

CITY OF NAPERVILLE
FIREFIGHTERS' PENSION FUND

ACTUARIAL VALUATION
AS OF JANUARY 1, 2018

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2019

GASB 67/68 DISCLOSURE INFORMATION
AS OF DECEMBER 31, 2017

July 2, 2018

Ms. Rachel Mayer
Finance Director
City of Naperville
Naperville, IL 60540

Re: Actuarial Valuation Report – City of Naperville Firefighters’ Pension Fund

Dear Ms. Mayer:

We are pleased to present to the City this report of the annual actuarial valuation of the City of Naperville 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. 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.

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 this report are based on an actuarial valuation performed as of January 1, 2017. The total pension liability was rolled-forward from the valuation date to the plan’s year ending December 31, 2017 using generally accepted actuarial principles. It is our opinion that the assumptions used for this purpose are internally consistent, reasonable, and comply with the requirements under GASB No.67 and No.68.

Certain schedules should include a 10-year history of information. As provided for in GASB Statements No. 67 and No. 68, this historical information is only presented for the years in which the information was measured. This conforms to the requirements of GASB Statements No. 67 and No. 68.

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 Naperville, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Naperville 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
Enrolled Actuary #17-6888

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Enclosures

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SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Naperville Firefighters' Pension Fund, performed as of January 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 December 31, 2019.

The contribution requirements, compared with those set forth in the January 1, 2017 actuarial report, are as follows:

Valuation Date Applicable to Fiscal Year Ending	1/1/2018 <u>12/31/2019</u>	1/1/2017 <u>12/31/2018</u>
Total Recommended Contribution	\$10,683,555	\$10,613,321
% of Projected Annual Payroll	57.9%	58.4%
Member Contributions (Est.)	1,743,575	1,717,057
% of Projected Annual Payroll	9.5%	9.5%
City Recommended Contribution	8,939,980	8,896,264
% of Projected Annual Payroll	48.4%	48.9%

As you can see, the Total Recommended Contribution shows an increase when compared to the results determined in the January 1, 2017 actuarial valuation report. The increase is attributable to net unfavorable experience realized by the plan, relative to the plan's actuarial assumptions, as well as the natural increase in the amortization payment due to the plan's payroll growth assumption. These increases were mostly offset by a decrease in the plan's Normal Cost associated with the replacement of a significant number of Tier 1 employees with Tier 2 employees.

The primary source of favorable plan experience was an 8.55% investment rate of return (Actuarial Asset basis) which exceeded the 7.00% assumption. This gain was offset by sources of loss including an average salary increase that was larger than assumed and significantly more retirements than expected.

The balance of this Report presents additional details of the actuarial valuation and the general operation of the Fund. The undersigned would be pleased to meet with the Board of Trustees to discuss the Report and answer any pending questions concerning its contents.

Respectfully submitted,

FOSTER & FOSTER, INC.

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

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 or method changes since the prior valuation.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	<u>1/1/2018</u>	<u>1/1/2017</u>
A. Participant Data		
Number Included		
Actives	185	187
Service Retirees	89	73
Beneficiaries	10	11
Disability Retirees	16	17
Terminated Vested	<u>8</u>	<u>6</u>
Total	308	294
Total Annual Payroll	\$18,440,772	\$18,160,302
Payroll Under Assumed Ret. Age	18,440,772	18,160,302
Annual Rate of Payments to:		
Service Retirees	6,982,167	5,660,320
Beneficiaries	350,888	265,000
Disability Retirees	700,416	728,762
Terminated Vested	145,153	79,404
B. Assets		
Actuarial Value	165,762,339	151,245,944
Market Value	174,439,382	152,660,845
C. Liabilities		
Present Value of Benefits		
Actives		
Retirement Benefits	124,476,278	132,506,420
Disability Benefits	15,453,981	15,570,116
Death Benefits	2,417,888	2,494,957
Vested Benefits	4,206,041	4,151,791
Service Retirees	111,987,842	90,102,239
Beneficiaries	3,434,247	2,628,650
Disability Retirees	10,021,413	10,619,669
Terminated Vested	<u>2,337,580</u>	<u>1,100,835</u>
Total	274,335,270	259,174,677

C. Liabilities - (Continued)	<u>1/1/2018</u>	<u>1/1/2017</u>
Present Value of Future Salaries	194,312,133	180,743,405
Present Value of Future Member Contributions	18,372,212	17,089,289
Normal Cost (Retirement)	3,850,808	4,032,803
Normal Cost (Disability)	897,886	910,551
Normal Cost (Death)	147,873	153,618
Normal Cost (Vesting)	<u>240,554</u>	<u>244,286</u>
Total Normal Cost	5,137,121	5,341,258
Present Value of Future Normal Costs	48,161,208	47,889,347
Accrued Liability (Retirement)	88,308,981	96,178,006
Accrued Liability (Disability)	6,694,077	7,126,726
Accrued Liability (Death)	1,044,545	1,119,737
Accrued Liability (Vesting)	2,345,377	2,409,468
Accrued Liability (Inactives)	<u>127,781,082</u>	<u>104,451,393</u>
Total Actuarial Accrued Liability	226,174,062	211,285,330
Unfunded Actuarial Accrued Liability (UAAL)	60,411,723	60,039,386
Funded Ratio (AVA / AL)	73.3%	71.6%

	<u>1/1/2018</u>	<u>1/1/2017</u>
D. Actuarial Present Value of Accrued Benefits		
Vested Accrued Benefits		
Inactives	127,781,082	104,451,393
Actives	44,045,568	48,879,881
Member Contributions	<u>17,862,269</u>	<u>18,917,192</u>
Total	189,688,919	172,248,466
Non-vested Accrued Benefits	<u>2,599,748</u>	<u>2,371,577</u>
Total Present Value Accrued Benefits	192,288,667	174,620,043
Funded Ratio (MVA / PVAB)	90.7%	87.4%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:		
Plan Amendments	0	
Assumption Changes	0	
New Accrued Benefits	13,244,861	
Benefits Paid	(7,535,884)	
Interest	11,959,647	
Other	<u>0</u>	
Total	17,668,624	

Valuation Date	1/1/2018	1/1/2017
Applicable to Fiscal Year Ending	<u>12/31/2019</u>	<u>12/31/2018</u>

E. Pension Cost

Normal Cost ¹	\$5,496,719	\$5,715,146
% of Total Annual Payroll ¹	29.8	31.5
Administrative Expenses ¹	128,322	132,437
% of Total Annual Payroll ¹	0.7	0.7
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 15 years (as of 1/1/2018) ¹	5,058,514	4,765,738
% of Total Annual Payroll ¹	27.4	26.2
Total Recommended Contribution	10,683,555	10,613,321
% of Total Annual Payroll ¹	57.9	58.4
Expected Member Contributions ¹	1,743,575	1,717,057
% of Total Annual Payroll ¹	9.5	9.5
Expected City Contribution	8,939,980	8,896,264
% of Total Annual Payroll ¹	48.4	48.9

F. Past Contributions

Plan Years Ending:	<u>12/31/2017</u>
Total Recommended Contribution	9,043,133
City	7,237,440
Actual Contributions Made:	
Members (excluding buyback)	1,805,693
City	<u>7,338,200</u>
Total	9,143,893

G. Net Actuarial (Gain)/Loss (241,383)

¹ Contributions developed as of 1/1/2018 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>
2018	60,411,723
2019	59,582,030
2020	58,466,625
2023	53,090,615
2027	39,766,946
2030	23,494,672
2033	0

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/31/2017	6.49%	5.74%
Year Ended	12/31/2016	1.64%	5.00%
Year Ended	12/31/2015	9.80%	5.00%

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/31/2017	8.55%	7.00%
Year Ended	12/31/2016	7.25%	7.00%
Year Ended	12/31/2015	N/A	N/A

STATEMENT BY ENROLLED ACTUARY

This actuarial valuation was prepared and completed by me or under my direct supervision, and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate, and in my opinion, the techniques and assumptions used are reasonable and meet the requirements and intent of the Illinois Pension Code and adhere to the Actuarial Standards of Practice. There is no benefit or expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. All known events or trends which may require a material increase in plan costs or recommended contribution rates have been taken into account in the valuation.



Jason L. Franken, FSA, EA, MAAA
Enrolled Actuary #17-6888

DEVELOPMENT OF JANUARY 1, 2018 AMORTIZATION PAYMENT

(1) Unfunded Actuarial Accrued Liability as of January 1, 2017	\$60,039,386
(2) Sponsor Normal Cost developed as of January 1, 2017	3,624,201
(3) Expected administrative expenses for the year ended December 31, 2017	123,773
(4) Expected interest on (1), (2) and (3)	4,460,783
(5) Sponsor contributions to the System during the year ended December 31, 2017	7,338,200
(6) Expected interest on (5)	256,837
(7) Expected Unfunded Actuarial Accrued Liability as of December 31, 2017, (1)+(2)+(3)+(4)-(5)-(6)	60,653,106
(8) Change to UAAL due to Assumption Change	0
(9) Change to UAAL due to Actuarial (Gain)/Loss	(241,383)
(10) Unfunded Accrued Liability as of January 1, 2018	60,411,723
(11) UAAL Subject to Amortization (100% AAL less Actuarial Assets)	60,411,723

<u>Date</u> <u>Established</u>	<u>Years</u> <u>Remaining</u>	<u>1/1/2018</u> <u>Amount</u>	<u>Amortization</u> <u>Amount</u>
1/1/2018	15	60,411,723	4,727,583

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of January 1, 2017	\$60,039,386
(2) Expected UAAL as of January 1, 2018	60,653,106
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	(2,356,737)
Salary Increases	628,257
Active Decrements	3,001,432
Inactive Mortality	263,712
Other	<u>(1,778,047)</u>
Change in UAAL due to (Gain)/Loss	(241,383)
Assumption Changes	<u>0</u>
(4) Actual UAAL as of January 1, 2018	\$60,411,723

RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of January 1, 2017	\$ 8,896,264
(2) Summary of Contribution Impact by component:	
Change in Normal Cost	(218,427)
Change in Assumed Administrative Expense	(4,115)
Investment Return (Actuarial Asset Basis)	(197,339)
Salary Increases	52,606
Active Decrements	251,322
Inactive Mortality	22,082
Contributions (More) or Less than Recommended	(8,161)
Increase in Amortization Payment Due to Payroll Growth Assumption	214,458
Change in Expected Member Contributions	(26,518)
Assumption Change	-
Other	<u>(42,192)</u>
Total Change in Contribution	43,716
(3) Contribution Determined as of January 1, 2018	\$8,939,980

STATUTORY MINIMUM REQUIRED CONTRIBUTION

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

Valuation Date	1/1/2018	1/1/2017
Applicable to Fiscal Year Ending	<u>12/31/2019</u>	<u>12/31/2018</u>
Actuarial Accrued Liability (PUC)	223,791,058	209,045,667
Actuarial Value of Assets	<u>170,491,671</u>	<u>157,660,280</u>
Unfunded Actuarial Accrued Liability (UAAL)	53,299,387	51,385,387
UAAL Subject to Amortization	30,920,281	30,480,820
Normal Cost ¹	\$5,799,709	\$5,988,631
% of Total Annual Payroll ¹	31.5	33.0
Administrative Expenses ¹	128,322	132,437
% of Total Annual Payroll ¹	0.7	0.7
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 23 years (as of 1/1/2018) ¹	1,842,954	1,759,848
% of Total Annual Payroll ¹	9.9	9.7
Total Required Contribution	7,770,985	7,880,916
% of Total Annual Payroll ¹	42.1	43.4
Expected Member Contributions ¹	1,743,575	1,717,057
% of Total Annual Payroll ¹	9.5	9.5
Expected City Contribution	6,027,410	6,163,859
% of Total Annual Payroll ¹	32.6	33.9

Assumptions and Methods:

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

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

¹ Contributions developed as of 1/1/2018 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	592,370	7,999,146	8,591,516
2019	1,164,863	8,244,302	9,409,165
2020	1,749,496	8,483,971	10,233,467
2021	2,396,077	8,667,872	11,063,949
2022	3,092,423	8,880,259	11,972,682
2023	3,849,984	9,058,983	12,908,967
2024	4,601,645	9,273,237	13,874,882
2025	5,362,277	9,454,838	14,817,115
2026	6,208,219	9,643,342	15,851,561
2027	7,122,402	9,823,162	16,945,564
2028	8,008,435	9,988,476	17,996,911
2029	8,979,093	10,131,036	19,110,129
2030	9,926,584	10,276,303	20,202,887
2031	10,943,953	10,392,125	21,336,078
2032	11,971,826	10,487,939	22,459,765
2033	12,974,029	10,563,008	23,537,037
2034	13,982,387	10,615,133	24,597,520
2035	14,961,560	10,641,703	25,603,263
2036	15,967,997	10,640,260	26,608,257
2037	16,941,470	10,608,307	27,549,777
2038	17,876,744	10,571,585	28,448,329
2039	18,811,253	10,473,322	29,284,575
2040	19,703,044	10,337,645	30,040,689
2041	20,565,777	10,162,556	30,728,333
2042	21,421,733	9,946,726	31,368,459
2043	22,187,611	9,689,295	31,876,906
2044	22,911,270	9,389,941	32,301,211
2045	23,551,169	9,049,564	32,600,733
2046	24,113,633	8,669,249	32,782,882
2047	24,593,775	8,250,721	32,844,496
2048	24,991,223	7,797,228	32,788,451
2049	25,321,128	7,313,315	32,634,443
2050	25,583,318	6,804,279	32,387,597
2051	25,770,233	6,276,848	32,047,081
2052	25,894,149	5,738,310	31,632,459
2053	25,937,172	5,195,934	31,133,106
2054	25,903,246	4,657,953	30,561,199
2055	25,791,228	4,132,455	29,923,683
2056	25,597,661	3,626,819	29,224,480
2057	25,321,121	3,148,239	28,469,360

ACTUARIAL ASSUMPTIONS AND METHODS

Mortality Rate	RP-2000 Combined Healthy Mortality with a blue collar adjustment, projected to the valuation date with Scale BB. We believe this reflects a sufficient cushion for mortality improvements. 5% of active deaths are assumed to occur in the line of duty.
Disabled Mortality Rate	RP-2000 Disabled Retiree Mortality, projected to the valuation date with Scale BB. We believe this reflects a sufficient cushion for mortality improvements.
Interest Rate	7.00% per year compounded annually, net of investment related expenses. This is approximately supported by the Fund's long-term expected rate of returns by asset class. We will continue to monitor this assumption to ensure it is in line with actual plan experience.
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	See table on following page. This is based on an experience study performed in 2012.
Inflation	2.50%.
Payroll Growth	4.50% per year.
Cost-of-Living Adjustment	<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. <u>Tier 2</u> : 1.25% per year after the later of attainment of age 60 or first anniversary of retirement.
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 2032. 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		Salary Scale	
Age	Rate	Age	Rate	Age	Rate	Service	Rate
20	9.00%	20	0.10%	50 - 53	14.00%	0	12.00%
25	5.00%	25	0.10%	54 - 59	20.00%	1	11.00%
30	2.50%	30	0.20%	60 - 62	25.00%	2	10.00%
35	2.00%	35	0.35%	63 - 64	33.00%	3	8.50%
40	1.00%	40	0.50%	65 - 69	50.00%	4	7.50%
45	1.00%	45	0.65%	70	100.00%	5	6.50%
50	1.00%	50	1.00%			6 - 25	5.00%
55	1.00%	55	1.50%			26 - 29	4.50%
60	1.00%	60	3.00%			30+	4.00%
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 2032. 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
December 31, 2017

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Checking Account	1,707,799
Money Market	1,037,399
Total Cash and Equivalents	2,745,198
Receivables:	
Contributions Due from City	660,841
Prepays	1,045
Accrued Past Due Interest	554,154
Total Receivable	1,216,040
Investments:	
State and Local Obligations	66,645
Municipal Obligations	275,223
Corporate Bonds	17,775,680
U.S. Gov't and Agency Obligations	39,952,105
Insurance Company Contracts	14,166,988
Stocks	23,526,002
Mutual Funds	74,715,637
Total Investments	170,478,280
Total Assets	174,439,518
 <u>LIABILITIES</u>	
Liabilities:	
Payable:	
Expenses	136
Total Liabilities	136
Net Assets:	
Active and Retired Members' Equity	174,439,382
NET POSITION RESTRICTED FOR PENSIONS	174,439,382
TOTAL LIABILITIES AND NET ASSETS	174,439,518

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED December 31, 2017
Market Value Basis

ADDITIONS

Contributions:

Member	1,821,286
Buybacks	15,593
City	7,338,200

Total Contributions 9,175,079

Investment Income:

Miscellaneous Income	1,908	
Net Realized Gain (Loss)	0	
Unrealized Gain (Loss)	15,532,208	
Net Increase in Fair Value of Investments		15,534,116
Interest & Dividends		5,081,473
Less Investment Expense ¹		(356,321)

Net Investment Income 20,259,268

Total Additions 29,434,347

DEDUCTIONS

Distributions to Members:

Benefit Payments	7,504,536
Refund of Contributions/Transfers	31,348

Total Distributions 7,535,884

Administrative Expenses 119,927

Total Deductions 7,655,811

Net Increase in Net Position 21,778,536

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 152,660,846

End of the Year 174,439,382

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

ACTUARIAL ASSET VALUATION

December 31, 2017

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
12/31/2016	1,768,626	1,061,176	707,450	353,725	0	0
12/31/2017	9,519,834	7,615,867	5,711,900	3,807,934	1,903,967	0
Total		8,677,043	6,419,350	4,161,659	1,903,967	0

Development of Investment Gain/Loss

Market Value of Assets, 12/31/2016	152,660,845
Contributions Less Benefit Payments & Administrative Expenses	1,519,268
Expected Investment Earnings ¹	10,739,434
Actual Net Investment Earnings	<u>20,259,268</u>
2018 Actuarial Investment Gain/(Loss)	9,519,834

¹ Expected Investment Earnings = 7.00% x (152,660,845 + 0.5 x 1,519,268)

Development of Actuarial Value of Assets

Market Value of Assets, 12/31/2017	174,439,382
(Gains)/Losses Not Yet Recognized	<u>(8,677,043)</u>
Actuarial Value of Assets, 12/31/2017	165,762,339
(A) 12/31/2016 Actuarial Assets:	151,245,944
(I) Net Investment Income:	
1. Interest and Dividends	5,083,381
2. Realized Gains (Losses)	0
3. Change in Actuarial Value	8,270,067
4. Investment Expenses	<u>(356,321)</u>
Total	12,997,127
(B) 12/31/2017 Actuarial Assets:	165,762,339
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	8.55%
Market Value of Assets Rate of Return:	13.20%
12/31/2017 Limited Actuarial Assets:	165,762,339
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	2,356,737

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS
December 31, 2017
Actuarial Asset Basis

INCOME		
Contributions:		
Member	1,821,286	
Buybacks	15,593	
City	7,338,200	
Total Contributions		9,175,079
Earnings from Investments		
Interest & Dividends	5,081,473	
Miscellaneous Income	1,908	
Net Realized Gain (Loss)	0	
Change in Actuarial Value	8,270,067	
Total Earnings and Investment Gains		13,353,448
EXPENSES		
Administrative Expenses:		
Investment Related ¹	356,321	
Other	119,927	
Total Administrative Expenses		476,248
Distributions to Members:		
Benefit Payments	7,504,536	
Refund of Contributions/Transfers	31,348	
Total Distributions		7,535,884
Change in Net Assets for the Year		14,516,395
Net Assets Beginning of the Year		151,245,944
Net Assets End of the Year ²		165,762,339

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

² Net Assets may be limited for actuarial consideration.

ACTUARIAL ASSET VALUATION - STATUTORY CALCULATION

December 31, 2017

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
12/31/2014	(1,577,485)	(315,497)	0	0	0	0
12/31/2015	(11,034,587)	(4,413,835)	(2,206,917)	0	0	0
12/31/2016	1,768,626	1,061,176	707,450	353,725	0	0
12/31/2017	9,519,834	7,615,867	5,711,900	3,807,934	1,903,967	0
Total		3,947,711	4,212,433	4,161,659	1,903,967	0

Development of Investment Gain/Loss

Market Value of Assets, 12/31/2016	152,660,845
Contributions Less Benefit Payments & Administrative Expenses	1,519,268
Expected Investment Earnings ¹	10,739,434
Actual Net Investment Earnings	<u>20,259,268</u>
2018 Actuarial Investment Gain/(Loss)	9,519,834

¹ Expected Investment Earnings = 7.00% x (152,660,845 + 0.5 x 1,519,268)

Development of Actuarial Value of Assets

Market Value of Assets, 12/31/2017	174,439,382
(Gains)/Losses Not Yet Recognized	<u>(3,947,711)</u>
Actuarial Value of Assets, 12/31/2017	170,491,671
(A) 12/31/2016 Actuarial Assets:	157,660,280
(I) Net Investment Income:	
1. Interest and Dividends	5,083,381
2. Realized Gains (Losses)	0
3. Change in Actuarial Value	6,585,063
4. Investment Expenses	<u>(356,321)</u>
Total	11,312,123
(B) 12/31/2017 Actuarial Assets:	170,491,671
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	7.14%
Market Value of Assets Rate of Return:	13.21%
12/31/2017 Limited Actuarial Assets:	170,491,671

STATISTICAL DATA ¹

	<u>1/1/2015</u>	<u>1/1/2016</u>	<u>1/1/2017</u>	<u>1/1/2018</u>
<u>Actives - Tier 1</u>				
Number	N/A	157	149	133
Average Current Age	N/A	N/A	45.8	45.7
Average Age at Employment	N/A	N/A	27.9	28.0
Average Past Service	N/A	N/A	17.9	17.7
Average Annual Salary	N/A	N/A	\$102,368	\$107,580
<u>Actives - Tier 2</u>				
Number	N/A	32	38	52
Average Current Age	N/A	N/A	30.3	30.8
Average Age at Employment	N/A	N/A	28.0	28.5
Average Past Service	N/A	N/A	2.3	2.3
Average Annual Salary	N/A	N/A	\$76,512	\$79,475
<u>Service Retirees</u>				
Number	61	68	73	89
Average Current Age	N/A	N/A	61.2	60.8
Average Annual Benefit	\$75,421	\$75,399	\$77,539	\$78,451
<u>Beneficiaries</u>				
Number	5	11	11	10
Average Current Age	N/A	N/A	43.3	51.9
Average Annual Benefit	\$43,091	\$19,754	\$24,091	\$35,089
<u>Disability Retirees</u>				
Number	16	16	17	16
Average Current Age	N/A	N/A	54.3	55.5
Average Annual Benefit	\$39,849	\$40,063	\$42,868	\$43,776
<u>Terminated Vested</u>				
Number	2	4	6	8
Average Current Age	N/A	N/A	48.1	48.7
Average Annual Benefit ²	\$13,232	\$9,516	\$39,702	\$24,192

¹ Foster & Foster does not have enough historical data to include complete data prior to 1/1/2016. We will add historical data moving forward.

² 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	2	0	0	0	0	0	0	0	0	0	0	2
25 - 29	7	5	6	2	1	0	0	0	0	0	0	21
30 - 34	8	3	2	4	2	9	2	0	0	0	0	30
35 - 39	0	0	1	1	1	10	14	0	0	0	0	27
40 - 44	0	0	0	0	0	2	10	17	0	0	0	29
45 - 49	0	0	0	0	0	2	6	13	15	0	0	36
50 - 54	0	0	0	0	0	1	0	2	13	10	2	28
55 - 59	0	0	0	0	0	0	0	0	4	3	3	10
60 - 64	0	0	0	0	0	0	0	0	0	1	1	2
65+	0	0	0	0	0	0	0	0	0	0	0	0
Total	17	8	9	7	4	24	32	32	32	14	6	185

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 1/1/2017	187
b. Terminations	
i. Vested (partial or full) with deferred benefits	(2)
ii. Non-vested or full lump sum distribution received	(1)
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>(16)</u>
f. Continuing participants	168
g. New entrants	<u>17</u>
h. Total active life participants in valuation	185

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	73	11	17	6	107
Retired	17	0	(1)	0	16
Vested Deferred	0	0	0	3	3
Death, With Survivor	(1)	1	0	0	0
Death, No Survivor	0	(2)	0	0	(2)
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	0	0
Hired/Termed in Same Year	0	0	0	0	0
b. Number current valuation	89	10	16	8	123

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.

STATEMENT OF FIDUCIARY NET POSITION
DECEMBER 31, 2017

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Checking Account	1,707,799
Money Market	1,037,399
Total Cash and Equivalents	2,745,198
Receivables:	
Contributions Due from City	660,841
Prepays	1,045
Accrued Past Due Interest	554,154
Total Receivable	1,216,040
Investments:	
State and Local Obligations	66,645
Municipal Obligations	275,223
Corporate Bonds	17,775,680
U.S. Gov't and Agency Obligations	39,952,105
Insurance Company Contracts	14,166,988
Stocks	23,526,002
Mutual Funds	74,715,637
Total Investments	170,478,280
Total Assets	174,439,518
 <u>LIABILITIES</u>	
Liabilities:	
Payable:	
Expenses	136
Total Liabilities	136
 NET POSITION RESTRICTED FOR PENSIONS	 174,439,382

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED DECEMBER 31, 2017
Market Value Basis

ADDITIONS

Contributions:

Member	1,821,286
Buybacks	15,593
City	7,338,200

Total Contributions	9,175,079
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Investment Income:

Net Increase in Fair Value of Investments	15,534,116
Interest & Dividends	5,081,473
Less Investment Expense ¹	(356,321)

Net Investment Income	20,259,268
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Total Additions	29,434,347
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DEDUCTIONS

Distributions to Members:

Benefit Payments	7,504,536
Refund of Contributions/Transfers	31,348

Total Distributions	7,535,884
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Administrative Expense	119,927
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Total Deductions	7,655,811
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Net Increase in Net Position	21,778,536
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NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year	152,660,846
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End of the Year	174,439,382
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¹Investment related expenses include investment advisory, custodial and performance monitoring fees.

NOTES TO THE FINANCIAL STATEMENTS
(For the Year Ended December 31, 2017)

Plan Description

Plan Administration

The Plan is a single-employer defined benefit pension plan administered by the Plan's 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 January 1, 2017:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	101
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	6
Active Plan Members	187
	294
	294

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.

GASB 67

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 December 31, 2017:

<u>Asset Class</u>	<u>Target Allocation</u>
Fixed Income	35.0%
U.S. Equity	35.0%
International Equity	15.0%
Real Estate-Core	10.0%
Global Tactical	5.0%
<u>Total</u>	<u>100.0%</u>

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 December 31, 2017, the annual money-weighted rate of return on Pension Plan investments, net of Pension Plan investment expense, was 13.31 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 December 31, 2017 were as follows:

Total Pension Liability	\$ 222,581,373
Plan Fiduciary Net Position	\$ (174,439,382)
Sponsor's Net Pension Liability	<u>\$ 48,141,991</u>
Plan Fiduciary Net Position as a percentage of Total Pension Liability	78.37%

Actuarial Assumptions:

The Total Pension Liability was determined by an actuarial valuation as of January 1, 2017 updated to December 31, 2017 using the following actuarial assumptions:

Inflation	2.50%
Salary Increases	Service based
Discount Rate	7.00%
Investment Rate of Return	7.00%

Mortality Rate: RP-2000 Combined Healthy Mortality with a blue collar adjustment, projected to the valuation date with Scale BB. We believe this reflects a sufficient cushion for mortality improvements.

Disabled Mortality Rate: RP-2000 Disabled Retiree, projected to the valuation date with Scale BB. We believe this reflects a sufficient cushion for mortality improvements.

The most recent actuarial experience study used to review the other significant assumptions was 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 2017, the inflation rate assumption of the investment advisor was 2.30%.

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 December 31, 2017 are summarized in the following table:

Asset Class	Long Term Expected Real Rate of Return
Fixed Income	2.1%
U.S. Equity	5.6%
International Equity	5.8%
Real Estate-Core	5.2%
Global Tactical	3.9%

GASB 67

Discount Rate:

The Discount Rate used to measure the Total Pension Liability was 7.00 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 7.00 percent; the municipal bond rate is 3.44 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 7.00 percent.

	1% Decrease 6.00%	Current Discount Rate 7.00%	1% Increase 8.00%
Sponsor's Net Pension Liability	\$ 81,285,305	\$ 48,141,991	\$ 21,105,079

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
Last 10 Years

	12/31/2017	12/31/2016	12/31/2015 ¹
Total Pension Liability			
Service Cost	5,414,018	5,196,429	3,038,367
Interest	14,813,198	14,032,562	8,558,822
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	(96,584)	(5,954,167)	5,414,803
Changes of assumptions	-	4,639,327	-
Contributions - Buy Back	15,593	-	-
Benefit Payments, including Refunds of Employee Contributions	(7,535,884)	(6,423,714)	(3,869,445)
Net Change in Total Pension Liability	12,610,341	11,490,437	13,142,547
Total Pension Liability - Beginning	209,971,032	198,480,595	185,338,048
Total Pension Liability - Ending (a)	<u>\$ 222,581,373</u>	<u>\$ 209,971,032</u>	<u>\$ 198,480,595</u>
Plan Fiduciary Net Position			
Contributions - Employer	7,338,200	6,415,496	5,355,723
Contributions - Employee	1,821,286	1,756,451	1,181,158
Contributions - Buy Back	15,593	-	-
Net Investment Income	20,259,268	11,586,944	(4,543,027)
Benefit Payments, including Refunds of Employee Contributions	(7,535,884)	(6,423,714)	(3,869,445)
Administrative Expense	(119,927)	(123,773)	(82,866)
Net Change in Plan Fiduciary Net Position	21,778,536	13,211,404	(1,958,457)
Plan Fiduciary Net Position - Beginning	152,660,846	139,449,442	141,407,899
Plan Fiduciary Net Position - Ending (b)	<u>\$ 174,439,382</u>	<u>\$ 152,660,846</u>	<u>\$ 139,449,442</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 48,141,991</u>	<u>\$ 57,310,186</u>	<u>\$ 59,031,153</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	78.37%	72.71%	70.26%
Covered Employee Payroll	\$ 19,262,676	\$ 18,576,954	\$ 18,315,408
Net Pension Liability as a percentage of Covered Employee Payroll	249.92%	308.50%	322.30%

Notes to Schedule:

¹ The 2015 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

Changes of assumptions:

For measurement date 12/31/2016, amounts reported as changes of assumptions resulted from the following assumption changes:

- The mortality assumptions were updated to include mortality improvements through the valuation date using Scale BB.
- The salary scale was updated from a flat 5.00% to a service-based table.

SCHEDULE OF CONTRIBUTIONS
Last 10 Years

	12/31/2017	12/31/2016	12/31/2015 ¹
Actuarially Determined Contribution	7,237,440	5,871,947	4,820,338
Contributions in relation to the			
Actuarially Determined Contributions	7,338,200	6,415,496	5,355,723
Contribution Deficiency (Excess)	<u>\$ (100,760)</u>	<u>\$ (543,549)</u>	<u>\$ (535,385)</u>
Covered Employee Payroll	\$ 19,262,676	\$ 18,576,954	\$ 18,315,408
Contributions as a percentage of			
Covered Employee Payroll	38.10%	34.53%	29.24%

¹ The 2015 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

Notes to Schedule

Valuation Date: 01/01/2016
Actuarially determined contribution rates are calculated as of January 1, two years prior to the end of the year 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: 17 years (as of 01/01/2016 Valuation).
 Asset Valuation Method: Market Value. 5-year Average Market Value (PA 096-1495).
 Investment Return: 7.00% net of investment expenses.
 Salary Scale: 5.00%.
 Mortality: RP 2000 Mortality Table (CHBCA). There is no margin for future mortality improvement beyond the valuation date.
 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).
 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 10 Fiscal Years

	<u>12/31/2017</u>	<u>12/31/2016</u>	<u>12/31/2015 ¹</u>
Annual Money-Weighted Rate of Return			
Net of Investment Expense	13.31%	8.32%	-3.20%

¹ The 2015 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

NOTES TO THE FINANCIAL STATEMENTS
(For the Year Ended December 31, 2017)

General Information about the Pension Plan

Plan Description

The Plan is a single-employer defined benefit pension plan administered by the Plan's 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.

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 Membership as of January 1, 2017:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	101
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	6
Active Plan Members	<u>187</u> <u>294</u>

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 December 31, 2017.

The measurement period for the pension expense was January 1, 2017 to December 31, 2017.

The reporting period is January 1, 2017 through December 31, 2017.

The Sponsor's Net Pension Liability was measured as of December 31, 2017.

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 January 1, 2017 updated to December 31, 2017 using the following actuarial assumptions:

Inflation	2.50%
Salary Increases	Service based
Discount Rate	7.00%
Investment Rate of Return	7.00%

Mortality Rate: RP-2000 Combined Healthy Mortality with a blue collar adjustment, projected to the valuation date with Scale BB. We believe this reflects a sufficient cushion for mortality improvements.

Disabled Mortality Rate: RP-2000 Disabled Retiree, projected to the valuation date with Scale BB. We believe this reflects a sufficient cushion for mortality improvements.

The most recent actuarial experience study used to review the other significant assumptions was 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 2017, the inflation rate assumption of the investment advisor was 2.30%.

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.

GASB 68

Best estimates of geometric real rates of return for each major asset class included in the Pension Plan's target asset allocation as of December 31, 2017 are summarized in the following table:

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long Term Expected Real Rate of Return</u>
Fixed Income	35.0%	2.1%
U.S. Equity	35.0%	5.6%
International Equity	15.0%	5.8%
Real Estate-Core	10.0%	5.2%
Global Tactical	5.0%	3.9%
Total	<u>100.0%</u>	

Discount Rate:

The Discount Rate used to measure the Total Pension Liability was 7.00 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 7.00 percent; the municipal bond rate is 3.44 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 7.00 percent.

CHANGES IN NET PENSION LIABILITY

	Increase (Decrease)		
	Total Pension	Plan Fiduciary	Net Pension
	Liability	Net Position	Liability
	(a)	(b)	(a)-(b)
Balances at December 31, 2016	\$ 209,971,032	\$ 152,660,846	\$ 57,310,186
Changes for a Year:			
Service Cost	5,414,018	-	5,414,018
Interest	14,813,198	-	14,813,198
Differences between Expected and Actual Experience	(96,584)	-	(96,584)
Changes of assumptions	-	-	-
Changes of benefit terms	-	-	-
Contributions - Employer	-	7,338,200	(7,338,200)
Contributions - Employee	-	1,821,286	(1,821,286)
Contributions - Buy Back	15,593	15,593	-
Net Investment Income	-	20,259,268	(20,259,268)
Benefit Payments, including Refunds of Employee Contributions	(7,535,884)	(7,535,884)	-
Administrative Expense	-	(119,927)	119,927
Net Changes	12,610,341	21,778,536	(9,168,195)
Balances at December 31, 2017	\$ 222,581,373	\$ 174,439,382	\$ 48,141,991

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

	Current		
	1% Decrease	Discount Rate	1% Increase
	6.00%	7.00%	8.00%
Sponsor's Net Pension Liability	\$ 81,285,305	\$ 48,141,991	\$ 21,105,079

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 December 31, 2017, the Sponsor will recognize a Pension Expense of \$8,579,159.

On December 31, 2017, 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	2,349,820	4,548,414
Changes of assumptions	3,479,496	-
Net difference between Projected and Actual Earnings on Pension Plan investments	-	4,263,208
Total	\$ 5,829,316	\$ 8,811,622

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date will be recognized as a reduction of the Net Pension Liability in the year ended December 31, 2017.

Year ended December 31:

2018	\$ 792,733
2019	\$ 792,734
2020	\$ (2,129,347)
2021	\$ (2,082,120)
2022	\$ (178,153)
Thereafter	\$ (178,153)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Years

	12/31/2017	12/31/2016	12/31/2015 ¹
Total Pension Liability			
Service Cost	5,414,018	5,196,429	3,038,367
Interest	14,813,198	14,032,562	8,558,822
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	(96,584)	(5,954,167)	5,414,803
Changes of assumptions	-	4,639,327	-
Contributions - Buy Back	15,593	-	-
Benefit Payments, including Refunds of Employee Contributions	(7,535,884)	(6,423,714)	(3,869,445)
Net Change in Total Pension Liability	12,610,341	11,490,437	13,142,547
Total Pension Liability - Beginning	209,971,032	198,480,595	185,338,048
Total Pension Liability - Ending (a)	<u>\$ 222,581,373</u>	<u>\$ 209,971,032</u>	<u>\$ 198,480,595</u>
Plan Fiduciary Net Position			
Contributions - Employer	7,338,200	6,415,496	5,355,723
Contributions - Employee	1,821,286	1,756,451	1,181,158
Contributions - Buy Back	15,593	-	-
Net Investment Income	20,259,268	11,586,944	(4,543,027)
Benefit Payments, including Refunds of Employee Contributions	(7,535,884)	(6,423,714)	(3,869,445)
Administrative Expense	(119,927)	(123,773)	(82,866)
Net Change in Plan Fiduciary Net Position	21,778,536	13,211,404	(1,958,457)
Plan Fiduciary Net Position - Beginning	152,660,846	139,449,442	141,407,899
Plan Fiduciary Net Position - Ending (b)	<u>\$ 174,439,382</u>	<u>\$ 152,660,846</u>	<u>\$ 139,449,442</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 48,141,991</u>	<u>\$ 57,310,186</u>	<u>\$ 59,031,153</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	78.37%	72.71%	70.26%
Covered Employee Payroll	\$ 19,262,676	\$ 18,576,954	\$ 18,315,408
Net Pension Liability as a percentage of Covered Employee Payroll	249.92%	308.50%	322.30%

Notes to Schedule:

¹ The 2015 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

Changes of assumptions:

For measurement date 12/31/2016, amounts reported as changes of assumptions resulted from the following assumption changes:

- The mortality assumptions were updated to include mortality improvements through the valuation date using Scale BB.
- The salary scale was updated from a flat 5.00% to a service-based table.

SCHEDULE OF CONTRIBUTIONS
Last 10 Years

	12/31/2017	12/31/2016	12/31/2015 ¹
Actuarially Determined Contribution	7,237,440	5,871,947	4,820,338
Contributions in relation to the			
Actuarially Determined Contributions	7,338,200	6,415,496	5,355,723
Contribution Deficiency (Excess)	<u>\$ (100,760)</u>	<u>\$ (543,549)</u>	<u>\$ (535,385)</u>
Covered Employee Payroll	\$ 19,262,676	\$ 18,576,954	\$ 18,315,408
Contributions as a percentage of			
Covered Employee Payroll	38.10%	34.53%	29.24%

¹ The 2015 results were provided by the prior actuary, Timothy W. Sharpe, Actuary, Geneva, IL.

Notes to Schedule

Valuation Date: 01/01/2016
Actuarially determined contribution rates are calculated as of January 1, two years prior to the end of the year 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: 17 years (as of 01/01/2016 Valuation).
 Asset Valuation Method: Market Value. 5-year Average Market Value (PA 096-1495).
 Investment Return: 7.00% net of investment expenses.
 Salary Scale: 5.00%.
 Mortality: RP 2000 Mortality Table (CHBCA). There is no margin for future mortality improvement beyond the valuation date.
 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).
 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	0.00	0.00	100.00

COMPONENTS OF PENSION EXPENSE
FISCAL YEAR ENDING DECEMBER 31, 2017

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning balance	\$ 57,310,186	\$ 6,624,797	\$ 14,051,645	\$ -
Total Pension Liability Factors:				
Service Cost	5,414,018	-	-	5,414,018
Interest	14,813,198	-	-	14,813,198
Changes in benefit terms	-	-	-	-
Contributions - Buy Back	15,593	-	-	15,593
Differences between Expected and Actual Experience with regard to economic or demographic assumptions	(96,584)	96,584	-	-
Current year amortization of experience difference	-	(758,067)	(1,021,661)	263,594
Change in assumptions about future economic or demographic factors or other inputs	-	-	-	-
Current year amortization of change in assumptions	-	-	(579,916)	579,916
Benefit Payments, including Refunds of Employee Contributions	(7,535,884)	-	-	-
Net change	<u>12,610,341</u>	<u>(661,483)</u>	<u>(1,601,577)</u>	<u>21,086,319</u>
Plan Fiduciary Net Position:				
Contributions - Employer	7,338,200	-	-	-
Contributions - Employee	1,821,286	-	-	(1,821,286)
Contributions - Buy Back	15,593	-	-	(15,593)
Projected Net Investment Income	10,739,434	-	-	(10,739,434)
Difference between projected and actual earnings on Pension Plan investments	9,519,834	9,519,834	-	-
Current year amortization	-	(2,257,691)	(2,206,917)	(50,774)
Benefit Payments, including Refunds of Employee Contributions	(7,535,884)	-	-	-
Administrative Expenses	(119,927)	-	-	119,927
Net change	<u>21,778,536</u>	<u>7,262,143</u>	<u>(2,206,917)</u>	<u>(12,507,160)</u>
Ending Balance	<u>\$ 48,141,991</u>	<u>\$ 13,225,457</u>	<u>\$ 10,243,151</u>	<u>\$ 8,579,159</u>

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

Plan Year Ending	Differences Between Projected and Actual Earnings	Recognition Period (Years)	2017	2018	2019	2020	2021	2022	2023	2024	2025
2017	\$ (9,519,834)	5	\$ (1,903,966)	\$ (1,903,967)	\$ (1,903,967)	\$ (1,903,967)	\$ (1,903,967)	\$ -	\$ -	\$ -	\$ -
2016	\$ (1,768,626)	5	\$ (353,725)	\$ (353,725)	\$ (353,725)	\$ (353,725)	\$ -	\$ -	\$ -	\$ -	\$ -
2015	\$ 11,034,586	5	\$ 2,206,917	\$ 2,206,917	\$ 2,206,918	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ (50,774)	\$ (50,775)	\$ (50,774)	\$ (2,257,692)	\$ (1,903,967)	\$ -	\$ -	\$ -	\$ -

AMORTIZATION SCHEDULE - CHANGES OF ASSUMPTIONS

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

Plan Year Ending	Changes of Assumptions	Recognition Period (Years)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
2016	\$ 4,639,327	8	\$ 579,916	\$ 579,916	\$ 579,916	\$ 579,916	\$ 579,916	\$ 579,916	\$ 579,916	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 579,916	\$ 579,916	\$ 579,916	\$ 579,916	\$ 579,916	\$ 579,916	\$ 579,916	\$ -	\$ -	\$ -

AMORTIZATION SCHEDULE - EXPERIENCE

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

Plan Year Ending	Differences Between Expected and Actual Experience	Recognition Period (Years)	2017	2018	2019	2020	2021	2022	2023	2024	2025
2017	\$ (96,584)	7	\$ (13,796)	\$ (13,798)	\$ (13,798)	\$ (13,798)	\$ (13,798)	\$ (13,798)	\$ (13,798)	\$ -	\$ -
2016	\$ (5,954,167)	8	\$ (744,271)	\$ (744,271)	\$ (744,271)	\$ (744,271)	\$ (744,271)	\$ (744,271)	\$ (744,271)	\$ -	\$ -
2015	\$ 5,414,803	5.3	\$ 1,021,661	\$ 1,021,661	\$ 1,021,661	\$ 306,498	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 263,594	\$ 263,592	\$ 263,592	\$ (451,571)	\$ (758,069)	\$ (758,069)	\$ (758,069)	\$ -	\$ -