1</sup>	22,991	22,991	19,506
% of Total Annual Payroll <sup>1</sup>	1.1	1.1	1.0
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 20 years (as of 5/1/2020) <sup>1</sup>	242,419	277,259	234,481
% of Total Annual Payroll <sup>1</sup>	11.3	12.8	11.7
Total Required Contribution	879,887	934,907	859,035
% of Total Annual Payroll <sup>1</sup>	40.9	43.5	42.8
Expected Member Contributions <sup>1</sup>	203,616	202,991	189,906
% of Total Annual Payroll <sup>1</sup>	9.5	9.5	9.5
Expected City Contribution	676,271	731,916	669,129
% of Total Annual Payroll <sup>1</sup>	31.4	34.0	33.3

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.

<sup>1</sup> Contributions developed as of 5/1/2020 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
2020	35,759	822,741	858,500
2021	69,462	828,125	897,587
2022	112,908	855,661	968,569
2023	159,643	874,348	1,033,991
2024	218,927	893,016	1,111,943
2025	282,012	911,500	1,193,512
2026	370,794	929,616	1,300,410
2027	484,620	947,163	1,431,783
2028	611,146	963,933	1,575,079
2029	728,834	982,918	1,711,752
2030	856,012	997,661	1,853,673
2031	982,110	1,011,155	1,993,265
2032	1,108,374	1,023,308	2,131,682
2033	1,226,052	1,034,038	2,260,090
2034	1,338,056	1,043,246	2,381,302
2035	1,446,200	1,050,782	2,496,982
2036	1,578,912	1,056,453	2,635,365
2037	1,691,187	1,060,014	2,751,201
2038	1,800,275	1,061,143	2,861,418
2039	1,922,917	1,059,455	2,982,372
2040	2,028,586	1,054,506	3,083,092
2041	2,129,135	1,045,814	3,174,949
2042	2,245,075	1,032,860	3,277,935
2043	2,372,064	1,015,138	3,387,202
2044	2,473,926	992,190	3,466,116
2045	2,568,089	963,732	3,531,821
2046	2,664,493	929,681	3,594,174
2047	2,807,309	890,148	3,697,457
2048	2,902,376	845,449	3,747,825
2049	2,988,361	796,103	3,784,464
2050	3,090,777	742,805	3,833,582
2051	3,165,826	686,436	3,852,262
2052	3,231,563	628,032	3,859,595
2053	3,287,109	568,680	3,855,789
2054	3,331,094	509,477	3,840,571
2055	3,367,513	451,480	3,818,993
2056	3,393,164	395,636	3,788,800
2057	3,409,600	342,712	3,752,312
2058	3,414,181	293,317	3,707,498
2059	3,406,123	247,940	3,654,063

## ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	7.25% 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-2019. 20% 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-2019.</p> <p><b><i>Beneficiaries:</i></b> PubS-2010 Survivor mortality, projected 5 years past the valuation date with Scale MP-2019.</p> <p><b><i>Disabled Lives:</i></b> PubS-2010 Disabled mortality, projected 5 years past the valuation date with Scale MP-2019.</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. 80% 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 (previously 5.00%). This is based on a 2017 experience study performed for the State of Illinois Department of Insurance.

Salary Scale	
Service	Rate
0	12.50%
1	12.00%
2	10.00%
3	8.50%
4	7.50%
5	6.00%
6	4.50%
7-26	4.00%
27-30	3.75%
31+	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.

Funding Policy Amortization Method

The UAAL is amortized according to a Level Percentage of Payroll method over a period ending in 2041. The initial amortization amount is 100% of the Accrued Liability less the Actuarial Value of Assets.

Payroll Growth

4.50% per year (previously 5.00%).

Administrative Expenses

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

Decrement Tables

% Terminating During the Year		% Becoming Disabled During the Year		% Retiring During the Year (Tier 1)		% Retiring During the Year (Tier 2)	
Age	Rate	Age	Rate	Age	Rate	Age	Rate
20	7.00%	20	0.010%	50-51	10%	50-54	3%
25	5.80%	25	0.016%	52-53	12%	55	30%
30	3.50%	30	0.068%	54-55	15%	56-59	20%
35	1.75%	35	0.220%	56-59	20%	60-62	25%
40	1.10%	40	0.420%	60-62	25%	63-64	33%
45	1.00%	45	0.650%	63-64	33%	65-69	50%
50	1.00%	50	0.900%	65-69	50%	70+	100%
55+	0.00%	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.

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

Unfunded Accrued Liability is a liability which arises when a pension plan is initially established or improved and such establishment or improvement is applicable to all years of past service.

Total Recommended Contribution is equal to the Normal Cost plus an amount sufficient to amortize the Unfunded Accrued Liability over a period ending in 2041. The recommended amount is adjusted for interest according to the timing of contributions during the year.

Entry Age Normal Cost Method - Under this method, the normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation.

- (a) The normal cost accrual rate equals:
  - (i) the present value of future benefits for the participant, determined as of the participant's entry age, divided by
  - (ii) the present value of the compensation expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.
- (b) In calculating the present value of future compensation, the salary scale is applied both retrospectively and prospectively to estimate compensation in years prior to and subsequent to the valuation year based on the compensation used for the valuation.
- (c) The accrued liability is the sum of the individual accrued liabilities for all participants and beneficiaries. A participant's accrued liability equals the present value, at the participant's attained age, of future benefits less the present value at the participant's attained age of the individual normal costs payable in the future. A beneficiary's accrued liability equals the present value, at the beneficiary's attained age, of future benefits. The unfunded accrued liability equals the total accrued liability less the actuarial value of assets.
- (d) Under this method, the entry age used for each active participant is the participant's age at the time he or she would have commenced participation if the plan had always been in existence under current terms, or the age as of which he or she first earns service credits for purposes of benefit accrual under the current terms of the plan.

## DISCUSSION OF RISK

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined under various assumption scenarios. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- Payroll Growth: The plan's payroll growth assumption, if one is used, causes a predictable annual increase in the plan's amortization payment in order to produce an amortization payment that remains constant as a percentage of payroll if all assumptions are realized. If payroll does not increase according to the plan's payroll growth assumption, the plan's amortization payment can increase significantly as a percentage of payroll even if all assumptions other than the payroll growth assumption are realized.
- Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

- **Contribution Risk:** This risk results from the potential that actual employer contributions may deviate from actuarially determined contributions, which are determined in accordance with the Board's funding policy. The funding policy is intended to result in contribution requirements that if paid when due, will result in a reasonable expectation that assets will accumulate to be sufficient to pay plan benefits when due. Contribution deficits, particularly large deficits and those that occur repeatedly, increase future contribution requirements and put the plan at risk for not being able to pay plan benefits when due.

### Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature plans with a substantial inactive liability. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the plan, we have provided some relevant metrics in the table following titled "Plan Maturity Measures and Other Risk Metrics". Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has decreased from 181.8% on May 1, 2017 to 129.4% on May 1, 2020, 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 53.4%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors can be made up over a longer time horizon than would be needed for a more mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has decreased from 75.1% on May 1, 2017 to 71.1% on May 1, 2020, due mainly to unfavorable plan experience.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Market Value of Assets, increased from 0.2% on May 1, 2017 to 1.3% on May 1, 2020. The current Net Cash Flow Ratio of 1.3% 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>5/1/2017</u>	<u>5/1/2018</u>	<u>5/1/2019</u>	<u>5/1/2020</u>
<u>Support Ratio</u>				
Total Actives	20	20	21	22
Total Inactives	11	16	17	17
Actives / Inactives	181.8%	125.0%	123.5%	129.4%
 <u>Asset Volatility Ratio</u>				
Market Value of Assets (MVA)	14,111,592	15,085,968	15,169,457	14,150,435
Total Annual Payroll	1,886,849	1,861,742	2,008,525	2,153,532
MVA / Total Annual Payroll	747.9%	810.3%	755.3%	657.1%
 <u>Accrued Liability (AL) Ratio</u>				
Inactive Accrued Liability	8,616,038	11,806,140	12,262,387	12,380,525
Total Accrued Liability	19,713,705	21,341,633	22,848,484	23,182,961
Inactive AL / Total AL	43.7%	55.3%	53.7%	53.4%
 <u>Funded Ratio</u>				
Actuarial Value of Assets (AVA)	14,811,059	15,445,220	16,031,027	16,483,533
Total Accrued Liability	19,713,705	21,341,633	22,848,484	23,182,961
AVA / Total Accrued Liability	75.1%	72.4%	70.2%	71.1%
 <u>Net Cash Flow Ratio</u>				
Net Cash Flow <sup>1</sup>	24,527	(84,473)	(48,414)	183,477
Market Value of Assets (MVA)	14,111,592	15,085,968	15,169,457	14,150,435
Ratio	0.2%	-0.6%	-0.3%	1.3%

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

STATEMENT OF FIDUCIARY NET POSITION  
April 30, 2020

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Money Market	106,536
Cash and Cash Equivalents	334,430
Total Cash and Equivalents	440,966
Receivables:	
Prepays	4,469
Accrued Past Due Interest	36,702
Total Receivable	41,171
Investments:	
Fixed Income	5,510,147
Mutual Funds	8,159,320
Total Investments	13,669,467
Total Assets	14,151,604
 <u>LIABILITIES</u>	
Liabilities:	
Payable:	
Expenses	1,169
Total Liabilities	1,169
Net Assets:	
Active and Retired Members' Equity	14,150,435
NET POSITION RESTRICTED FOR PENSIONS	14,150,435
TOTAL LIABILITIES AND NET ASSETS	14,151,604

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
 FOR THE YEAR ENDED April 30, 2020  
 Market Value Basis

ADDITIONS

Contributions:

Member	202,900
City	805,975

Total Contributions 1,008,875

Investment Income:

Net Increase in Fair Value of Investments	(1,642,601)
Interest & Dividends	471,346
Less Investment Expense <sup>1</sup>	(31,244)

Net Investment Income (1,202,499)

Total Additions (193,624)

DEDUCTIONS

Distributions to Members:

Benefit Payments	803,961
Refund of Contributions/Transfers	0

Total Distributions 803,961

Administrative Expenses 21,437

Total Deductions 825,398

Net Increase in Net Position (1,019,022)

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 15,169,457

End of the Year 14,150,435

<sup>1</sup> Investment Related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION

April 30, 2020

Actuarial Assets for funding purposes are developed by recognizing the total actuarial investment gain or loss for each Plan Year over a five 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.

Plan Year Ending	Gain/(Loss)	Gains/(Losses) Not Yet Recognized				
		Amounts Not Yet Recognized by Valuation Year				
		2020	2021	2022	2023	2024
4/30/2017	372,842	74,568	0	0	0	0
4/30/2018	38,821	15,528	7,764	0	0	0
4/30/2019	(960,075)	(576,045)	(384,030)	(192,015)	0	0
4/30/2020	(2,308,936)	(1,847,149)	(1,385,362)	(923,574)	(461,787)	0
Total		(2,333,098)	(1,761,628)	(1,115,589)	(461,787)	0

Development of Investment Gain/Loss

Market Value of Assets, 4/30/2019	15,169,457
Contributions Less Benefit Payments & Administrative Expenses	183,477
Expected Investment Earnings <sup>1</sup>	1,106,437
Actual Net Investment Earnings	<u>(1,202,499)</u>
2020 Actuarial Investment Gain/(Loss)	<u>(2,308,936)</u>

<sup>1</sup> Expected Investment Earnings = 7.25% x (15,169,457 + 0.5 x 183,477)

Development of Actuarial Value of Assets

Market Value of Assets, 4/30/2020	14,150,435
(Gains)/Losses Not Yet Recognized	<u>2,333,098</u>
Actuarial Value of Assets, 4/30/2020	16,483,533
(A) 4/30/2019 Actuarial Assets:	16,031,027
(I) Net Investment Income:	
1. Interest and Dividends	471,346
2. Realized Gains (Losses)	0
3. Change in Actuarial Value	(171,073)
4. Investment Expenses	<u>(31,244)</u>
Total	269,029
(B) 4/30/2020 Actuarial Assets:	16,483,533
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	1.67%
Market Value of Assets Rate of Return:	-7.88%
4/30/2020 Limited Actuarial Assets:	16,483,533
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(899,871)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS  
 April 30, 2020  
 Actuarial Asset Basis

INCOME		
Contributions:		
Member	202,900	
City	805,975	
Total Contributions		1,008,875
Earnings from Investments		
Interest & Dividends	471,346	
Change in Actuarial Value	(171,073)	
Total Earnings and Investment Gains		300,273
EXPENSES		
Administrative Expenses:		
Investment Related <sup>1</sup>	31,244	
Other	21,437	
Total Administrative Expenses		52,681
Distributions to Members:		
Benefit Payments	803,961	
Refund of Contributions/Transfers	0	
Total Distributions		803,961
Change in Net Assets for the Year		452,506
Net Assets Beginning of the Year		16,031,027
Net Assets End of the Year <sup>2</sup>		16,483,533

<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 <sup>1</sup>

	<u>5/1/2017</u>	<u>5/1/2018</u>	<u>5/1/2019</u>	<u>5/1/2020</u>
<u>Actives - Tier 1</u>				
Number	16	14	14	14
Average Current Age	N/A	43.3	44.3	45.3
Average Age at Employment	N/A	25.2	25.2	25.2
Average Past Service	N/A	18.1	19.1	20.1
Average Annual Salary	N/A	\$99,908	\$103,939	\$106,606
<u>Actives - Tier 2</u>				
Number	4	6	7	8
Average Current Age	N/A	34.4	35.4	35.0
Average Age at Employment	N/A	32.4	32.9	31.8
Average Past Service	N/A	2.0	2.5	3.2
Average Annual Salary	N/A	\$77,172	\$79,055	\$82,631
<u>Service Retirees</u>				
Number	9	11	11	11
Average Current Age	N/A	61.1	62.1	63.1
Average Annual Benefit	\$64,532	\$68,833	\$70,908	\$72,824
<u>Beneficiaries</u>				
Number	1	1	1	1
Average Current Age	N/A	94.3	95.3	96.3
Average Annual Benefit	\$16,952	\$16,952	\$16,952	\$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	1	4	5	5
Average Current Age	N/A	38.4	35.9	36.9
Average Annual Benefit <sup>2</sup>	\$3,287	\$3,287	\$3,287	\$3,287

<sup>1</sup> Foster & Foster does not have enough historical data to include complete data prior to 5/1/2018. We will add historical data going forward.

<sup>2</sup> Average Annual Benefit for Terminated Vested members reflects the benefit for members entitled to a future annual benefit from the plan.

AGE AND SERVICE DISTRIBUTION

PAST SERVICE

AGE	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+	Total
15 - 19	0	0	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0	0	0
25 - 29	1	1	0	1	0	0	0	0	0	0	0	3
30 - 34	0	1	0	0	1	1	0	0	0	0	0	3
35 - 39	0	0	1	0	0	1	0	0	0	0	0	2
40 - 44	0	0	0	0	0	0	1	4	1	0	0	6
45 - 49	0	0	0	0	0	0	1	0	4	0	0	5
50 - 54	0	0	0	0	0	0	0	0	0	1	0	1
55 - 59	0	0	0	1	0	0	0	0	0	0	1	2
60 - 64	0	0	0	0	0	0	0	0	0	0	0	0
65+	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	1	2	1	2	2	4	5	1	1	22

## VALUATION PARTICIPANT RECONCILIATION

### 1. Active lives

a. Number in prior valuation 5/1/2019	21
b. Terminations	
i. Vested (partial or full) with deferred benefits	0
ii. Non-vested or full lump sum distribution received	0
iii. Transferred service to other fund	0
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	0
d. Disabled	0
e. Retired	<u>0</u>
f. Continuing participants	21
g. New entrants	<u>1</u>
h. Total active life participants in valuation	22

### 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	11	1	0	5	17
Retired	0	0	0	0	0
Vested Deferred	0	0	0	0	0
Death, With Survivor	0	0	0	0	0
Death, No Survivor	0	0	0	0	0
Disabled	0	0	0	0	0
Refund of Contributions	0	0	0	0	0
Rehires	0	0	0	0	0
Expired Annuities	0	0	0	0	0
Data Corrections	0	0	0	0	0
Hired/Termed in Same Year	0	0	0	0	0
b. Number current valuation	11	1	0	5	17

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	<b>Tier 1:</b> Age 60 and 10 years of Credited Service. <b>Tier 2:</b> Age 50 and 10 years of Credited Service.
Benefit	<b>Tier 1:</b> 1.50% plus 0.10% for each year of service in excess of 10 years, times salary x service (complete years). <b>Tier 2:</b> 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:  <b>Tier 1:</b> 1.50% plus 0.10% for each year of service in excess of 10 years, times salary x service (based on complete years).  <b>Tier 2:</b> 2.50% of 8-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.

SUMMARY OF PARTICIPANT DATA

Plan Membership:

	<u>5/1/2020</u>	<u>5/1/2019</u>
Inactive Plan Members or Beneficiaries Currently Receiving Benefits	12	12
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	5	5
Active Plan Members	<u>22</u>	<u>21</u>
Total	39	38
Covered Payroll	\$2,153,532	\$2,008,525

SCHEDULE OF CHANGES IN NET PENSION LIABILITY  
PLAN AND CITY REPORTING

GASB 68 Reporting Period Ending	04/30/2020	04/30/2019
Measurement Date	<u>04/30/2020</u>	<u>04/30/2019</u>
Total Pension Liability		
Service Cost	490,887	480,915
Interest	1,647,751	1,541,244
Changes of Benefit Terms	72,922	-
Differences Between Expected and Actual Experience	(276,477)	(26,930)
Changes of Assumptions	(795,402)	260,873
Benefit Payments, Including Refunds of Employee Contributions	<u>(803,961)</u>	<u>(790,058)</u>
Net Change in Total Pension Liability	335,720	1,466,044
Total Pension Liability - Beginning	<u>22,638,698</u>	<u>21,172,654</u>
Total Pension Liability - Ending (a)	\$ 22,974,418	\$ 22,638,698
Plan Fiduciary Net Position		
Contributions - Employer	805,975	569,824
Contributions - Employee	202,900	190,007
Net Investment Income	(1,202,499)	131,902
Benefit Payments, Including Refunds of Employee Contributions	(803,961)	(790,058)
Administrative Expense	<u>(21,437)</u>	<u>(18,187)</u>
Net Change in Plan Fiduciary Net Position	(1,019,022)	83,488
Plan Fiduciary Net Position - Beginning	<u>15,169,457</u>	<u>15,085,969</u>
Plan Fiduciary Net Position - Ending (b)	\$ 14,150,435	\$ 15,169,457
Net Pension Liability - Ending (a) - (b)	\$ 8,823,983	\$ 7,469,241
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	61.59%	67.01%
Covered Payroll	\$ 2,153,532	\$ 2,008,525
Net Pension Liability as a Percentage of Covered Payroll	409.74%	371.88%

STATEMENT OF CHANGES IN NET PENSION LIABILITY  
CITY REPORTING

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a)-(b)
Balances at April 30, 2019	\$ 22,638,698	\$ 15,169,457	\$ 7,469,241
Changes for a Year:			
Service Cost	490,887	-	490,887
Interest	1,647,751	-	1,647,751
Differences Between Expected and Actual Experience	(276,477)	-	(276,477)
Changes of Assumptions	(795,402)	-	(795,402)
Changes of Benefit Terms	72,922	-	72,922
Contributions - Employer	-	805,975	(805,975)
Contributions - Employee	-	202,900	(202,900)
Net Investment Income	-	(1,202,499)	1,202,499
Benefit Payments, Including Refunds of Employee Contributions	(803,961)	(803,961)	-
Administrative Expense	-	(21,437)	21,437
Net Changes	335,720	(1,019,022)	1,354,742
Balances at April 30, 2020	\$ 22,974,418	\$ 14,150,435	\$ 8,823,983

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

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.25%	7.25%	8.25%
Sponsor's Net Pension Liability	\$ 12,382,109	\$ 8,823,983	\$ 5,932,951

*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 APRIL 30, 2020

For the year ended April 30, 2020, the Sponsor will recognize a pension expense of \$1,808,959. On April 30, 2020, 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	167,792	486,597
Changes of assumptions	328,998	695,975
Net difference between projected and actual earnings on pension plan investments	2,333,098	0
Total	\$2,829,888	\$1,182,572

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 April 30:

2021	\$534,723
2022	\$524,654
2023	\$532,415
2024	\$398,993
2025	(\$104,742)
Thereafter	(\$238,727)

COMPONENTS OF PENSION EXPENSE  
YEAR-END APRIL 30, 2020

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$ 7,469,241	\$ 529,520	\$ 1,825,078	
Total Pension Liability Factors:				
Service Cost	490,887	-	-	490,887
Interest	1,647,751	-	-	1,647,751
Changes in Benefit Terms	72,922	-	-	72,922
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions				
Current Year Amortization	-	(146,972)	(41,948)	(105,024)
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs				
Current Year Amortization	-	(99,427)	(252,339)	152,912
Benefit Payments, Including Refunds of Employee Contributions				
	(803,961)	-	-	-
Net Change	335,720	825,480	(294,287)	2,259,448
Plan Fiduciary Net Position:				
Contributions - Employer	805,975	-	-	-
Contributions - Employee	202,900	-	-	(202,900)
Projected Net Investment Income	1,106,437	-	-	(1,106,437)
Difference Between Projected and Actual Earnings on Pension Plan Investments				
Current Year Amortization	-	(82,333)	(919,744)	837,411
Benefit Payments, Including Refunds of Employee Contributions				
	(803,961)	-	-	-
Administrative Expenses	(21,437)	-	-	21,437
Net Change	(1,019,022)	(82,333)	1,389,192	(450,489)
Ending Balance	\$ 8,823,983	\$ 1,272,667	\$ 2,919,983	\$ 1,808,959

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)	2020	2021	2022	2023	2024	Thereafter
2020	\$ (276,477)	8	\$ (34,557)	\$ (34,560)	\$ (34,560)	\$ (34,560)	\$ (34,560)	\$ (103,680)
2019	\$ (26,930)	8	\$ (3,366)	\$ (3,366)	\$ (3,366)	\$ (3,366)	\$ (3,366)	\$ (6,732)
2018	\$ 293,635	7	\$ 41,948	\$ 41,948	\$ 41,948	\$ 41,948	\$ 41,948	\$ -
2017	\$ (475,876)	7	\$ (67,982)	\$ (67,982)	\$ (67,982)	\$ (67,984)	\$ -	\$ -
2016	\$ (225,868)	5.5	\$ (41,067)	\$ (20,533)	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			(105,024)	(84,493)	(63,960)	(63,962)	4,022	(110,412)

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)	2020	2021	2022	2023	2024	Thereafter
2020	\$ (795,402)	8	\$ (99,427)	\$ (99,425)	\$ (99,425)	\$ (99,425)	\$ (99,425)	\$ (298,275)
2019	\$ 260,873	8	\$ 32,609	\$ 32,609	\$ 32,609	\$ 32,609	\$ 32,609	\$ 65,218
2017	\$ 65,743	7	\$ 9,392	\$ 9,392	\$ 9,392	\$ 9,391	\$ -	\$ -
2016	\$ 1,156,859	5.5	\$ 210,338	\$ 105,169	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 152,912	\$ 47,745	\$ (57,424)	\$ (57,425)	\$ (66,816)	\$ (233,057)

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)	2020	2021	2022	2023	2024	Thereafter		
2020	\$ 2,308,936	5	\$ 461,788	\$ 461,787	\$ 461,787	\$ 461,787	\$ 461,787	\$ 461,787	\$ -	\$ -
2019	\$ 960,075	5	\$ 192,015	\$ 192,015	\$ 192,015	\$ 192,015	\$ -	\$ -	\$ -	\$ -
2018	\$ (38,821)	5	\$ (7,764)	\$ (7,764)	\$ (7,764)	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ (372,843)	5	\$ (74,569)	\$ (74,567)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ 1,329,701	5	\$ 265,941	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 837,411	\$ 571,471	\$ 646,038	\$ 653,802	\$ 461,787	\$ -	\$ -	\$ -

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
04/30/2020	694,249	805,975	(111,726)	2,153,532	37.43%
04/30/2019	543,009	569,824	(26,815)	2,008,525	28.37%

The following assumptions were used to determine the Actuarially Determined Contribution for the plan year ending April 30, 2020:

Calculation Timing	The Actuarially Determined Contribution is calculated using a May 1, 2018 valuation date.
Interest Rate	7.25%
Mortality Rate	<p><b>Healthy Lives:</b>                      RP-2014 Mortality Table (BCHA) projected to the valuation date using improvement scale MP-2016.                      5% of active deaths are assumed to be in the line of duty.</p> <p><b>Disabled Lives:</b>                      RP-2014 Mortality Table (BCHA) projected to the valuation date using improvement scale MP-2016.</p>
Assumptions	All other assumptions and methods used for determining the Actuarially Determined Contribution can be found in the May 1, 2018 Actuarial Valuation Report for the City of Geneva Firefighters' Pension Fund prepared by Foster & Foster.

SCHEDULE OF INVESTMENT RETURNS

For the year ended April 30, 2020, the annual money-weighted return on Pension Plan investments, net of pension plan investment expense, was -7.73 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
04/30/2020	-7.73%
04/30/2019	1.02%

ASSUMPTIONS – GASB PENSION LIABILITY AND PENSION EXPENSE

The GASB 67/GASB 68 Pension Liability as of April 30, 2020 and GASB 68 Pension Expense were determined as follows:

Valuation Date	May 1, 2020
Measurement Date	April 30, 2020
GASB 68 Expense Measurement Period	May 1, 2019 - April 30, 2020
Reporting Period	May 1, 2019 - April 30, 2020
Discount Rate	7.25%
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 May 1, 2020 for the City of Geneva Firefighters' 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:

- Updated salary increase rates to use the table developed in the 2017 experience study prepared by the Department of Insurance.

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 April 30, 2020, as provided by AHC Advisors, are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
T Bill	1.00%	0.40%
Intermediate Govt	36.00%	1.70%
Large	6.00%	4.45%
Large Value	7.00%	4.70%
Mid Value	7.00%	5.20%
Small	7.00%	5.60%
Small Value	7.00%	6.50%
International Developed	6.00%	4.45%
International Value	6.00%	6.60%
International Small	6.00%	7.45%
Emerging Markets	8.00%	7.50%
REIT	3.00%	3.90%
Total	100.00%	

Inflation rate of investment advisor 3.00%

*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 7.25 percent.

The projection of cash flows used to determine the Discount Rate assumed that Plan Member contributions will be made at the current contribution rate and that Sponsor contributions will be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the Long-Term Expected Rate of Return on Pension Plan investments (7.25 percent) was applied to all periods of projected benefit payments to determine the Total Pension Liability.

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25 percent. The municipal bond rate is 2.85 percent (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 resulting single discount rate is 7.25 percent.

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.
- c.) One retired member of the Fire 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 May 1, 2020 for the City of Geneva Firefighters' Pension Fund prepared by Foster & Foster.

The valuation reflects benefit changes noted on the page “Changes Since Prior Valuation”.