

CITY OF EVANSTON
FIREFIGHTERS' PENSION FUND
ACTUARIAL VALUATION
AS OF JANUARY 1, 2018
CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2019

August 21, 2018

Board of Trustees
City of Evanston
Firefighters' Pension Fund
2100 Ridge Avenue
Evanston, IL 60201

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

Dear Board:

We are pleased to present to the Board this report of the annual actuarial valuation of the City of Evanston Firefighters' Pension Fund. The 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. Please note that this valuation may not be applicable for any other purposes.

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 Board, 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 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 Evanston, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Evanston 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: 
Julie E. Franken, EA, MAAA

JLF/lke
Enclosures

TABLE OF CONTENTS

Section	Title	Page
I	Introduction	
	a. Summary of Report	5
	b. Changes Since Prior Valuation	6
	c. Comparative Summary of Principal Valuation Results	7
II	Valuation Information	
	a. Development of Amortization Payment	12
	b. Detailed Actuarial (Gain)/Loss Analysis	13
	c. Reconciliation of Changes in Contribution Requirement	14
	d. Statutory Minimum Required Contribution	15
	e. Projection of Benefit Payments	16
	f. Actuarial Assumptions and Methods	17
	g. Glossary	19
III	Trust Fund	20
IV	Member Statistics	
	a. Statistical Data	24
	b. Age and Service Distribution	25
	c. Valuation Participant Reconciliation	26
V	Summary of Current Plan	27

SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Evanston 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	1/1/2018	1/1/2017
Applicable to Fiscal Year Ending	<u>12/31/2019</u>	<u>12/31/2018</u>
Total Recommended Contribution	\$9,670,806	\$9,720,585
% of Projected Annual Payroll	95.3%	96.9%
Member Contributions (Est.)	959,619	948,867
% of Projected Annual Payroll	9.5%	9.5%
City Recommended Contribution	8,711,187	8,771,718
% of Projected Annual Payroll	85.8%	87.4%

As you can see, the Total Recommended Contribution, shows a decrease when compared to the results determined in the January 1, 2017 actuarial valuation report. The decrease is mostly attributable to the change in assumptions, lower than expected retirement experience and lower than expected salary increases. In addition, assets earned a 6.36% investment return (Actuarial basis) which exceeded the 6.25% assumption.

The decrease in the recommended contribution was offset by an increase in liability resulting from projecting assumed mortality improvement to the current valuation date. See page 14 for additional detail regarding changes in the contribution amount.

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

Based on the results of the 2017 Department of Insurance experience study, the following assumption changes were made:

- Updated retirement, termination and disability rate tables.
- Updated the percentage of disabilities assumed to be in the line of duty from 90% to 80%.
- Updated the percentage of deaths assumed to be in the line of duty from 5% to 20%.

There were no method changes since the prior valuation.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Assump <u>1/1/2018</u>	Old Assump <u>1/1/2018</u>	<u>1/1/2017</u>
A. Participant Data			
Number Included			
Actives	104	104	103
Service Retirees	82	82	86
Beneficiaries	32	32	30
Disability Retirees	22	22	21
Terminated Vested	<u>3</u>	<u>3</u>	<u>3</u>
Total	243	243	243
Total Annual Payroll	\$10,149,326	\$10,149,326	\$10,035,610
Payroll Under Assumed Ret. Age	10,149,326	10,149,326	10,035,610
Annual Rate of Payments to:			
Service Retirees	5,990,038	5,990,038	6,077,693
Beneficiaries	1,380,303	1,380,303	1,042,429
Disability Retirees	1,377,630	1,377,630	1,277,542
Terminated Vested	46,357	46,357	46,357
B. Assets			
Actuarial Value	78,282,857	78,282,857	73,120,605
Market Value	79,073,077	79,073,077	70,599,997
C. Liabilities			
Present Value of Benefits			
Actives			
Retirement Benefits	70,512,500	69,226,124	68,112,884
Disability Benefits	7,433,562	9,428,694	9,417,937
Death Benefits	1,949,168	1,465,563	1,483,771
Vested Benefits	2,788,483	2,812,336	2,724,001
Service Retirees	87,998,515	87,998,515	88,930,251
Beneficiaries	12,749,616	12,749,616	9,500,427
Disability Retirees	19,135,946	19,135,946	17,856,575
Terminated Vested	<u>1,034,943</u>	<u>1,034,943</u>	<u>975,486</u>
Total	203,602,733	203,851,737	199,001,332

C. Liabilities - (Continued)	New Assump <u>1/1/2018</u>	Old Assump <u>1/1/2018</u>	<u>1/1/2017</u>
Present Value of Future Salaries	114,108,025	107,929,588	107,969,783
Present Value of Future Member Contributions	10,788,914	10,204,743	10,208,543
Normal Cost (Retirement)	2,216,972	2,209,969	2,193,100
Normal Cost (Disability)	413,276	545,267	541,433
Normal Cost (Death)	113,382	88,574	89,286
Normal Cost (Vesting)	<u>160,718</u>	<u>161,570</u>	<u>157,592</u>
Total Normal Cost	2,904,348	3,005,380	2,981,411
Present Value of Future Normal Costs	29,619,165	29,271,655	29,680,659
Accrued Liability (Retirement)	47,623,975	47,496,701	46,055,470
Accrued Liability (Disability)	3,155,971	4,005,694	3,931,184
Accrued Liability (Death)	776,888	619,525	610,290
Accrued Liability (Vesting)	1,507,714	1,539,142	1,460,990
Accrued Liability (Inactives)	<u>120,919,020</u>	<u>120,919,020</u>	<u>117,262,739</u>
Total Actuarial Accrued Liability	173,983,568	174,580,082	169,320,673
Unfunded Actuarial Accrued Liability (UAAL)	95,700,711	96,297,225	96,200,068
Funded Ratio (AVA / AL)	45.0%	44.8%	43.2%

	New Assump <u>1/1/2018</u>	Old Assump <u>1/1/2018</u>	<u>1/1/2017</u>
D. Actuarial Present Value of Accrued Benefits			
Vested Accrued Benefits			
Inactives	120,919,020	120,919,020	117,262,739
Actives	18,654,666	19,859,653	21,978,914
Member Contributions	<u>9,661,291</u>	<u>9,661,291</u>	<u>9,181,673</u>
Total	149,234,977	150,439,964	148,423,326
Non-vested Accrued Benefits	<u>3,459,122</u>	<u>3,763,692</u>	<u>1,149,714</u>
Total Present Value Accrued Benefits	152,694,099	154,203,656	149,573,040
Funded Ratio (MVA / PVAB)	51.8%	51.3%	47.2%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:			
Plan Amendments	0	0	
Assumption Changes	(1,509,557)	0	
New Accrued Benefits	0	4,160,713	
Benefits Paid	0	(8,609,369)	
Interest	0	9,079,272	
Other	<u>0</u>	<u>0</u>	
Total	(1,509,557)	4,630,616	

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

E. Pension Cost

Normal Cost ¹	\$3,085,870	\$3,193,216	\$3,167,749
% of Total Annual Payroll ¹	30.4	31.5	31.6
Administrative Expenses ¹	77,180	77,180	90,188
% of Total Annual Payroll ¹	0.8	0.8	0.9
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 23 years (as of 1/1/2018) ¹	6,507,756	6,552,376	6,462,648
% of Total Annual Payroll ¹	64.1	64.5	64.4
Total Recommended Contribution	9,670,806	9,822,772	9,720,585
% of Total Annual Payroll ¹	95.3	96.8	96.9
Expected Member Contributions ¹	959,619	959,619	948,867
% of Total Annual Payroll ¹	9.5	9.5	9.5
Expected City Contribution	8,711,187	8,863,153	8,771,718
% of Total Annual Payroll ¹	85.8	87.3	87.4

F. Past Contributions

Plan Years Ending:	<u>12/31/2017</u>
Total Recommended Contribution	9,746,710
City	8,771,718
Actual Contributions Made:	
Members (excluding buyback)	974,992
City	<u>8,205,800</u>
Total	9,180,792

G. Net Actuarial (Gain)/Loss 299,770

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> ¹
2018	78,302,354
2019	76,688,495
2020	74,973,770
2025	64,652,188
2031	47,335,418
2036	27,227,615
2041	0

¹ Target funded percentage is 90%, so not all of the Unfunded Actuarial Accrued Liability is amortized.

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/31/2017	2.02%	4.36%
Year Ended	12/31/2016	4.47%	4.34%
Year Ended	12/31/2015	3.32%	4.46%

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/31/2017	6.36%	6.25%
Year Ended	12/31/2016	5.55%	6.50%
Year Ended	12/31/2015	3.87%	6.50%

DEVELOPMENT OF JANUARY 1, 2018 AMORTIZATION PAYMENT

(1)	Unfunded Actuarial Accrued Liability as of January 1, 2017	\$96,200,068
(2)	Sponsor Normal Cost developed as of January 1, 2017	2,032,544
(3)	Expected administrative expenses for the year ended December 31, 2017	84,883
(4)	Expected interest on (1), (2) and (3)	6,142,191
(5)	Sponsor contributions to the System during the year ended December 31, 2017	8,205,800
(6)	Expected interest on (5)	256,431
(7)	Expected Unfunded Actuarial Accrued Liability as of December 31, 2017, (1)+(2)+(3)+(4)-(5)-(6)	95,997,455
(8)	Change to UAAL due to Assumption Change	(596,514)
(9)	Change to UAAL due to Actuarial (Gain)/Loss	299,770
(10)	Unfunded Accrued Liability as of January 1, 2018	95,700,711
(11)	UAAL Subject to Amortization (90% AAL less Actuarial Assets)	78,302,354

<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	23	78,302,354	6,124,947

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of January 1, 2017	\$96,200,068
(2) Expected UAAL as of January 1, 2018	95,997,455
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	(77,844)
Salary Increases	(1,212,906)
Active Decrements	29,082
Inactive Mortality	270,950
Mortality Update/Other	<u>1,290,488</u>
Change in UAAL due to (Gain)/Loss	299,770
Assumption Changes	<u>(596,514)</u>
(4) Actual UAAL as of January 1, 2018	\$95,700,711

RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of January 1, 2017	\$ 8,771,718
(2) Summary of Contribution Impact by component:	
Change in Normal Cost	25,467
Change in Assumed Administrative Expense	(13,008)
Investment Return (Actuarial Asset Basis)	(5,293)
Salary Increases	(82,479)
New Entrants	-
Active Decrements	1,978
Inactive Mortality	18,425
Data Corrections	-
Contributions (More) or Less than Recommended	(44,129)
Change in Expected Member Contributions	(10,752)
Assumption Change	(151,966)
Mortality Update/Other	<u>201,226</u>
Total Change in Contribution	(60,531)
(3) Contribution Determined as of January 1, 2018	\$8,711,187

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 Assump 1/1/2018	Old Assump 1/1/2018	1/1/2017
Valuation Date	<u>12/31/2019</u>	<u>12/31/2019</u>	<u>12/31/2018</u>
Applicable to Fiscal Year Ending			
Actuarial Accrued Liability (PUC)	170,910,408	172,153,743	167,105,713
Actuarial Value of Assets	<u>78,282,857</u>	<u>78,282,857</u>	<u>73,120,605</u>
Unfunded Actuarial Accrued Liability (UAAL)	92,627,551	93,870,886	93,985,108
UAAL Subject to Amortization	75,536,510	76,655,512	77,274,537
Normal Cost ¹	\$3,230,391	\$3,306,137	\$3,216,189
% of Total Annual Payroll ¹	31.8	32.6	32.0
Administrative Expenses ¹	77,180	77,180	90,188
% of Total Annual Payroll ¹	0.8	0.8	0.9
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 23 years (as of 1/1/2018) ¹	4,586,508	4,654,453	4,549,790
% of Total Annual Payroll ¹	45.2	45.8	45.3
Total Required Contribution	7,894,079	8,037,770	7,856,167
% of Total Annual Payroll ¹	77.8	79.2	78.2
Expected Member Contributions ¹	959,619	959,619	948,867
% of Total Annual Payroll ¹	9.5	9.5	9.5
Expected City Contribution	6,934,460	7,078,151	6,907,300
% of Total Annual Payroll ¹	68.3	69.7	68.7
Assumptions and Methods:			
Actuarial Cost Method	Projected Unit Credit		
Amortization Method	90% Funding by 2040		
Payroll Growth Assumption	3.50%		

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	278,164	8,742,495	9,020,659
2019	514,786	8,779,428	9,294,214
2020	763,127	8,886,494	9,649,621
2021	1,015,854	8,958,878	9,974,732
2022	1,278,647	9,017,671	10,296,318
2023	1,569,039	9,083,914	10,652,953
2024	1,886,797	9,118,510	11,005,307
2025	2,238,917	9,139,805	11,378,722
2026	2,600,862	9,147,326	11,748,188
2027	2,980,770	9,140,062	12,120,832
2028	3,405,143	9,117,196	12,522,339
2029	3,816,085	9,077,333	12,893,418
2030	4,241,163	9,033,980	13,275,143
2031	4,687,604	8,955,886	13,643,490
2032	5,162,890	8,855,348	14,018,238
2033	5,658,389	8,730,418	14,388,807
2034	6,179,274	8,579,506	14,758,780
2035	6,721,489	8,425,863	15,147,352
2036	7,273,490	8,220,133	15,493,623
2037	7,821,101	7,984,823	15,805,924
2038	8,403,757	7,719,801	16,123,558
2039	8,980,476	7,424,861	16,405,337
2040	9,553,149	7,100,877	16,654,026
2041	10,051,644	6,749,564	16,801,208
2042	10,559,189	6,373,453	16,932,642
2043	11,029,843	5,976,304	17,006,147
2044	11,515,481	5,562,447	17,077,928
2045	11,963,999	5,137,051	17,101,050
2046	12,317,569	4,706,335	17,023,904
2047	12,611,302	4,276,203	16,887,505
2048	12,858,484	3,852,294	16,710,778
2049	13,081,613	3,441,161	16,522,774
2050	13,267,885	3,048,568	16,316,453
2051	13,397,464	2,678,722	16,076,186
2052	13,487,482	2,335,297	15,822,779
2053	13,538,386	2,020,218	15,558,604
2054	13,550,365	1,734,096	15,284,461
2055	13,523,174	1,477,725	15,000,899
2056	13,454,883	1,250,776	14,705,659
2057	13,346,365	1,051,965	14,398,330

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.
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 2040. The amortizable UAAL is 90% of the Accrued Liability less the Actuarial Value of Assets.
Payroll Growth	None.
Administrative Expenses	Expenses paid out of the fund other than investment-related expenses are assumed to be equal to those paid in the previous year.

Decrement Tables

% Terminating During the Year		% Becoming Disabled During the Year		% Retiring During the Year (Tier 1)		% Retiring During the Year (Tier 2)	
Age	Rate	Age	Rate	Age	Rate	Age	Rate
20	7.00%	20	0.010%	50-51	10%	50-54	3%
25	5.80%	25	0.016%	52-23	12%	55	30%
30	3.50%	30	0.068%	54-55	15%	56-59	20%
35	1.75%	35	0.220%	56-59	20%	60-62	25%
40	1.10%	40	0.420%	60-62	25%	63-64	33%
45	1.00%	45	0.650%	63-64	33%	65-69	50%
50	1.00%	50	0.900%	65-69	50%	70+	100%
55+	0.00%	55	1.240%	70+	100%		
		60	1.580%				

GLOSSARY

Total Annual Payroll is the projected annual rate of pay for the fiscal year following the valuation date of all covered members.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

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

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

Total Recommended Contribution is equal to the Normal Cost plus an amount sufficient to amortize the Unfunded Accrued Liability over a period ending in 2040. 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>	<u>MARKET VALUE</u>
Total Cash and Equivalents	1,837,582
Receivables:	
From General Trust Fund	18,193
Accrued Past Due Interest	257,174
Total Receivable	275,367
Investments:	
Corporate Bonds	14,466,822
U.S. Gov't and Agency Obligations	4,565,001
Stocks	5,775,770
Mutual Funds	52,190,381
Total Investments	76,997,974
Total Assets	79,110,923
 <u>LIABILITIES</u>	
Liabilities:	
Payable:	
To Other Funds	10,000
Vouchers Payable	27,846
Total Liabilities	37,846
Net Assets:	
Active and Retired Members' Equity	79,073,077
NET POSITION RESTRICTED FOR PENSIONS	79,073,077
TOTAL LIABILITIES AND NET ASSETS	79,110,923

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

ADDITIONS

Contributions:

Member	974,992	
City	8,205,800	

Total Contributions		9,180,792
---------------------	--	-----------

Investment Income:

Net Increase in Fair Value of Investments		8,110,552
Less Investment Expense ¹		(136,256)

Net Investment Income		7,974,296
-----------------------	--	-----------

Total Additions		17,155,088
-----------------	--	------------

DEDUCTIONS

Distributions to Members:

Benefit Payments	8,609,369	
Refund of Contributions/Transfers	0	

Total Distributions		8,609,369
---------------------	--	-----------

Administrative Expenses		72,640
-------------------------	--	--------

Total Deductions		8,682,009
------------------	--	-----------

Net Increase in Net Position		8,473,079
------------------------------	--	-----------

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year		70,599,998
-----------------------	--	------------

End of the Year		79,073,077
-----------------	--	------------

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
12/31/2014	(666,688)	(133,338)	0	0	0	0
12/31/2015	(4,120,159)	(1,648,064)	(824,032)	0	0	0
12/31/2016	(442,241)	(265,345)	(176,896)	(88,448)	0	0
12/31/2017	3,546,209	2,836,967	2,127,725	1,418,484	709,242	0
Total		790,220	1,126,797	1,330,036	709,242	0

Development of Investment Gain/Loss

Market Value of Assets, 12/31/2016	70,599,998
Contributions Less Benefit Payments & Administrative Expenses	498,783
Expected Investment Earnings ¹	4,428,087
Actual Net Investment Earnings	<u>7,974,296</u>
2018 Actuarial Investment Gain/(Loss)	3,546,209

¹ Expected Investment Earnings = 6.25% x (70,599,998 + 0.5 x 498,783)

Development of Actuarial Value of Assets

Market Value of Assets, 12/31/2017	79,073,077
(Gains)/Losses Not Yet Recognized	<u>(790,220)</u>
Actuarial Value of Assets, 12/31/2017	78,282,857
(A) 12/31/2016 Actuarial Assets:	73,120,605
(I) Net Investment Income:	
1. Interest and Dividends	2,072,811
2. Realized Gains (Losses)	103,920
3. Change in Actuarial Value	2,622,994
4. Investment Expenses	<u>(136,256)</u>
Total	4,663,469
(B) 12/31/2017 Actuarial Assets:	78,282,857
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	6.36%
Market Value of Assets Rate of Return:	11.26%
12/31/2017 Limited Actuarial Assets:	78,282,857
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	77,844

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

INCOME		
Contributions:		
Member	974,992	
City	8,205,800	
Total Contributions		9,180,792
Earnings from Investments		
Interest & Dividends	0	
Miscellaneous Income	2,072,811	
Net Realized Gain (Loss)	103,920	
Change in Actuarial Value	2,622,994	
Total Earnings and Investment Gains		4,799,725
EXPENSES		
Administrative Expenses:		
Investment Related ¹	136,256	
Other	72,640	
Total Administrative Expenses		208,896
Distributions to Members:		
Benefit Payments	8,609,369	
Refund of Contributions/Transfers	0	
Total Distributions		8,609,369
Change in Net Assets for the Year		5,162,252
Net Assets Beginning of the Year		73,120,605
Net Assets End of the Year ²		78,282,857

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

² Net Assets may be limited for actuarial consideration.

STATISTICAL DATA

	<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	81	79	76	73
Average Current Age	42.7	43.4	44.0	44.5
Average Age at Employment	28.0	28.1	28.2	28.1
Average Past Service	14.7	15.3	15.8	16.4
Average Annual Salary	\$98,712	\$100,461	\$103,029	\$104,249
<u>Actives - Tier 2</u>				
Number	26	26	27	31
Average Current Age	30.1	30.8	31.8	32.2
Average Age at Employment	28.2	28.0	28.1	27.6
Average Past Service	1.9	2.8	3.7	4.6
Average Annual Salary	\$70,990	\$75,567	\$81,683	\$81,909
<u>Service Retirees</u>				
Number	86	86	86	82
Average Current Age	68.8	69.1	69.4	69.4
Average Annual Benefit	\$63,874	\$66,938	\$70,671	\$73,049
<u>Beneficiaries</u>				
Number	33	34	30	32
Average Current Age	67.6	70.7	68.3	70.6
Average Annual Benefit	\$32,135	\$33,533	\$34,748	\$43,134
<u>Disability Retirees</u>				
Number	23	22	21	22
Average Current Age	62.2	61.9	62.8	63.1
Average Annual Benefit	\$54,025	\$57,557	\$60,835	\$62,620
<u>Terminated Vested</u>				
Number	3	4	3	3
Average Current Age	31.5	33.1	39.4	40.4
Average Annual Benefit ¹	N/A	N/A	\$46,357	\$46,357

¹ Average Annual Benefit for Terminated Vested members reflects the benefit for members entitled to a future annual benefit from the plan.

AGE AND SERVICE DISTRIBUTION

PAST SERVICE

AGE	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+	Total
15 - 19	0	0	0	0	0	0	0	0	0	0	0	0
20 - 24	2	0	0	0	0	0	0	0	0	0	0	2
25 - 29	1	0	0	4	0	3	0	0	0	0	0	8
30 - 34	0	1	1	1	2	12	2	0	0	0	0	19
35 - 39	1	0	0	1	0	8	12	0	0	0	0	22
40 - 44	0	0	0	0	0	2	8	6	0	0	0	16
45 - 49	0	0	0	0	0	1	3	10	5	0	0	19
50 - 54	0	0	0	0	0	0	2	2	2	2	1	9
55 - 59	0	0	0	0	0	0	0	0	1	4	2	7
60 - 64	0	0	0	0	0	0	0	1	0	1	0	2
65+	0	0	0	0	0	0	0	0	0	0	0	0
Total	4	1	1	6	2	26	27	19	8	7	3	104

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 1/1/2017	103
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	(1)
ii. No future benefits payable	0
d. Disabled	(1)
e. Retired	<u>(1)</u>
f. Continuing participants	100
g. New entrants	<u>4</u>
h. Total active life participants in valuation	104

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	86	30	21	3	140
Retired	1	0	0	0	1
Vested Deferred	0	0	0	0	0
Death, With Survivor	(4)	5	0	0	1
Death, No Survivor	(1)	(3)	0	0	(4)
Disabled	0	0	1	0	1
Refund of Contributions	0	0	0	0	0
Rehires	0	0	0	0	0
Expired Annuities	0	0	0	0	0
Data Corrections	0	0	0	0	0
Hired/Termed in Same Year	0	0	0	0	0
b. Number current valuation	82	32	22	3	139

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.