

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

July 19, 2018

Board of Trustees
c/o Ms. Chris Cardott, Finance Director/Treasurer
City of Rochelle
420 N. 6th Street
Rochelle, IL 61068

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

Dear Board:

We are pleased to present to the Board this report of the annual actuarial valuation of the City of Rochelle 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 Rochelle, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Rochelle 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

JLF/lke
Enclosures

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SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Rochelle 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	<u>1/1/2018</u> <u>12/31/2019</u>	<u>1/1/2017</u> <u>12/31/2018</u>
Total Recommended Contribution	\$636,823	\$625,143
% of Projected Annual Payroll	62.2%	63.2%
Member Contributions (Est.)	96,830	93,493
% of Projected Annual Payroll	9.5%	9.5%
City Recommended Contribution	539,993	531,650
% of Projected Annual Payroll	52.7%	53.7%


As you can see, the Total Recommended Contribution shows a slight increase when compared to the results determined in the January 1, 2017 actuarial valuation report. The increase is attributable to the natural increase in the annual normal cost due to salary growth and in the amortization payment due to the plan’s payroll growth assumption. The increase was offset by updates to plan assumptions made with this valuation.

Overall plan experience was unfavorable, with assets earning a 5.41% investment return (Actuarial basis) which fell short of the 6.50% assumption, and no inactive mortality. Favorable plan experience came in the form of salary increases that were lower than assumed and no active turnover.

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

The following assumptions have been changed since the prior valuation:

- The termination, retirement, disability, and salary increase rates were updated to the rates determined in the State of Illinois Department of Insurance experience study dated October 5, 2017.
- The percentage of active deaths and disablements assumed to occur in the line of duty were updated to 20% and 80%, respectively, in accordance with the experience study.
- The payroll growth assumption was decreased from 4.50% to 3.50%.

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	13	13	13
Service Retirees	9	9	9
Beneficiaries	0	0	0
Disability Retirees	1	1	1
Terminated Vested	<u>1</u>	<u>1</u>	<u>1</u>
Total	24	24	24
Total Annual Payroll	\$1,024,117	\$1,024,117	\$988,823
Payroll Under Assumed Ret. Age	1,024,117	1,024,117	988,823
Annual Rate of Payments to:			
Service Retirees	579,733	579,733	562,848
Beneficiaries	0	0	0
Disability Retirees	32,093	32,093	31,596
Terminated Vested	0	0	0
B. Assets			
Actuarial Value	8,925,845	8,925,845	8,551,478
Market Value	8,938,461	8,938,461	8,153,424
C. Liabilities			
Present Value of Benefits			
Actives			
Retirement Benefits	6,598,490	7,019,233	6,584,550
Disability Benefits	729,340	1,018,793	980,407
Death Benefits	194,976	158,995	152,697
Vested Benefits	322,910	347,058	335,750
Service Retirees	8,876,108	8,876,108	8,800,046
Beneficiaries	0	0	0
Disability Retirees	337,569	337,569	339,745
Terminated Vested	<u>37,425</u>	<u>37,425</u>	<u>37,425</u>
Total	17,096,818	17,795,181	17,230,620

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	12,100,014	12,390,076	12,533,775
Present Value of Future Member Contributions	1,144,056	1,171,482	1,185,068
Normal Cost (Retirement)	212,551	236,228	225,956
Normal Cost (Disability)	40,390	53,807	51,696
Normal Cost (Death)	10,711	8,669	8,361
Normal Cost (Vesting)	<u>17,310</u>	<u>18,507</u>	<u>17,626</u>
Total Normal Cost	280,962	317,211	303,639
Present Value of Future Normal Costs	3,018,283	3,487,326	3,488,849
Accrued Liability (Retirement)	4,276,193	4,395,343	3,968,342
Accrued Liability (Disability)	301,024	416,480	374,605
Accrued Liability (Death)	78,797	66,074	59,206
Accrued Liability (Vesting)	171,419	178,856	162,402
Accrued Liability (Inactives)	<u>9,251,102</u>	<u>9,251,102</u>	<u>9,177,216</u>
Total Actuarial Accrued Liability	14,078,535	14,307,855	13,741,771
Unfunded Actuarial Accrued Liability (UAAL)	5,152,690	5,382,010	5,190,293
Funded Ratio (AVA / AL)	63.4%	62.4%	62.2%

	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	9,251,102	9,251,102	9,177,216
Actives	1,841,455	1,884,273	1,719,280
Member Contributions	<u>898,743</u>	<u>898,743</u>	<u>795,223</u>
Total	11,991,300	12,034,118	11,691,719
Non-vested Accrued Benefits	<u>104,767</u>	<u>139,908</u>	<u>111,160</u>
Total Present Value Accrued Benefits	12,096,067	12,174,026	11,802,879
Funded Ratio (MVA / PVAB)	73.9%	73.4%	69.1%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:			
Plan Amendments	0	0	
Assumption Changes	(77,959)	0	
New Accrued Benefits	0	235,672	
Benefits Paid	0	(611,828)	
Interest	0	747,303	
Other	<u>0</u>	<u>0</u>	
Total	(77,959)	371,147	

	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	\$299,225	\$337,830	\$323,376
% of Total Annual Payroll ¹	29.2	33.0	32.7
Administrative Expenses ¹	16,687	16,687	17,792
% of Total Annual Payroll ¹	1.6	1.6	1.8
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 23 years (as of 1/1/2018) ¹	320,911	304,583	283,975
% of Total Annual Payroll ¹	31.4	29.8	28.7
Total Recommended Contribution	636,823	659,100	625,143
% of Total Annual Payroll ¹	62.2	64.4	63.2
Expected Member Contributions ¹	96,830	96,830	93,493
% of Total Annual Payroll ¹	9.5	9.5	9.5
Expected City Contribution	539,993	562,270	531,650
% of Total Annual Payroll ¹	52.7	54.9	53.7

F. Past Contributions

Plan Years Ending:	<u>12/31/2017</u>
Total Recommended Contribution	617,318
City	518,652
Actual Contributions Made:	
Members (excluding buyback)	98,666
City	<u>443,122</u>
Total	541,788

G. Net Actuarial (Gain)/Loss 70,817

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	5,152,690
2019	5,166,704
2020	5,170,397
2025	4,993,782
2031	4,157,966
2036	2,645,273
2041	0

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/31/2017	3.57%	6.05%
Year Ended	12/31/2016	4.31%	5.56%
Year Ended	4/30/2016	9.00%	5.50%

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

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/31/2017	5.41%	6.50%
Year Ended	12/31/2016	4.70%	6.50%
Year Ended	4/30/2016	4.49%	6.50%

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	\$5,190,293
(2) Sponsor Normal Cost developed as of January 1, 2017	210,146
(3) Expected administrative expenses for the year ended December 31, 2017	16,706
(4) Expected interest on (1), (2) and (3)	351,571
(5) Sponsor contributions to the System during the year ended December 31, 2017	443,122
(6) Expected interest on (5)	14,401
(7) Expected Unfunded Actuarial Accrued Liability as of December 31, 2017, (1)+(2)+(3)+(4)-(5)-(6)	5,311,193
(8) Change to UAAL due to Assumption Change	(229,320)
(9) Change to UAAL due to Actuarial (Gain)/Loss	70,817
(10) Unfunded Accrued Liability as of January 1, 2018	5,152,690
(11) UAAL Subject to Amortization (100% AAL less Actuarial Assets)	5,152,690

<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	5,152,690	301,325

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of January 1, 2017	\$5,190,293
(2) Expected UAAL as of January 1, 2018	5,311,193
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	92,985
Salary Increases	(70,844)
Active Decrements	(76,798)
Inactive Mortality	65,164
Other	<u>60,310</u>
Change in UAAL due to (Gain)/Loss	70,817
Assumption Changes	<u>(229,320)</u>
(4) Actual UAAL as of January 1, 2018	\$5,152,690

RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of January 1, 2017	\$	531,650
(2) Summary of Contribution Impact by component:		
Change in Normal Cost		14,454
Change in Assumed Administrative Expense		(1,105)
Investment Return (Actuarial Asset Basis)		5,262
Salary Increases		(4,009)
New Entrants		-
Active Decrements		(4,346)
Inactive Mortality		3,688
Data Corrections		-
Contributions (More) or Less than Recommended		4,144
Increase in Amortization Payment Due to Payroll Growth Assumption		12,779
Change in Expected Member Contributions		(3,337)
Assumption Change		(22,277)
Other		<u>3,090</u>
Total Change in Contribution		8,343
(3) Contribution Determined as of January 1, 2018		\$539,993

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)	13,748,896	14,143,213	13,594,311
Actuarial Value of Assets	<u>8,925,845</u>	<u>8,925,845</u>	<u>8,551,478</u>
Unfunded Actuarial Accrued Liability (UAAL)	4,823,051	5,217,368	5,042,833
UAAL Subject to Amortization	3,448,161	3,803,047	3,683,402
Normal Cost ¹	\$290,799	\$325,293	\$312,408
% of Total Annual Payroll ¹	28.4	31.8	31.6
Administrative Expenses ¹	16,687	16,687	17,792
% of Total Annual Payroll ¹	1.6	1.6	1.8
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 23 years (as of 1/1/2018) ¹	214,753	215,224	201,529
% of Total Annual Payroll ¹	21.0	21.0	20.4
Total Required Contribution	522,239	557,204	531,729
% of Total Annual Payroll ¹	51.0	54.4	53.8
Expected Member Contributions ¹	96,830	96,830	93,493
% of Total Annual Payroll ¹	9.5	9.5	9.5
Expected City Contribution	425,409	460,374	438,236
% of Total Annual Payroll ¹	41.5	44.9	44.3

Assumptions and Methods:

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

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

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	34,666	644,653	679,319
2019	61,394	622,273	683,667
2020	87,204	637,122	724,326
2021	110,774	651,650	762,424
2022	129,704	665,705	795,409
2023	147,884	679,191	827,075
2024	165,113	692,006	857,119
2025	187,992	703,966	891,958
2026	224,613	714,865	939,478
2027	253,998	724,512	978,510
2028	284,777	732,679	1,017,456
2029	314,928	739,120	1,054,048
2030	351,736	743,583	1,095,319
2031	393,086	745,835	1,138,921
2032	432,279	745,563	1,177,842
2033	496,536	742,476	1,239,012
2034	551,642	736,267	1,287,909
2035	608,913	726,701	1,335,614
2036	671,297	713,605	1,384,902
2037	731,272	696,847	1,428,119
2038	794,200	676,344	1,470,544
2039	869,254	651,968	1,521,222
2040	929,985	623,652	1,553,637
2041	984,478	591,524	1,576,002
2042	1,076,571	555,944	1,632,515
2043	1,145,876	517,479	1,663,355
2044	1,202,705	476,823	1,679,528
2045	1,246,157	434,686	1,680,843
2046	1,308,104	391,773	1,699,877
2047	1,348,788	348,822	1,697,610
2048	1,383,529	306,623	1,690,152
2049	1,411,820	265,970	1,677,790
2050	1,434,162	227,866	1,662,028
2051	1,451,216	193,016	1,644,232
2052	1,464,908	161,601	1,626,509
2053	1,473,637	133,768	1,607,405
2054	1,478,701	109,561	1,588,262
2055	1,479,846	88,801	1,568,647
2056	1,478,273	71,160	1,549,433
2057	1,473,466	56,340	1,529,806

ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate 6.50% per year compounded annually, net of investment related expenses.

Mortality Rate **Healthy Lives:**
 RP-2000 Combined Healthy Mortality, sex distinct with a blue collar adjustment, projected to the valuation date using Scale BB. 20% of active deaths are assumed to be in the line of duty.

Disabled Lives:
 RP-2000 Disabled Retiree Mortality, sex distinct, projected to the valuation date using Scale BB.

The mortality assumptions sufficiently accommodate future mortality improvements.

Retirement Age See table on following page. This is based on an experience study performed in 2017.

Disability Rate See table on following page. 80% of the disabilities are assumed to be in the line of duty. This is based on an experience study performed in 2017.

Termination Rate See table on following page. This is based on an experience study performed in 2017.

Salary Increases See table below. This is based on an experience study performed in 2017.

Salary Scale	
Service	Rate
0	12.50%
1	12.00%
2	10.00%
3	8.50%
4	7.50%
5	6.00%
6	4.50%
7-26	4.00%
27-30	3.75%
31+	3.50%

Inflation 2.50%.

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.
Payroll Growth	3.50% per year.
Administrative Expenses	Expenses paid out of the fund other than investment-related expenses are assumed to be equal to those paid in the previous year.

Decrement Tables

% 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>	MARKET VALUE
Cash and Cash Equivalents:	
Checking Account	83,041
Money Market	658,434
Total Cash and Equivalents	741,475
Receivables:	
Accrued Past Due Interest	28,052
Total Receivable	28,052
Investments:	
Municipal Obligations	713,170
Corporate Bonds	379,541
U.S. Gov't and Agency Obligations	3,425,329
Insurance Company Contracts	182,268
Mutual Funds	3,468,626
Total Investments	8,168,934
Other Assets	0
Total Assets	8,938,461
<u>LIABILITIES</u>	
Total Liabilities	0
Net Assets:	
Active and Retired Members' Equity	8,938,461
NET POSITION RESTRICTED FOR PENSIONS	8,938,461
TOTAL LIABILITIES AND NET ASSETS	8,938,461

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

ADDITIONS

Contributions:

Member	98,666
City	443,122

Total Contributions 541,788

Investment Income:

Net Realized Gain (Loss)	175,033	
Unrealized Gain (Loss)	420,904	
Net Increase in Fair Value of Investments		595,937
Interest & Dividends		292,583
Less Investment Expense ¹		(17,774)

Net Investment Income 870,746

Total Additions 1,412,534

DEDUCTIONS

Distributions to Members:

Benefit Payments	611,828
------------------	---------

Total Distributions 611,828

Administrative Expenses 15,669

Total Deductions 627,497

Net Increase in Net Position 785,037

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 8,153,424

End of the Year 8,938,461

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
4/30/2014	(125,144)	(8,343)	0	0	0	0
4/30/2015	27,280	7,275	1,819	0	0	0
4/30/2016	(504,080)	(235,239)	(134,422)	(33,605)	0	0
12/31/2016	(57,112)	(34,267)	(22,845)	(11,422)	0	0
12/31/2017	343,559	274,847	206,135	137,424	68,712	0
Total		12,616	50,687	92,397	68,712	0

Development of Investment Gain/Loss

Market Value of Assets, 12/31/2016	8,153,424
Contributions Less Benefit Payments & Administrative Expenses	(85,709)
Expected Investment Earnings ¹	527,187
Actual Net Investment Earnings	870,746
2018 Actuarial Investment Gain/(Loss)	343,559

¹ Expected Investment Earnings = 6.50% x (8,153,424 + 0.5 x -85,709)

Development of Actuarial Value of Assets

Market Value of Assets, 12/31/2017	8,938,461
(Gains)/Losses Not Yet Recognized	(12,616)
Actuarial Value of Assets, 12/31/2017	8,925,845
(A) 12/31/2016 Actuarial Assets:	8,551,478
(I) Net Investment Income:	
1. Interest and Dividends	292,583
2. Realized Gains (Losses)	175,033
3. Change in Actuarial Value	10,234
4. Investment Expenses	(17,774)
Total	460,076
(B) 12/31/2017 Actuarial Assets:	8,925,845
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	5.41%
Market Value of Assets Rate of Return:	10.74%
12/31/2017 Limited Actuarial Assets:	8,925,845
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(92,985)

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

INCOME		
Contributions:		
Member	98,666	
City	443,122	
Total Contributions		541,788
Earnings from Investments		
Interest & Dividends	292,583	
Net Realized Gain (Loss)	175,033	
Change in Actuarial Value	10,234	
Total Earnings and Investment Gains		477,850
EXPENSES		
Administrative Expenses:		
Investment Related ¹	17,774	
Other	15,669	
Total Administrative Expenses		33,443
Distributions to Members:		
Benefit Payments	611,828	
Total Distributions		611,828
Change in Net Assets for the Year		374,367
Net Assets Beginning of the Year		8,551,478
Net Assets End of the Year ²		8,925,845

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

² Net Assets may be limited for actuarial consideration.

STATISTICAL DATA ¹

	<u>5/1/2015</u>	<u>5/1/2016</u>	<u>1/1/2017</u>	<u>1/1/2018</u>
<u>Actives - Tier 1</u>				
Number	10	9	9	9
Average Current Age	N/A	41.6	42.3	43.3
Average Age at Employment	N/A	27.5	27.5	27.5
Average Past Service	N/A	14.1	14.8	15.8
Average Annual Salary	N/A	\$79,815	\$82,505	\$85,185
<u>Actives - Tier 2</u>				
Number	3	4	4	4
Average Current Age	N/A	28.9	29.6	30.6
Average Age at Employment	N/A	26.4	26.6	26.0
Average Past Service	N/A	2.5	3.0	4.6
Average Annual Salary	N/A	\$55,777	\$61,570	\$64,364
<u>Service Retirees</u>				
Number	8	9	9	9
Average Current Age	N/A	64.6	65.2	66.2
Average Annual Benefit	\$59,658	\$62,308	\$62,539	\$64,415
<u>Beneficiaries</u>				
Number	0	0	0	0
Average Current Age	N/A	N/A	N/A	N/A
Average Annual Benefit	N/A	N/A	N/A	N/A
<u>Disability Retirees</u>				
Number	1	1	1	1
Average Current Age	N/A	71.5	72.2	73.2
Average Annual Benefit	\$31,097	\$31,596	\$31,596	\$32,093
<u>Terminated Vested</u>				
Number	0	1	1	1
Average Current Age	N/A	38.0	38.7	39.7
Average Annual Benefit ²	N/A	N/A	N/A	N/A

¹ Foster & Foster does not have enough historical data to include complete data prior to 5/1/2016. We will add historical data going forward.

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

AGE AND SERVICE DISTRIBUTION

PAST SERVICE

AGE	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+	Total
15 - 19	0	0	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	1	0	0	0	0	0	1
30 - 34	0	1	0	0	1	1	1	0	0	0	0	4
35 - 39	0	0	0	0	0	0	2	0	0	0	0	2
40 - 44	0	0	0	0	0	1	0	2	0	0	0	3
45 - 49	0	0	0	0	0	0	1	0	0	0	0	1
50 - 54	0	0	0	0	0	0	0	0	0	0	0	0
55 - 59	0	0	0	0	0	0	0	0	1	0	1	2
60 - 64	0	0	0	0	0	0	0	0	0	0	0	0
65+	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	3	4	2	1	0	1	13

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 1/1/2017	13
b. Terminations	
i. Vested (partial or full) with deferred benefits	0
ii. Non-vested or full lump sum distribution received	0
iii. Transferred service to other fund	0
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	0
d. Disabled	0
e. Retired	<u>0</u>
f. Continuing participants	13
g. New entrants	<u>0</u>
h. Total active life participants in valuation	13

2. Non-Active lives (including beneficiaries receiving benefits)

	Service Retirees, Vested Receiving <u>Benefits</u>	Receiving Death <u>Benefits</u>	Receiving Disability <u>Benefits</u>	Vested <u>Deferred</u>	<u>Total</u>
a. Number prior valuation	9	0	1	1	11
Retired	0	0	0	0	0
Vested Deferred	0	0	0	0	0
Death, With Survivor	0	0	0	0	0
Death, No Survivor	0	0	0	0	0
Disabled	0	0	0	0	0
Refund of Contributions	0	0	0	0	0
Rehires	0	0	0	0	0
Expired Annuities	0	0	0	0	0
Data Corrections	0	0	0	0	0
Hired/Termed in Same Year	0	0	0	0	0
b. Number current valuation	9	0	1	1	11

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.