

CITY OF GENEVA
FIREFIGHTERS' PENSION FUND

ACTUARIAL VALUATION
AS OF MAY 1, 2018

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING APRIL 30, 2020

GASB 67/68 DISCLOSURE INFORMATION
AS OF APRIL 30, 2018

August 8, 2018

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

Re: Actuarial Valuation Report (including GASB Statements No. 67 and No. 68) – Geneva Firefighters’ Pension Fund

Dear Ms. Kruse:

We are pleased to present to the City this report of the annual actuarial valuation of the 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 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. Due to an actuarial transition, we were not able to perform a full review of the actuarial assumptions prior to the completion of this report and have relied on many of the assumptions used by the prior actuary. A full review of every assumption will be completed prior to next year’s valuation. 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.

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 is familiar with the immediate and long-term aspects of pension valuations and meets 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 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, 2018, 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, 2020.

The contribution requirements, compared with those set forth in the May 1, 2017 actuarial report as issued by Timothy W. Sharpe, are as follows:

Valuation Date Applicable to Fiscal Year Ending	5/1/2018 <u>4/30/2020</u>	5/1/2017 <u>4/30/2019</u> ¹
Total Recommended Contribution	\$870,277	\$734,344
% of Projected Annual Payroll	46.7%	38.9%
Member Contributions (Est.)	176,028	191,335
% of Projected Annual Payroll	9.5%	10.1%
City Recommended Contribution	694,249	543,009
% of Projected Annual Payroll	37.2%	28.8%

¹ Note, the amount shown here by the prior actuary is based on the recommended contribution calculation methodology. However, on page 6 of the prior year report, you will note that the tax levy amount shown is based on the greater of the recommended contribution methodology and the PA 096-1495 calculation performed on page 11 of the prior year report. We illustrated this on the recommended basis.

As you can see, the Total Recommended Contribution, shows an increase when compared to the results determined in the May 1, 2017 actuarial valuation report. The increase is attributable to the change in methods from the prior actuary and unfavorable experience over the past year.

Unfavorable plan experience resulted from assets that earned a 4.87% investment return (Actuarial basis) which fell short of the 7.25% assumption, many more retirements than expected and no inactive deaths. There were no significant sources of favorable experience.

CHANGES SINCE PRIOR VALUATION

Plan Changes Since Prior Valuation

No plan changes have occurred since the prior valuation.

Actuarial Assumption/Method Changes Since Prior Valuation

There were no assumption changes since the prior valuation.

Since the prior valuation the following methods have been updated:

- The administrative expenses have been included to determine the annual contribution to the fund.
- Interest has been excluded in the determination of the expected member contributions to determine the net contribution requirement for the City.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Method <u>5/1/2018</u>	Old Method <u>5/1/2018</u>	<u>5/1/2017</u> ¹
A. Participant Data			
Number Included			
Actives	20	20	20
Service Retirees	11	11	9
Beneficiaries	1	1	1
Disability Retirees	0	0	0
Terminated Vested	<u>4</u>	<u>4</u>	<u>1</u>
Total	36	36	31
Total Annual Payroll	\$1,861,742	\$1,861,742	\$1,886,849
Payroll Under Assumed Ret. Age	1,861,742	1,861,742	1,886,849
Annual Rate of Payments to:			
Service Retirees	757,166	757,166	580,789
Beneficiaries	16,952	16,952	16,952
Disability Retirees	0	0	0
Terminated Vested	3,287	3,287	3,287
B. Assets			
Actuarial Value	15,445,220	15,445,220	14,811,059
Market Value	15,085,968	15,085,968	14,111,592
C. Liabilities			
Present Value of Benefits			
Actives			
Retirement Benefits	11,734,495	11,734,495	N/A
Disability Benefits	1,838,199	1,838,199	N/A
Death Benefits	204,940	204,940	N/A
Vested Benefits	560,987	560,987	N/A
Service Retirees	11,710,646	11,710,646	N/A
Beneficiaries	58,468	58,468	N/A
Disability Retirees	0	0	N/A
Terminated Vested	<u>37,026</u>	<u>37,026</u>	<u>N/A</u>
Total	26,144,761	26,144,761	N/A

¹ Values reported for 5/1/2017 are consistent with the report issued by Timothy W. Sharpe.

C. Liabilities - (Continued)	New Method <u>5/1/2018</u>	Old Method <u>5/1/2018</u>	<u>5/1/2017</u> ¹
Present Value of Future Salaries	19,924,774	19,924,774	N/A
Present Value of Future Member Contributions	1,883,887	1,883,887	N/A
Normal Cost (Retirement)	333,528	333,528	N/A
Normal Cost (Disability)	103,154	103,154	N/A
Normal Cost (Death)	10,986	10,986	N/A
Normal Cost (Vesting)	<u>25,749</u>	<u>25,749</u>	<u>N/A</u>
Total Normal Cost	473,417	473,417	426,808
Present Value of Future Normal Costs	4,803,128	4,803,128	N/A
Accrued Liability (Retirement)	8,283,686	8,283,686	N/A
Accrued Liability (Disability)	786,852	786,852	N/A
Accrued Liability (Death)	93,028	93,028	N/A
Accrued Liability (Vesting)	371,927	371,927	N/A
Accrued Liability (Inactives)	<u>11,806,140</u>	<u>11,806,140</u>	<u>N/A</u>
Total Actuarial Accrued Liability	21,341,633	21,341,633	19,713,705
Unfunded Actuarial Accrued Liability (UAAL)	5,896,413	5,896,413	4,902,646
Funded Ratio (AVA / AL)	72.4%	72.4%	75.1%

¹ Values reported for 5/1/2017 are consistent with the report issued by Timothy W. Sharpe.

	New Method <u>5/1/2018</u>	Old Method <u>5/1/2018</u>	<u>5/1/2017</u> ¹
D. Actuarial Present Value of Accrued Benefits			
Vested Accrued Benefits			
Inactives	11,806,140	11,806,140	N/A
Actives	3,462,236	3,462,236	N/A
Member Contributions	<u>1,749,729</u>	<u>1,749,729</u>	<u>N/A</u>
Total	17,018,105	17,018,105	N/A
Non-vested Accrued Benefits	<u>179,471</u>	<u>179,471</u>	<u>N/A</u>
Total Present Value Accrued Benefits	17,197,576	17,197,576	N/A
Funded Ratio (MVA / PVAB)	87.7%	87.7%	N/A
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:			
Plan Amendments	N/A	N/A	
Assumption Changes	N/A	N/A	
New Accrued Benefits	N/A	N/A	
Benefits Paid	N/A	N/A	
Interest	N/A	N/A	
Other	<u>N/A</u>	<u>N/A</u>	
Total	N/A	N/A	

¹ Values reported for 5/1/2017 are consistent with the report issued by Timothy W. Sharpe.

	New Method	Old Method	
Valuation Date	5/1/2018	5/1/2018	5/1/2017
Applicable to Fiscal Year Ending	<u>4/30/2020</u>	<u>4/30/2020</u>	<u>4/30/2019</u>
E. Pension Cost			
Normal Cost ¹	\$507,740	\$507,740	\$457,751
% of Total Annual Payroll ¹	27.3	27.3	24.3
Administrative Expenses ¹	18,774	0 ²	0 ²
% of Total Annual Payroll ¹	1.0	0.0	0.0
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 23 years (as of 5/1/2018) ¹	343,763	343,763	276,593
% of Total Annual Payroll ¹	18.4	18.4	14.6
Total Recommended Contribution	870,277	851,503 ²	734,344 ²
% of Total Annual Payroll ¹	46.7	45.7	38.9
Expected Member Contributions ¹	176,028	188,790 ²	191,335 ²
% of Total Annual Payroll ¹	9.5	10.1	10.1
Expected City Contribution	694,249	662,713 ²	543,009 ²
% of Total Annual Payroll ¹	37.2	35.6	28.8
F. Past Contributions			
Plan Years Ending:	<u>4/30/2018</u>		
Total Recommended Contribution	670,114		
City	493,786		
Actual Contributions Made:			
Members (excluding buyback)	176,328		
City	<u>518,475</u>		
Total	694,803		
G. Net Actuarial (Gain)/Loss	909,180		

¹ Contributions developed as of 5/1/2018 displayed above have been adjusted to account for assumed interest.

² Values reported for 5/1/2017 are consistent with the report issued by Timothy W. Sharpe, which did not consider the administrative expenses as part of the minimum calculation. The report also reflected interest crediting on Member Contributions to the end of the year, while the estimated Member Contributions as of 5/1/2018 do not reflect interest.

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

<u>Year</u>	<u>Projected Unfunded Accrued Liability</u>
2018	5,896,413
2019	5,980,140
2020	6,052,749
2025	6,184,701
2031	5,504,155
2036	3,698,417
2041	0

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	4/30/2018	4.73%	5.00%
Year Ended	4/30/2017	N/A	N/A
Year Ended	4/30/2016	N/A	N/A

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	4/30/2018	4.87%	7.25%
Year Ended	4/30/2017	N/A	N/A
Year Ended	4/30/2016	N/A	N/A

DEVELOPMENT OF MAY 1, 2018 AMORTIZATION PAYMENT

(1) Unfunded Actuarial Accrued Liability as of May 1, 2017	\$4,902,646
(2) Sponsor Normal Cost developed as of May 1, 2017	248,406
(3) Expected administrative expenses for the year ended April 30, 2018	0
(4) Expected interest on (1), (2) and (3)	373,451
(5) Sponsor contributions to the System during the year ended April 30, 2018	518,475
(6) Expected interest on (5)	18,795
(7) Expected Unfunded Actuarial Accrued Liability ¹ as of April 30, 2018, (1)+(2)+(3)+(4)-(5)-(6)	4,987,233
(8) Change to UAAL due to Assumption Change	0
(9) Change to UAAL due to Actuarial (Gain)/Loss	909,180
(10) Unfunded Accrued Liability as of May 1, 2018	5,896,413
(11) UAAL Subject to Amortization (100% AAL less Actuarial Assets)	5,896,413

<u>Date Established</u>	<u>Years Remaining</u>	<u>5/1/2018 Amount</u>	<u>Amortization Amount</u>
5/1/2018	23	5,896,413	320,525

¹ Components of the Expected Unfunded Actuarial Accrued Liability shown (Items 1 through 6) are consistent with the report issued by Timothy W. Sharpe.

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 Method	Old Method	
Valuation Date	5/1/2018	5/1/2018	5/1/2017
Applicable to Fiscal Year Ending	<u>4/30/2020</u>	<u>4/30/2020</u>	<u>4/30/2019</u> ¹
Actuarial Accrued Liability (PUC)	20,642,440	20,642,440	19,008,929
Actuarial Value of Assets	<u>15,445,220</u>	<u>15,445,220</u>	<u>14,811,059</u>
Unfunded Actuarial Accrued Liability (UAAL)	5,197,220	5,197,220	4,197,870
UAAL Subject to Amortization	3,132,976	3,132,976	2,296,977
Normal Cost ²	\$589,408	\$589,408	\$631,570
% of Total Annual Payroll ²	31.7	31.7	33.5
Administrative Expenses ²	18,774	0	0
% of Total Annual Payroll ²	1.0	0.0	0.0
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 22 years (as of 5/1/2018) ²	189,101	189,101	129,589
% of Total Annual Payroll ²	10.1	10.1	6.8
Total Required Contribution	797,283	778,509	761,159
% of Total Annual Payroll ²	42.8	41.8	40.3
Expected Member Contributions ²	176,028	188,790	191,335
% of Total Annual Payroll ²	9.5	10.1	10.1
Expected City Contribution	621,255	589,719	569,824
% of Total Annual Payroll ²	33.3	31.7	30.2

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 Values reported for 5/1/2017 are consistent with the report issued by Timothy W. Sharpe.

² Contributions developed as of 5/1/2018 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
2018	32,229	780,242	812,471
2019	65,242	783,510	848,752
2020	96,660	798,607	895,267
2021	126,099	813,711	939,810
2022	173,896	840,088	1,013,984
2023	229,018	857,484	1,086,502
2024	292,767	874,600	1,167,367
2025	360,189	891,288	1,251,477
2026	464,796	907,383	1,372,179
2027	592,432	922,713	1,515,145
2028	725,023	937,104	1,662,127
2029	852,723	953,543	1,806,266
2030	994,060	965,649	1,959,709
2031	1,134,549	976,382	2,110,931
2032	1,266,698	985,639	2,252,337
2033	1,391,028	993,324	2,384,352
2034	1,508,115	999,342	2,507,457
2035	1,621,881	1,003,570	2,625,451
2036	1,741,999	1,005,853	2,747,852
2037	1,850,586	1,005,988	2,856,574
2038	1,956,502	1,003,704	2,960,206
2039	2,063,483	998,675	3,062,158
2040	2,163,852	990,516	3,154,368
2041	2,256,677	978,817	3,235,494
2042	2,340,885	963,172	3,304,057
2043	2,428,166	943,196	3,371,362
2044	2,503,798	918,562	3,422,360
2045	2,577,462	889,076	3,466,538
2046	2,656,877	854,701	3,511,578
2047	2,727,649	815,566	3,543,215
2048	2,785,836	771,986	3,557,822
2049	2,840,911	724,482	3,565,393
2050	2,895,190	673,748	3,568,938
2051	2,937,281	620,619	3,557,900
2052	2,972,245	566,034	3,538,279
2053	3,000,904	510,988	3,511,892
2054	3,022,098	456,456	3,478,554
2055	3,036,192	403,348	3,439,540
2056	3,042,557	352,478	3,395,035
2057	3,040,195	304,543	3,344,738

ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	7.25% per year compounded annually, net of investment related expenses.
Mortality Rate	<p><i>Healthy Lives:</i> 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><i>Disabled Lives:</i> RP-2014 Mortality Table (BCHA) projected to the valuation date using improvement scale MP-2016.</p> <p>The mortality assumptions sufficiently accommodate future mortality improvements.</p>
Retirement Age	See table on following page. This is based on an experience study performed in 2012.
Disability Rate	See table on following page. 90% of the disabilities are assumed to be in the line of duty. This is based on an experience study performed in 2012.
Termination Rate	See table on following page. This is based on an experience study performed in 2012.
Salary Increases	5.00%.
Inflation	2.50%.
Payroll Growth	5.00% per year.
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>
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.
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.

Decrement Tables

% Terminating During the Year		% Becoming Disabled During the Year		% Retiring During the Year	
Age	Rate	Age	Rate	Age	Rate
20	9.00%	20	0.10%	50 - 53	14.00%
25	5.00%	25	0.10%	54 - 59	20.00%
30	2.50%	30	0.20%	60 - 62	25.00%
35	2.00%	35	0.35%	63 - 64	33.00%
40	1.00%	40	0.50%	65 - 69	50.00%
45	1.00%	45	0.65%	70	100.00%
50	1.00%	50	1.00%		
55	1.00%	55	1.50%		
60	1.00%	60	3.00%		
65	1.00%	65	4.25%		

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.

STATEMENT OF FIDUCIARY NET POSITION
April 30, 2018

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Checking Account	232,904
Certificates of Deposit	282,571
Money Market	15,365
Total Cash and Equivalents	530,840
Receivables:	
Prepays	4,644
Accrued Past Due Interest	31,045
Total Receivable	35,689
Investments:	
U.S. Gov't and Agency Obligations	4,351,413
Mutual Funds	10,169,006
Total Investments	14,520,419
Total Assets	15,086,948
 <u>LIABILITIES</u>	
Liabilities:	
Payable:	
Expenses	980
Total Liabilities	980
Net Assets:	
Active and Retired Members' Equity	15,085,968
NET POSITION RESTRICTED FOR PENSIONS	15,085,968
TOTAL LIABILITIES AND NET ASSETS	15,086,948

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED April 30, 2018
Market Value Basis

ADDITIONS

Contributions:

Member	176,328
City	518,475

Total Contributions		694,803
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Investment Income:

Net Realized Gain (Loss)	(144,585)	
Unrealized Gain (Loss)	718,076	
Net Increase in Fair Value of Investments		573,491
Interest & Dividends		514,552
Less Investment Expense ¹		(29,194)

Net Investment Income		1,058,849
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Total Additions		1,753,652
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DEDUCTIONS

Distributions to Members:

Benefit Payments	748,512
Refund of Contributions/Transfers	13,259

Total Distributions		761,771
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Administrative Expenses		17,505
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Total Deductions		779,276
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Net Increase in Net Position		974,376
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NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year		14,111,592
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End of the Year		15,085,968
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¹ Investment Related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION

April 30, 2018

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				
		2018	2019	2020	2021	2022
4/30/2015	(410,668)	(82,134)	0	0	0	0
4/30/2016	(1,329,701)	(531,880)	(265,940)	0	0	0
4/30/2017	372,842	223,705	149,137	74,568	0	0
4/30/2018	38,821	31,057	23,293	15,528	7,764	0
Total		(359,252)	(93,510)	90,096	7,764	0

Development of Investment Gain/Loss

Market Value of Assets, 4/30/2017	14,111,592
Contributions Less Benefit Payments & Administrative Expenses	(84,473)
Expected Investment Earnings ¹	1,020,028
Actual Net Investment Earnings	<u>1,058,849</u>
2018 Actuarial Investment Gain/(Loss)	38,821

¹ Expected Investment Earnings = 7.25% x (14,111,592 + 0.5 x -84,473)

Development of Actuarial Value of Assets

Market Value of Assets, 4/30/2018	15,085,968
(Gains)/Losses Not Yet Recognized	<u>359,252</u>
Actuarial Value of Assets, 4/30/2018	15,445,220
(A) 4/30/2017 Actuarial Assets:	14,811,059
(I) Net Investment Income:	
1. Interest and Dividends	514,552
2. Realized Gains (Losses)	(144,585)
3. Change in Actuarial Value	377,861
4. Investment Expenses	<u>(29,194)</u>
Total	718,634
(B) 4/30/2018 Actuarial Assets:	15,445,220
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	4.87%
Market Value of Assets Rate of Return:	7.53%
4/30/2018 Limited Actuarial Assets:	15,445,220
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(352,106)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS
 April 30, 2018
 Actuarial Asset Basis

INCOME		
Contributions:		
Member	176,328	
City	518,475	
Total Contributions		694,803
Earnings from Investments		
Interest & Dividends	514,552	
Net Realized Gain (Loss)	(144,585)	
Change in Actuarial Value	377,861	
Total Earnings and Investment Gains		747,828
EXPENSES		
Administrative Expenses:		
Investment Related ¹	29,194	
Other	17,505	
Total Administrative Expenses		46,699
Distributions to Members:		
Benefit Payments	748,512	
Refund of Contributions/Transfers	13,259	
Total Distributions		761,771
Change in Net Assets for the Year		634,161
Net Assets Beginning of the Year		14,811,059
Net Assets End of the Year ²		15,445,220

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

² Net Assets may be limited for actuarial consideration.

STATISTICAL DATA ¹

	<u>5/1/2015</u>	<u>5/1/2016</u>	<u>5/1/2017</u>	<u>5/1/2018</u>
<u>Actives - Tier 1</u>				
Number	N/A	N/A	16	14
Average Current Age	N/A	N/A	N/A	43.3
Average Age at Employment	N/A	N/A	N/A	25.2
Average Past Service	N/A	N/A	N/A	18.1
Average Annual Salary	N/A	N/A	N/A	\$99,908
<u>Actives - Tier 2</u>				
Number	N/A	N/A	4	6
Average Current Age	N/A	N/A	N/A	34.4
Average Age at Employment	N/A	N/A	N/A	32.4
Average Past Service	N/A	N/A	N/A	2.0
Average Annual Salary	N/A	N/A	N/A	\$77,172
<u>Service Retirees</u>				
Number	N/A	N/A	9	11
Average Current Age	N/A	N/A	N/A	61.1
Average Annual Benefit	N/A	N/A	\$64,532	\$68,833
<u>Beneficiaries</u>				
Number	N/A	N/A	1	1
Average Current Age	N/A	N/A	N/A	94.3
Average Annual Benefit	N/A	N/A	\$16,952	\$16,952
<u>Disability Retirees</u>				
Number	N/A	N/A	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	N/A	N/A	1	4
Average Current Age	N/A	N/A	N/A	38.4
Average Annual Benefit ²	N/A	N/A	\$3,287	\$3,287

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

² Average Annual Benefit for Terminated Vested members reflects the benefit for members entitled to a future annual benefit from the plan. Of the 4 terminated vested members for the 5/1/2018 valuation, 3 are due accumulated contributions only.

AGE AND SERVICE DISTRIBUTION

PAST SERVICE

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

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 5/1/2017	20
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>(2)</u>
f. Continuing participants	18
g. New entrants	<u>2</u>
h. Total active life participants in valuation	20

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	9	1	0	1	11
Retired	2	0	0	0	2
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	(1)	(1)
Rehires	0	0	0	0	0
Expired Annuities	0	0	0	0	0
Data Corrections	0	0	0	2	2
Hired/Termed in Same Year	0	0	0	2	2
b. Number current valuation	11	1	0	4	16

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 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.

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 eight consecutive years 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: 1.5% plus 0.1% for each year of service in excess of 10 years, times salary x service (complete years). Tier 2: Normal Retirement Benefit, reduced 6% 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: 1.5% plus 0.1% for each year of service in excess of 10 years, times salary x service (based on complete years). Tier 2: 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.

NOTES TO THE FINANCIAL STATEMENTS

(For the Year Ended April 30, 2018)

Plan Description

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 City,
- 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.

Plan Membership as of May 1, 2018:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	12
Inactive Plan Members Entitled to but Not Yet Receiving Benefits	4
Active Plan Members	20
	36

Benefits Provided

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

Normal Retirement:

Age: Tier 1: Age 50 and 20 years of service.

Tier 2: Age 55 with 10 years of 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. 100% of the Member's benefit continues to spouse after death.

Tier 2: 2.50% per year of service times the average salary for the eight consecutive years 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. 66 2/3% of the Member's benefit continues to spouse after death.

Early Retirement:

Age: Tier 1: Age 60 and 10 years of service.

Tier 2: Age 50 with 10 years of service.

Benefit: Tier 1: 1.5% plus 0.1% for each year of service in excess of 10 years, times salary times service (complete years).

Tier 2: Determined as for Normal Retirement; Benefit for members hired after January 1, 2011 is reduced 6.00% for each year before age 55, with no minimum benefit.

Vesting (Termination):

Less than 10 years: Refund of accumulated contributions without interest.

Tier 1 (10 or more): Refund of accumulated contributions or termination benefit of 1.5% plus 0.1% for each year of service in excess of 10 years, times salary x service (based on complete years), payable upon reaching age 60.

Tier 2 (10 or more): Refund of accumulated contributions or termination benefit of 2.5% of 8-year final average salary times creditable service, payable upon reaching age 55.

Disability:

Eligibility: Total and permanent as determined by the Board of Trustees.

Benefit: Benefit accrued to date of disability. Minimum benefit for Service Incurred is 65% of salary. For Non-Service Incurred benefit is 50% of salary.

Pre-Retirement Death Benefits:

Service Incurred: 100% of Salary.

Non-Service Incurred: Greater of 54% of salary or accrued benefit.

Non-Vested: Refund of accumulated contributions.

Cost-of-Living Adjustments:

Tier 1: Retirees - 3.00% per year upon attaining age 55. For retirements prior to age 55, 1/12 of 3.00% per month benefit commences prior to reaching age 55. Disabled Retirees - annual increase of 3.00% of the original benefit amount upon attaining age 60. For disablements prior to age 60, 3.00% of original benefit per year benefit commenced prior to age 60.
 Tier 2: An annual increase equal to the lesser of 3.00% per year or 1/2 the annual unadjusted percentage increase in the consumer price index-u for the 12 months ending with the September preceding each November 1, of the original pension after attaining age 60.

Contributions

Employee: 9.455% of Salary.

City: Remaining amount necessary for payment of Normal (current year's) Cost and amortization of the accrued past service liability.

Investments

Investment Policy:

The following was the Board's adopted asset allocation policy as of April 30, 2018:

<u>Asset Class</u>	<u>Target Allocation</u>
T Bill	1%
Short Gov/Credit	5%
Intermediate Govt	36%
Large	5%
Large Value	5%
Mid Value	6%
Small	7%
Small Value	7%
International Developed	4%
International Value	7%
International Small	7%
Emerging Markets	8%
REIT	2%
Total	100%

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.

Rate of Return:

For the year ended April 30, 2018 the annual money-weighted rate of return on Pension Plan investments, net of pension plan investment expense, was 7.651 percent.

The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

NET PENSION LIABILITY OF THE SPONSOR

The components of the Net Pension Liability of the sponsor on April 30, 2018 were as follows:

Total Pension Liability	\$ 21,172,653
Plan Fiduciary Net Position	\$ (15,085,968)
Sponsor's Net Pension Liability	<u>\$ 6,086,685</u>
Plan Fiduciary Net Position as a percentage of Total Pension Liability	71.25%

Actuarial Assumptions:

The Total Pension Liability was determined by an actuarial valuation as of May 1, 2018 using the following actuarial assumptions:

Inflation	2.50%
Salary Increases	5.00%
Discount Rate	7.25%
Investment Rate of Return	7.25%

Mortality Rate Healthy Lives:

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.

Mortality Rate Disabled Lives:

RP-2014 Mortality Table (BCHA) projected to the valuation date using improvement scale MP-2016.

The other significant assumptions are based upon an actuarial experience study performed by the State of Illinois Department of Insurance dated September 26, 2012.

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.

For 2018, the inflation rate assumption of the investment advisor was 3.00%.

These ranges are combined to produce the Long-Term Expected Rate of Return by weighting the expected future real rates of return by the 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 as of April 30, 2018 are summarized in the following table:

<u>Asset Class</u>	<u>Long Term Expected Real Rate of Return</u>
T Bill	0.40%
Short Gov/Credit	1.90%
Intermediate Govt	1.70%
Large	4.45%
Large Value	4.70%
Mid Value	5.20%
Small	5.60%
Small Value	6.50%
International Developed	4.45%
International Value	6.60%
International Small	7.45%
Emerging Markets	7.50%
REIT	3.90%

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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 was applied to all periods of projected benefit payments to determine the Total Pension Liability.

For purpose of this valuation, the expected rate of return on pension plan investments is 7.25 percent; the municipal bond rate is 3.97 percent (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the The Bond Buyer); and the resulting single discount rate is 7.25 percent.

	1% Decrease	Current Discount Rate	1% Increase
	6.25%	7.25%	8.25%
Sponsor's Net Pension Liability	\$ 9,395,666	\$ 6,086,685	\$ 3,401,223

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 2 Fiscal Years

	<u>04/30/2018</u>	<u>04/30/2017¹</u>
Total Pension Liability		
Service Cost	489,934	422,663
Interest	1,437,150	1,394,388
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	293,635	(475,876)
Changes of Assumptions	-	65,743
Benefit Payments, Including Refunds of Employee Contributions	(761,771)	(570,114)
Net Change in Total Pension Liability	<u>1,458,948</u>	<u>836,804</u>
Total Pension Liability - Beginning	<u>19,713,705</u>	<u>18,876,901</u>
Total Pension Liability - Ending (a)	<u>\$ 21,172,653</u>	<u>\$ 19,713,705</u>
Plan Fiduciary Net Position		
Contributions - Employer	518,475	434,791
Contributions - Employee	176,328	182,331
Net Investment Income	1,058,849	1,330,504
Benefit Payments, Including Refunds of Employee Contributions	(761,771)	(570,114)
Administrative Expense	(17,505)	(22,481)
Net Change in Plan Fiduciary Net Position	<u>974,376</u>	<u>1,355,031</u>
Plan Fiduciary Net Position - Beginning	<u>14,111,592</u>	<u>12,756,561</u>
Plan Fiduciary Net Position - Ending (b)	<u>\$ 15,085,968</u>	<u>\$ 14,111,592</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 6,086,685</u>	<u>\$ 5,602,113</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	71.25%	71.58%
Covered Employee Payroll	\$ 1,861,742	\$ 1,886,849
Net Pension Liability as a Percentage of covered Employee Payroll	326.93%	296.90%

Notes to Schedule:

¹ The 2017 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

SCHEDULE OF CONTRIBUTIONS

Last 2 Fiscal Years

Fiscal Year Ended	Actuarially Determined Contribution	Contributions in relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll	Contributions as a percentage of Covered Employee Payroll
04/30/2018	\$ 493,786	\$ 518,475	\$ (24,689)	\$ 1,861,742	27.85%
04/30/2017 ¹	\$ 434,791	\$ 434,791	\$ -	\$ 1,886,849	23.04%

¹ The 2017 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

Notes to Schedule

Valuation Date 05/01/2016

Actuarially determined contribution is calculated as of May 1, two years prior in which contributions are reported.

Methods and assumptions used to determine contribution rates:

- Funding Method: Entry Age Normal Cost Method.
- Amortization Method: Level percentage of pay, closed.
- Remaining Amortization Period: 25 years (as of 05/01/2016 Valuation).
- Actuarial Asset Method: 5-year Average Market Value (PA 096-1495).
- Investment Return: 7.50% net of investment expenses.
- Salary Scale: 5.00%.
- Mortality: RP 2014 Mortality Table (BCHA) projected to 2016 using improvement scale MP-2015.
- Withdrawal: Based on studies of the Fund and the Department of Insurance, see Sample Rates below.
- Disability Rates: Based on studies of the Fund and the Department of Insurance, see Sample Rates below.
- Retirement: Based on studies of the Fund and the Department of Insurance, see Sample Rates below (100% by age 70).
- Payroll Growth: 5.00% per year.
- Marital Status: 80% Married, Female spouses 3 years younger.

Sample Annual Rates Per 100

Participants:	Age	Withdrawal	Disability	Retirement
	20	9.00	0.10	
	25	5.00	0.10	
	30	2.50	0.20	
	35	2.00	0.35	
	40	1.00	0.50	
	45	1.00	0.65	
	50	1.00	1.00	14.00
	55	1.00	1.50	20.00
	60	1.00	3.00	25.00
	65	1.00	4.25	50.00
	70			100.00

SCHEDULE OF INVESTMENT RETURNS

Last 2 Fiscal Years

Fiscal Year Ended	Annual Money-Weighted Rate of Return Net of Investment Expense
04/30/2018	7.65%
04/30/2017	N/A

NOTES TO THE FINANCIAL STATEMENTS

(For the Year Ended April 30, 2018)

General Information about the Pension Plan

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 City,
- 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.

Plan Membership as of May 1, 2018:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	12
Inactive Plan Members Entitled to but Not Yet Receiving Benefits	4
Active Plan Members	20
	36
	36

Benefits Provided

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

Normal Retirement:

Age: Tier 1: Age 50 and 20 years of service.

Tier 2: Age 55 with 10 years of 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. 100% of the Member's benefit continues to spouse after death.

Tier 2: 2.50% per year of service times the average salary for the eight consecutive years 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. 66 2/3% of the Member's benefit continues to spouse after death.

Early Retirement:

Age: Tier 1: Age 60 and 10 years of service.

Tier 2: Age 50 with 10 years of service.

Benefit: Tier 1: 1.5% plus 0.1% for each year of service in excess of 10 years, times salary times service (complete years).

Tier 2: Determined as for Normal Retirement; Benefit for members hired after January 1, 2011 is reduced 6.00% for each year before age 55, with no minimum benefit.

Vesting (Termination):

Less than 10 years: Refund of accumulated contributions without interest.

Tier 1 (10 or more): Refund of accumulated contributions or termination benefit of 1.5% plus 0.1% for each year of service in excess of 10 years, times salary x service (based on complete years), payable upon reaching age 60.

Tier 2 (10 or more): Refund of accumulated contributions or termination benefit of 2.5% of 8-year final average salary times creditable service, payable upon reaching age 55.

Disability:

Eligibility: Total and permanent as determined by the Board of Trustees.

Benefit: Benefit accrued to date of disability. Minimum benefit for Service Incurred is 65% of salary. For Non-Service Incurred benefit is 50% of salary.

Pre-Retirement Death Benefits:

Service Incurred: 100% of Salary.

Non-Service Incurred: Greater of 54% of salary or accrued benefit.

Non-Vested: Refund of accumulated contributions.

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Cost-of-Living Adjustments:

Tier 1: Retirees - 3.00% per year upon attaining age 55. For retirements prior to age 55, 1/12 of 3.00% per month benefit commences prior to reaching age 55. Disabled Retirees - annual increase of 3.00% of the original benefit amount upon attaining age 60. For disablements prior to age 60, 3.00% of original benefit per year benefit commenced prior to age 60.

Tier 2: An annual increase equal to the lesser of 3.00% per year or 1/2 the annual unadjusted percentage increase in the consumer price index-u for the 12 months ending with the September preceding each November 1, of the original pension after attaining age 60.

Contributions

Employee: 9.455% of Salary.

City: Remaining amount necessary for payment of Normal (current year's) Cost and amortization of the accrued past service liability.

Net Pension Liability

The measurement date is April 30, 2018.

The measurement period for the pension expense was May 1, 2017 to April 30, 2018.

The reporting period is May 1, 2017 through April 30, 2018.

The Sponsor's Net Pension Liability was measured as of April 30, 2018.

The Total Pension Liability used to calculate the Net Pension Liability was determined as of that date.

Actuarial Assumptions:

The Total Pension Liability was determined by an actuarial valuation as of May 1, 2018 using the following actuarial assumptions:

Inflation	2.50%
Salary Increases	5.00%
Discount Rate	7.25%
Investment Rate of Return	7.25%

Mortality Rate Healthy Lives:

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.

Mortality Rate Disabled Lives:

RP-2014 Mortality Table (BCHA) projected to the valuation date using improvement scale MP-2016.

The other significant assumptions are based upon an actuarial experience study performed by the State of Illinois Department of Insurance dated September 26, 2012.

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.

For 2018, the inflation rate assumption of the investment advisor was 3.00%.

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

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Best estimates of geometric real rates of return for each major asset class included in the Pension Plan's target asset allocation as of April 30, 2018 are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
T Bill	1%	0.40%
Short Gov/Credit	5%	1.90%
Intermediate Govt	36%	1.70%
Large	5%	4.45%
Large Value	5%	4.70%
Mid Value	6%	5.20%
Small	7%	5.60%
Small Value	7%	6.50%
International Developed	4%	4.45%
International Value	7%	6.60%
International Small	7%	7.45%
Emerging Markets	8%	7.50%
REIT	2%	3.90%
Total	100%	

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 was applied to all periods of projected benefit payments to determine the Total Pension Liability.

For purpose of this valuation, the expected rate of return on pension plan investments is 7.25 percent; the municipal bond rate is 3.97 percent (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the The Bond Buyer); and the resulting single discount rate is 7.25 percent.

CHANGES IN NET PENSION LIABILITY

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Balances at April 30, 2017	\$ 19,713,705	\$ 14,111,592	\$ 5,602,113
Changes for a Year:			
Service Cost	489,934	-	489,934
Interest	1,437,150	-	1,437,150
Differences Between Expected and Actual Experience	293,635	-	293,635
Changes of Assumptions	-	-	-
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	518,475	(518,475)
Contributions - Employee	-	176,328	(176,328)
Net Investment Income	-	1,058,849	(1,058,849)
Benefit Payments, Including Refunds of Employee Contributions	(761,771)	(761,771)	-
Administrative Expense	-	(17,505)	17,505
New Changes	1,458,948	974,376	484,572
Balances at April 30, 2018	<u>\$ 21,172,653</u>	<u>\$ 15,085,968</u>	<u>\$ 6,086,685</u>

Sensitivity of the net Pension Liability to changes in the Discount Rate.

	Current		
	1% Decrease	Discount Rate	1% Increase
	6.25%	7.25%	8.25%
Sponsor's Net Pension Liability	\$ 9,395,666	\$ 6,086,685	\$ 3,401,223

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**

For the year ended April 30, 2018, the Sponsor will recognize a pension expense of \$1,084,467.

On April 30, 2018, 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 Expected and Actual Experience	251,688	442,579
Changes of Assumptions	572,804	-
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	277,120	-
Total	\$ 1,101,612	\$ 442,579

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:			
2019	\$	336,236	
2020	\$	336,237	
2021	\$	(14,337)	
2022	\$	(24,406)	
2023	\$	(16,645)	
Thereafter	\$	41,948	

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 2 Fiscal Years

	04/30/2018	04/30/2017 ¹
Total Pension Liability		
Service Cost	489,934	422,663
Interest	1,437,150	1,394,388
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	293,635	(475,876)
Changes of Assumptions	-	65,743
Benefit Payments, Including Refunds of Employee Contributions	(761,771)	(570,114)
Net Change in Total Pension Liability	1,458,948	836,804
Total Pension Liability - Beginning	19,713,705	18,876,901
Total Pension Liability - Ending (a)	<u>\$ 21,172,653</u>	<u>\$ 19,713,705</u>
Plan Fiduciary Net Position		
Contributions - Employer	518,475	434,791
Contributions - Employee	176,328	182,331
Net Investment Income	1,058,849	1,330,504
Benefit Payments, Including Refunds of Employee Contributions	(761,771)	(570,114)
Administrative Expense	(17,505)	(22,481)
Net Change in Plan Fiduciary Net Position	974,376	1,355,031
Plan Fiduciary Net Position - Beginning	14,111,592	12,756,561
Plan Fiduciary Net Position - Ending (b)	<u>\$ 15,085,968</u>	<u>\$ 14,111,592</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 6,086,685</u>	<u>\$ 5,602,113</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	71.25%	71.58%
Covered Employee Payroll	\$ 1,861,742	\$ 1,886,849
Net Pension Liability as a Percentage of covered Employee Payroll	326.93%	296.90%

Notes to Schedule:

¹ The 2017 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

SCHEDULE OF CONTRIBUTIONS

Last 2 Fiscal Years

Fiscal Year Ended	Actuarially Determined Contribution	Contributions in relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll	Contributions as a percentage of Covered Employee Payroll
04/30/2018	\$ 493,786	\$ 518,475	\$ (24,689)	\$ 1,861,742	27.85%
04/30/2017 ¹	\$ 434,791	\$ 434,791	\$ -	\$ 1,886,849	23.04%

¹ The 2017 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

Notes to Schedule

Valuation Date 05/01/2016

Actuarially determined contribution is calculated as of May 1, two years prior in which contributions are reported.

Methods and assumptions used to determine contribution rates:

- Funding Method: Entry Age Normal Cost Method.
- Amortization Method: Level percentage of pay, closed.
- Remaining Amortization Period: 25 years (as of 05/01/2016 Valuation).
- Actuarial Asset Method: 5-year Average Market Value (PA 096-1495).
- Investment Return: 7.50% net of investment expenses.
- Salary Scale: 5.00%.
- Mortality: RP 2014 Mortality Table (BCHA) projected to 2016 using improvement scale MP-2015.
- Withdrawal: Based on studies of the Fund and the Department of Insurance, see Sample Rates below.
- Disability Rates: Based on studies of the Fund and the Department of Insurance, see Sample Rates below.
- Retirement: Based on studies of the Fund and the Department of Insurance, see Sample Rates below (100% by age 70).
- Payroll Growth: 5.00% per year.
- Marital Status: 80% Married, Female spouses 3 years younger.

Sample Annual Rates Per 100

Participants:	Age	Withdrawal	Disability	Retirement
	20	9.00	0.10	
	25	5.00	0.10	
	30	2.50	0.20	
	35	2.00	0.35	
	40	1.00	0.50	
	45	1.00	0.65	
	50	1.00	1.00	14.00
	55	1.00	1.50	20.00
	60	1.00	3.00	25.00
	65	1.00	4.25	50.00
	70			100.00

COMPONENTS OF PENSION EXPENSE
FISCAL YEAR APRIL 30, 2018

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$ 5,602,113	\$ 849,902	\$ 1,590,355	
Total Pension Liability Factors:				
Service Cost	489,934	-	-	489,934
Interest	1,437,150	-	-	1,437,150
Changes in Benefit Terms	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions	293,635	-	293,635	-
Current Year Amortization	-	(109,049)	(41,947)	(67,102)
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	-	-	-	-
Current Year Amortization	-	-	(219,730)	219,730
Benefit Payments, Including Refunds of Employee Contributions	(761,771)	-	-	-
Net Change	<u>1,458,948</u>	<u>(109,049)</u>	<u>31,958</u>	<u>2,079,712</u>
Plan Fiduciary Net Position:				
Contributions - Employer	518,475	-	-	-
Contributions - Employee	176,328	-	-	(176,328)
Projected Net Investment Income	1,020,028	-	-	(1,020,028)
Difference Between Projected and Actual Earnings on Pension Plan Investments	38,821	38,821	-	-
Current Year Amortization	-	(82,334)	(265,940)	183,606
Benefit Payments, Including Refunds of Employee Contributions	(761,771)	-	-	-
Administrative Expenses	(17,505)	-	-	17,505
Net Change	<u>974,376</u>	<u>(43,513)</u>	<u>(265,940)</u>	<u>(995,245)</u>
Ending Balance	<u>\$ 6,086,685</u>	<u>\$ 697,340</u>	<u>\$ 1,356,373</u>	<u>\$ 1,084,467</u>

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)	2018	2019	2020	2021	2022	2023	2024	2025	2026
2018	\$ 293,635	7.00	\$ 41,947	\$ 41,948	\$ 41,948	\$ 41,948	\$ 41,948	\$ 41,948	\$ 41,948	\$ -	\$ -
2017	\$ (475,876)	7.00	\$ (67,982)	\$ (67,982)	\$ (67,982)	\$ (67,982)	\$ (67,982)	\$ (67,984)	\$ -	\$ -	\$ -
2016	\$ (225,868)	5.50	\$ (41,067)	\$ (41,067)	\$ (41,067)	\$ (20,533)	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ (67,102)	\$ (67,101)	\$ (67,101)	\$ (46,567)	\$ (26,034)	\$ (26,036)	\$ 41,948	\$ -	\$ -

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)	2018	2019	2020	2021	2022	2023	2024	2025	2026
2018	\$ -	7.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ 65,743	7.00	\$ 9,392	\$ 9,392	\$ 9,392	\$ 9,392	\$ 9,392	\$ 9,391	\$ -	\$ -	\$ -
2016	\$ 1,156,859	5.50	\$ 210,338	\$ 210,338	\$ 210,338	\$ 105,169	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 219,730	\$ 219,730	\$ 219,730	\$ 114,561	\$ 9,392	\$ 9,391	\$ -	\$ -	\$ -

AMORTIZATION SCHEDULE - INVESTMENTS

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

Year Base Established	Differences Between Projected and Actual Earnings	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	2025	2026
2018	\$ (38,821)	5.00	\$ (7,765)	\$ (7,764)	\$ (7,764)	\$ (7,764)	\$ (7,764)	\$ -	\$ -	\$ -	\$ -
2017	\$ (372,843)	5.00	\$ (74,569)	\$ (74,569)	\$ (74,569)	\$ (74,567)	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ 1,329,701	5.00	\$ 265,940	\$ 265,940	\$ 265,941	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 183,606	\$ 183,607	\$ 183,608	\$ (82,331)	\$ (7,764)	\$ -	\$ -	\$ -	\$ -