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City of Lincoln Police and Fire Pension Fund

Actuarial Valuation Report as of August 31, 2017

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Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

December 6, 2017

The City Council
City of Lincoln
555 South 10th Street, Room 201
Lincoln, NE 68508

Re: City of Lincoln Police and Fire Pension Fund

Dear Council Members:

At your request, we have performed an actuarial valuation of the City of Lincoln Police and Fire Pension Fund as of August 31, 2017 for determining the actuarial contribution rate for fiscal year 2019. The major findings of the valuation are contained in this report. The actuarial assumptions and methods remain unchanged since the prior valuation. Additionally, this report reflects the benefit provisions in effect as of August 31, 2017 which did not change from the prior valuation.

In preparing this report, we relied, without audit, on information (some oral and some written) supplied by the Plan's staff. This information includes, but is not limited to, plan provisions, member data and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the Plan have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the Plan and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the Plan.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in the plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not present herein.

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Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the Plan. The calculations have been made on a basis consistent with our understanding of the Plan's funding requirements and goals and the plan provisions described in Appendix B of this report. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Actuarial computations for purposes of fulfilling financial accounting requirements for the Plan under Governmental Account Standards No. 67 and No. 68 are provided in a separate report.

This is to certify that the independent consulting actuaries have experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan.

We, Patrice A. Beckham, FSA and Bryan K. Hoge, FSA, are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. We are available to answer any questions on the material contained in this report or to provide explanations or further details as may be appropriate.

We herewith submit the following report and look forward to discussing it with you.

Respectfully Submitted,

Patrice Beckham

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Bryan K. Hoge, FSA, EA, FCA, MAAA
Senior Actuary

OVERVIEW

This report presents the results of the August 31, 2017 actuarial valuation of the City of Lincoln Police and Fire Pension Fund (Plan). The primary purposes of performing a valuation are to:

- determine the employer contribution rate required to fund the Plan on an actuarial basis,
- disclose asset and liability measures as of the valuation date,
- determine the experience of the Plan since the last valuation date, and
- analyze and report on trends in contributions, assets, and liabilities over the past several years.

The plan provisions and actuarial assumptions remain unchanged since the prior valuation, but there was a change in the required city contribution and the amortization method as a result of changes enacted by the Lincoln City Council on May 15, 2017. Lincoln City Ordinance #20495 modified the Plan's funding policy by providing for the amortization of the existing unfunded actuarial accrued liability (UAAL) on August 31, 2016 over a closed 28-year period, as a level percent of covered payroll. In subsequent valuations, the net experience gains/losses are amortized as a level percent of covered payroll over a new, 20-year closed period (referred to as "layered" amortization). The funding policy further provides that the actuarially determined employer contribution (ADEC) rate shall be the greater of the employer normal cost rate or the sum of the employer normal cost rate and the UAAL contribution rate. The dollar amount of the employer contribution is the ADEC rate multiplied by the valuation payroll projected forward to the fiscal year under consideration plus the actual administration expenses for the fiscal year ending on the valuation date, projected forward one year with the inflation assumption used in the valuation. Prior to this change, the ordinance required a contribution of at least the Employer Normal Cost contribution plus administrative expenses. The changes to the funding policy are intended to strengthen the Plan's long-term funding, with the goal of accumulating sufficient assets over time to fully finance the future benefits payable to members.

The valuation results provide a "snapshot" view of the Plan's financial condition on August 31, 2017. The UAAL increased from $54.6 million last year to $54.9 million in this year's valuation. The funded ratio (actuarial assets divided by actuarial accrued liability) improved from 80% in last year's valuation to 81% in the current valuation. In addition, the Actuarial Determined Employer Contribution rate decreased by 0.24% from 17.32% in last year's valuation to 17.08% in this year's valuation. As a result, the dollar amount of the city's contribution for fiscal year 2019 is $8,333,901.

The valuation results reflect net unfavorable experience for the past plan year as demonstrated by an UAAL that was higher than expected. The unfavorable experience was due to the net impact of an experience loss on the actuarial liabilities and an experience gain on actuarial value of assets. The rate of return on the market value of assets for the year ending August 31, 2017 was 11.2%, but the asset smoothing method only recognizes a portion of the favorable investment experience. Due to the favorable experience in fiscal year 2017 and the scheduled recognition of the deferred investment experience from prior years, the return on the actuarial value of assets (smoothed value) was 8.2%. Since this was higher than the investment return assumption of 7.5%, this generated an experience gain of $1.4 million on the actuarial value of assets. Unfavorable experience on the actuarial liabilities, largely from mortality experience, resulted in a $1.5 million loss. A detailed analysis of the change in the unfunded actuarial accrued liability from August 31, 2016 to August 31, 2017 can be found on page 3.

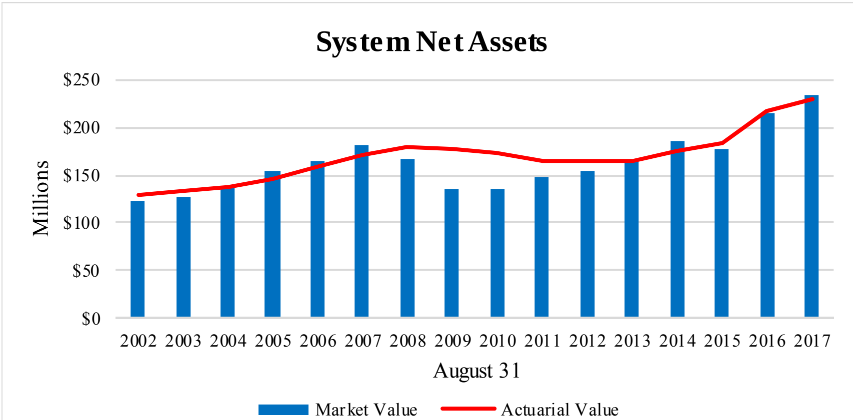
ASSETS

As of the valuation date, the Plan had total assets of $233.1 million, when measured on a market value basis. This represents an increase of $19.2 million from the August 31, 2016 amount of $213.9 million. The market value of assets is not used directly in the actuarial valuation. An asset valuation method, which smoothes the effect of market fluctuations, is used to determine the value of assets used in the valuation (called the "actuarial value of assets"). Differences between the actual return on the market value of assets and the assumed return on the actuarial value of assets are phased-in equally over a five-year period.

See Table 3 for a detailed development of the actuarial value of assets. The components of the change in the market and actuarial value of assets for the Plan (in millions) are set forth in the following table.

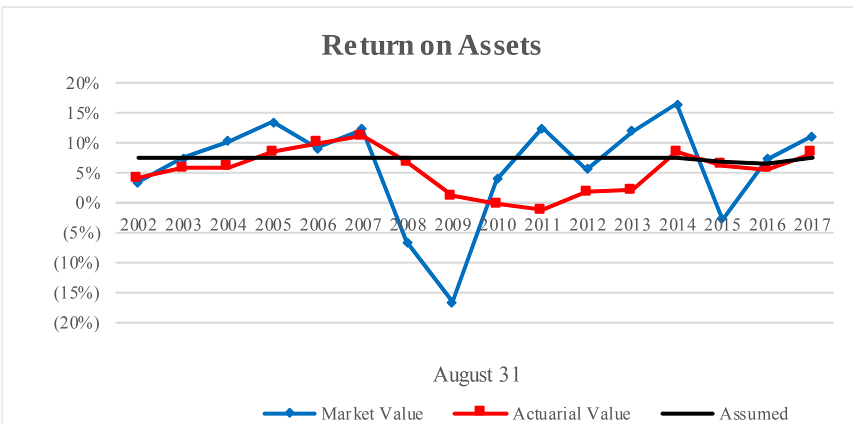
	Market Value ($M)	Actuarial Value ($M)
Assets, August 31, 2016	$213.9	$217.0
• City and Member Contributions	11.1	11.1
• Benefit Payments and Refunds	(15.0)	(15.0)
• Administrative Expenses	(0.4)	(0.4)
• Investment Income, Net of Expenses	23.5	17.5
Assets, August 31, 2017	$233.1	$230.2

The annualized dollar-weighted rate of return, measured on the actuarial value of assets, was 8.2% and, measured on the market value of assets, was 11.2%. The actuarial value of assets as of August 31, 2017 was $230.2 million, which reflects an actuarial gain of $1.4 million resulting from the net impact of phasing-in the investment returns from the current and preceding four years. Due to the asset smoothing method, the actuarial value of assets is now $2.9 million lower than the market value of assets. This differential of $2.9 million (net deferred investment gains) will flow through the asset smoothing method over the next four years.



The actuarial value of assets has been both above and below the market value during this period. This is to be expected when using an asset smoothing method.

Note: Results for years before 2015 were prepared by the prior actuary.



The rate of return on the actuarial value of assets has been less volatile than the market value return, which is the main reason for using an asset smoothing method.

LIABILITIES

The actuarial accrued liability is that portion of the present value of future benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and the asset value at the same date is referred to as the unfunded actuarial accrued liability, or surplus if the asset value exceeds the actuarial accrued liability. The unfunded actuarial accrued liability will be reduced if the employer's contributions exceed the employer's normal cost for the year, after allowing for interest earned on the previous balance of the unfunded actuarial accrued liability. Benefit improvements, experience gains and losses, and changes in actuarial assumptions and procedures will also impact the total actuarial accrued liability and the unfunded portion thereof.

The Unfunded Actuarial Accrued Liability for the Plan as of August 31, 2017 is:

Actuarial Accrued Liability	$285,038,672
Actuarial Value of Assets	230,159,635
Unfunded Actuarial Accrued Liability	$54,879,037

Between August 31, 2016 and August 31, 2017, the components of the change in the UAAL for the Plan are shown in the following table:

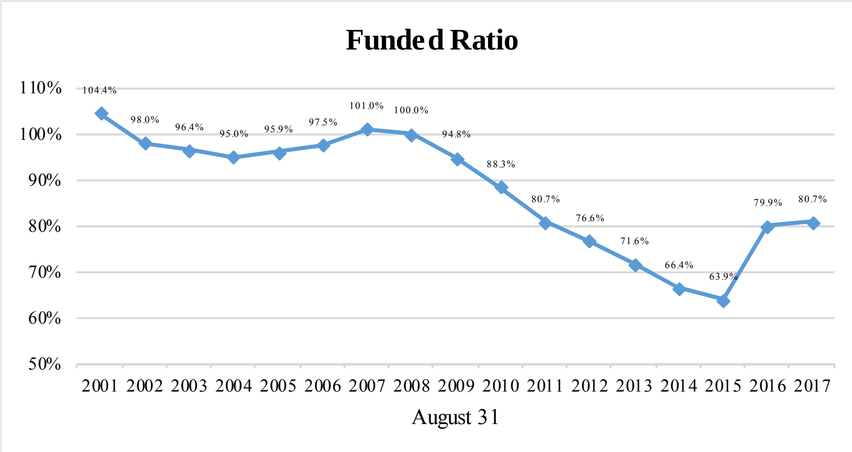
	$ millions
Unfunded Actuarial Accrued Liability, September 1, 2016	$54.6
• Effect of contributions above the actuarial rate	(0.2)
• Expected increase due to amortization method	0.6
• Investment experience	(1.4)
• Liability experience*	1.5
• Other experience	(0.2)
Unfunded Actuarial Accrued Liability, September 1, 2017	$54.9

* Liability loss is about 0.5% of total actuarial accrued liability.

The overall experience loss for the last plan year of $0.1 million was the result of an actuarial loss of $1.5 million on Plan liabilities and a $1.4 million actuarial gain on Plan assets (actuarial value). The unfavorable experience on the Plan liabilities was primarily due to mortality experience.

Analysis of the unfunded actuarial accrued liability strictly as a dollar amount can be misleading. Another way to evaluate the unfunded actuarial accrued liability and the progress made in its funding is to track the funded status, the ratio of the actuarial value of assets to the actuarial accrued liability. This information for recent years is shown in the following table (in millions). Historical information is shown in the graph following the chart. Note that the funded ratio does not indicate whether or not the Plan has sufficient funds to settle all current obligations, nor is it necessarily indicative of the need for future funding.

	8/31/13	8/31/14	8/31/15	8/31/16	8/31/17
Actuarial Value of Assets ($M)	$164.2	$174.6	$183.0	$217.0	$230.2
Actuarial Accrued Liability ($M)	$229.2	$262.9	$286.5	$271.6	$285.0
Funded Ratio (Actuarial Assets/AAL)	71.6%	66.4%	63.9%	79.9%	80.8%
Market Value of Assets ($M)	$164.6	$184.8	$176.8	$213.9	$233.1
Actuarial Accrued Liability ($M)	$229.9	$262.9	$286.5	$271.6	$285.0
Funded Ratio (MVA/AAL)	71.8%	70.3%	61.7%	78.7%	81.8%



From 2007 to 2015, the funded ratio steadily declined due to changes in assumptions, adverse experience, and contributions less than the full actuarial rate. The large improvement in 2016 was due to the merger of the COLA Pool Fund with the general pension fund which resulted in an increase in the investment return assumption.

Note: Results for years prior to 2015 were prepared by prior actuaries.

As mentioned earlier in this report, due to the asset smoothing method there is a $2.9 million difference between the market and actuarial value of assets. This deferred investment gain will flow through the asset smoothing method over the next four years. If all actuarial assumptions are met in the future and unfavorable investment experience does not occur, the funded ratio will increase slightly as the asset smoothing method recognizes the deferred investment gain. The Plan's funded status will continue to be heavily dependent on future investment returns.

CONTRIBUTION RATES

Generally, contributions to the Plan consist of:

- a "normal cost" for the portion of projected liabilities allocated by the actuarial cost method to service of members during the current year; and
- an "unfunded actuarial accrued liability contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

Contribution rates are computed with the objective of developing costs that are level as a percentage of covered payroll. As a result, even if all assumptions are met the dollar amount of contributions is expected to increase as covered payroll increases over time. The contribution rate computed in the August 31, 2017 valuation is used to set the city contribution for the fiscal year ending August 31, 2019.

By ordinance, the City is required to contribute the Actuarially Determined Employer Contribution (ADEC) which is the greater of the employer normal cost rate or the sum of the employer normal cost rate and UAAL contribution rate. The dollar amount of the city contribution is also required to include a component for administrative expenses. Due to a number of factors, the actuarially determined employer contribution rate decreased by 0.24% from the 2016 to the 2017 valuation, as shown in the following table:

Actuarially Determined Contribution Rate		Actuarial Valuation 8/31/2017	8/31/2016
1)	a. Total Normal Cost	16.52%	16.47%
	b. Member Financed	7.20%	7.06%
	c. Employer Portion (1a) - (1b)	9.32%	9.41%
2)	UAAL Contribution	7.76%	7.91%
3)	Employer Contribution Rate	17.08%	17.32%
4)	Projected Covered Payroll	$46,119,337	$44,218,100
5)	Actuarial Employer Contribution*	8,333,901	8,164,782

* Includes administrative expenses. See Table 11 for details.

COMMENTS

The Lincoln City Council passed Lincoln City Ordinance #20495 on May 26, 2017 which modified the Plan's funding policy with the intention to strengthen the Plan's long-term funding. It provides for the amortization of the existing unfunded actuarial accrued liability (UAAL) on August 31, 2016 over a closed 28-year period. In subsequent valuations, the net experience gains/losses are amortized over a new, 20-year closed period (referred to as "layered" amortization). The funding policy further provides that the actuarially determined employer contribution (ADEC) rate shall be the greater of the employer normal cost rate or the sum of the employer normal cost rate and the UAAL contribution rate. The dollar amount of the employer contribution is the ADEC rate multiplied by the valuation payroll projected forward to the fiscal year under consideration plus the actual administration expenses for the fiscal year ending on the valuation date, projected forward one year with the inflation assumption used in the valuation. Prior to this change, the ordinance required a contribution of at least the employer normal cost contribution plus administrative expenses.

As of August 31, 2017, the actuarial accrued liability of the Plan was $285.0 million and the actuarial value of assets was $230.2 million, resulting in a funded ratio of 81%, up slightly from the funded ratio of 80% last year. Using the market value of assets, the funded ratio is 82%.

Retirement plans use several mechanisms to provide more stability in the contribution levels. These include an asset smoothing method, which smoothes out the volatility in the investment returns, and amortization of any actuarial gains or losses over a period of years. The Plan utilizes an asset smoothing method that spreads the difference between expected and actual return over a five-year period. The rate of return on the actuarial value of assets for the plan year ending in 2017 was 8.2% as compared to 11.2% return on the market value of assets. The unfunded actuarial accrued liability, which includes the experience loss in FY 2017, is amortized using a "layered" approach. Under the Plan's funding policy, a new amortization base equal to the difference between the actual and expected UAAL is created each year and amortized over a closed 20-year period. The intent of this methodology is to mitigate the impact of the actuarial experience on the actuarial contribution rate.

As of August 31, 2017, the deferred investment gain (market value less actuarial value of assets) is $2.9 million. Absent investment losses in future years, the deferred investment gain of $2.9 million will eventually be reflected in the actuarial value of assets in future years. While the use of an asset smoothing method is a common procedure for public retirement systems, it is important to identify the potential impact of the deferred investment experience. This is accomplished by comparing the key valuation results from the August 31, 2017 actuarial valuation using both the actuarial and market value of assets. Because the difference between the actuarial and market value of assets is small on the current valuation date, the differences in the valuation measurements is relatively small.

	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Accrued Liability (AAL)	$285,038,672	$285,038,672
Asset Value	230,159,635	233,140,335
Unfunded Actuarial Accrued Liability (UAAL)	$54,879,037	$51,898,337
Funded Ratio	81%	82%
Normal Cost Rate	16.52%	16.52%
UAAL Contribution Rate	7.76%	7.26%
Total Actuarial Contribution Rate	24.28%	23.78%
Member Contribution Rate	(7.20%)	(7.20%)
Employer Actuarial Contribution Rate	17.08%	16.58%

A summary of key data elements and valuation results as of August 31, 2017 and August 31, 2016 are presented on the following page. More detail on each of these elements can be found in the following sections of this report.

	8/31/2017 Valuation	8/31/2016 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members	576	573	0.5%
DROP Members	43	45	(4.4)%
Retirees, Disabled Members and Beneficiaries	515	501	2.8%
Inactive Vested Members	24	27	(11.1)%
Refund Due	2	1	100.0%
Total Members	1,160	1,147	1.1%
Projected Valuation Salaries of Active Members	$ 44,776,055	$ 42,930,194	4.3%
Annual Retirement Payments for DROP Members, Disabled Members, Retirees and Beneficiaries	$ 15,164,579	$ 13,787,130	10.0%
2. ASSETS AND LIABILITIES			
a. Total Actuarial Accrued Liability	$285,038,672	$271,594,222	5.0%
b. Market Value of Assets	233,140,335	213,857,935	9.0%
c. Actuarial Value of Assets	230,159,635	217,003,707	6.1%
d. Unfunded Actuarial Accrued Liability (a) - (c)	$ 54,879,037	$ 54,590,515	0.5%
e. Funded Ratio - Actuarial Value (c) / (a)	80.75%	79.90%	1.1%
f. Funded Ratio - Market Value (b) / (a)	81.79%	78.74%	3.9%
3. ACTUARIAL CONTRIBUTION RATE			
a. Normal Cost	16.52%	16.47%	0.3%
b. UAAL Amortization	7.76%	7.91%	(1.9)%
c. Actuarial Determined Contribution Rate (a) + (b)	24.28%	24.38%	(0.4)%
d. Effective Employee Contribution Rate	(7.20%)	(7.06%)	2.0%
e. Employer Actuarial Contribution Rate (c) - (d)	17.08%	17.32%	(1.4)%

This report presents the results of the actuarial valuation of the City of Lincoln Police and Fire Pension Fund as of August 31, 2017. This valuation was prepared at the request of the City.

Please pay particular attention to our actuarial certification letter, where the guidelines employed in the preparation of this report are outlined. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings which result from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the Plan. Section 4 and 5 describe how the obligations of the Plan are to be met under the actuarial cost method in use. Section 6 includes some historical funding and other information.

This report includes several appendices:

- Appendix A Schedules of valuation data classified by various categories of members.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law on August 31, 2017.
- Appendix C A summary of the actuarial methods and assumptions used to estimate liabilities and determine contribution rates.
- Appendix D A glossary of actuarial terms.

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is August 31, 2017. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the Plan, which are generally in excess of assets. The actuarial process then leads to a method of determining the contributions needed by members and the employer in the future to balance the Plan assets and liabilities.

Market Value of Assets

The current market value represents the "snapshot" or "cash-out" value of Plan assets as of the valuation date. In addition, the market value of assets provides a basis for measuring investment performance from time to time. Table 1 is a comparison, at market values, of Plan assets as of August 31, 2017, and August 31, 2016, in total and by investment category. Table 2 summarizes the change in the market value of assets from August 31, 2016 to August 31, 2017.

Actuarial Value of Assets

Neither the market value of assets, representing a "cash-out" value of Plan assets, nor the book value of assets, representing the cost of investments, may be the best measure of the Plan's ongoing ability to meet its obligations.

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens swings in the market value while still indirectly recognizing market values. Under the asset smoothing methodology, the difference between the actual investment return on the market value of assets and assumed investment return on the actuarial value of assets is recognized evenly over a five-year period.

Table 3 shows the development of the actuarial value of assets (AVA) as of the valuation date.

TABLE 1

STATEMENT OF NET PLAN ASSETS AT MARKET VALUE

	Market Value	
	August 31, 2017	**August 31, 2016**
Cash & Equivalents	$ 3,304,411	$ 2,168,196
Accrued Interest & Dividends	756	20
Debt Investments	34,070,308	40,018,342
Equity Investments	128,103,354	120,369,440
Alternate Investments	22,850,952	10,544,903
Real Estate	44,810,554	40,757,034
Total Assets	$ 233,140,335	$ 213,857,935
Accounts Payable	0	0
Net Assets Available for Benefits	$ 233,140,335	$ 213,857,935

TABLE 2

STATEMENT OF CHANGES IN NET ASSETS DURING YEAR ENDED AUGUST 31, 2017
(Market value)

1. Market Value of Assets as of August 31, 2016	$	213,857,935
2. Contributions:		
a. Members	$	3,112,583
b. City		7,974,731
c. Total	$	11,087,314
3. Investment Income		
a. Interest and Dividends	$	3,584,590
b. Realized Gains/(Losses)		7,525,584
c. Short and Long Term Capital Gains		1,433,529
d. Unrealized Gains/(Losses)		11,475,965
e. Investment Expenses		(374,871)
f. Net Investment Income	$	23,644,797
4. Expenditures		
a. Refunds of Member Contributions	$	381,921
b. Benefits Paid:		
(1) Pension and Compensation Payments	$	12,525,212
(2) DROP Payments		2,096,999
(3) Temporary Total Disability		0
c. Administrative Expenses		445,579
d. Total	$	15,449,711
5. Changes and Adjustments	$	0
6. Net Change (2c) + (3f) - (4d) + (5)	$	19,282,400
7. Market Value of Assets as of August 31, 2017	$	233,140,335
8. Return on Market Value of Assets, Net of Investment Expenses		11.2%

TABLE 3

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

	Year End			
	8/31/2014	8/31/2015	8/31/2016	8/31/2017
1. Actuarial Value of Assets, Beginning of Year	$ 164,189,914	$ 174,569,411	$ 183,011,274	$ 217,003,707
2. Contributions During Year				
(a) Member	$ 2,613,971	$ 2,604,101	$ 2,817,102	$ 3,112,583
(b) City	7,865,929	8,045,293	7,170,104	7,974,731
(c) Total	$ 10,479,900	$ 10,649,394	$ 9,987,206	$ 11,087,314
3. Benefit Payments and Expenses	$ 13,837,309	$ 13,599,832	$ 14,340,221	$ 15,449,711
4. Expected Investment Income on (1), (2) and (3)	$ 12,190,617	$ 11,685,484	$ 11,575,585	$ 16,114,646
5. Actual Return on Market Value, Net of Investment Expenses	$ 23,574,412	$ (5,056,241)	$ 13,869,768	$ 23,644,797
6. Return to be Spread, End of Year (5) - (4)	$ 11,383,795	$ (16,741,725)	$ 2,294,183	$ 7,530,151

7. Return to be Spread

Plan Year Ending	Return to be Spread	Unrecognized Percent	Unrecognized Return
2017	$7,530,151	80%	$6,024,121
2016	2,294,183	60%	1,376,510
2015	(16,741,725)	40%	(6,696,690)
2014	11,383,795	20%	2,276,759
			$2,980,700

8. Total Market Value of Assets as of September 1, 2017	$233,140,335
9. Total Actuarial Value of Assets as of September 1, 2017 (8) - (7)	$230,159,635
10. Asset Ratios	
(a) Actuarial Value to Market Value (9) / (8)	98.72%
(b) Market Value to Actuarial Value (8) / (9)	101.30%
11. Return on Actuarial Value of Assets, Net of Expenses	8.2%

Note: Information prior to 2015 was produced by the prior actuary.

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the City as of the valuation date, August 31, 2017. In this section, the discussion will focus on the commitments (future benefit payments) of the Plan, which are referred to as its liabilities.

Table 4 contains an analysis of the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries.

The liabilities summarized in Table 4 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measurement of both benefits already earned and future benefits to be earned. For all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and for the lives of the surviving beneficiaries.

All liabilities reflect the benefit provisions in place as of August 31, 2017.

Actuarial Accrued Liability

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. An actuarial cost method is a mathematical technique that allocates the present value of future benefits into annual costs. In order to do this allocation, it is necessary for the funding method to “breakdown” the present value of future benefits into two components:

(1) that which is attributable to the past, and

(2) that which is attributable to the future.

Actuarial terminology calls the part attributable to the past the “past service liability” or the “actuarial accrued liability”. The portion allocated to the future is known as the present value of future normal costs, with the specific piece of it allocated to the current year being called the “normal cost”. Table 5 contains the calculation of actuarial accrued liability for the Plan. The Entry Age Normal actuarial cast method is used to develop the actuarial accrued liability.

TABLE 4

PRESENT VALUE OF FUTURE BENEFITS (PVFB) AS OF AUGUST 31, 2017

1. Active Employees	
a. Retirement Benefits	$ 178,215,139
b. Pre-Retirement Death Benefits	3,246,048
c. Termination Benefits	8,834,113
d. Disability Benefits	3,829,355
e. Total	$ 194,124,655
2. Inactive Vested Members	$ 3,658,187
3. Refunds Due	$ 38,966
4. In Pay Members	
a. Retirees	$ 110,416,363
b. Disabled Members	14,583,463
c. DROP Members	24,809,919
d. Beneficiaries	7,996,190
e. Total	$ 157,805,935
4. Total Present Value of Future Benefits (1e) + (2) + (3) + (4e)	$ 355,627,743

TABLE 5

ACTUARIAL ACCRUED LIABILITY
AS OF AUGUST 31, 2017

1. Active Employees	
a. Present Value of Future Benefits	$ 194,124,655
b. Present Value of Future Normal Costs	70,589,071
c. Actuarial Accrued Liability (1a) - (1b)	$ 123,535,584
2. Inactive Members	$ 3,697,153
3. In Pay Members	
a. Retirees	$ 110,416,363
b. Disabled Members	14,583,463
c. DROP Members	24,809,919
d. Beneficiaries	7,996,190
e. Total	$ 157,805,935
4. Total Actuarial Accrued Liability (1c) + (2) + (3e)	$ 285,038,672
5. Actuarial Value of Assets	$ 230,159,635
6. Unfunded Actuarial Accrued Liability (4) - (5)	$ 54,879,037

TABLE 6

ACTUARIAL BALANCE SHEET
AS OF AUGUST 31, 2017

ASSETS

Actuarial Value of Assets		$ 230,159,635
Present Value of Future Normal Costs		$ 70,589,071
Present Value of Future Payments on the Unfunded Actuarial Accrued Liability		$ 54,879,037
Total Assets		$ 355,627,743

LIABILITIES

Active Employees:		
a. Retirement Benefits	$ 178,215,139	
b. Pre-Retirement Death Benefits	3,246,048	
c. Termination Benefits	8,834,113	
d. Disability Benefits	3,829,355	
e. Total		$ 194,124,655
Inactive Members		$ 3,697,153
In Pay Members		
a. Retirees	$ 110,416,363	
b. Disabled Members	14,583,463	
c. DROP Members	24,809,919	
d. Beneficiaries	7,996,190	
e. Total		$ 157,805,935
Total Liabilities		$ 355,627,743

TABLE 7

ACTUARIAL GAIN/(LOSS)

Liabilities		
1. Actuarial Accrued Liability as of September 1, 2016	$	271,594,222
2. Normal Cost for Plan Year Ending August 31, 2017		6,621,301
3. Benefit Payments During Plan Year Ending August 31, 2017		(15,004,132)
4. Interest at 7.50%		20,313,681
5. Expected Actuarial Accrued Liability as of August 31, 2017	$	283,525,072
6. Actuarial Accrued Liability as of August 31, 2017	$	285,038,672
Assets		
7. Actuarial Value of Assets as of September 1, 2016	$	217,003,707
8. Contributions During Plan Year Ending August 31, 2017		11,087,314
9. Benefit Payments and Expenses During Plan Year Ending August 31, 2017		(15,449,711)
10. Interest at 7.50%		16,114,646
11. Expected Actuarial Value of Assets as of August 31, 2017	$	228,755,956
12. Actuarial Value of Assets as of August 31, 2017	$	230,159,635
Gain / (Loss)		
13. Expected Unfunded Actuarial Accrued Liability (5) – (11)	$	54,769,116
14. Unfunded Actuarial Accrued Liability (6) – (12)	$	54,879,037
15. Actuarial Gain / (Loss) (13) – (14)	$	(109,921)
16. Actuarial Gain / (Loss) on Actuarial Value of Assets (12) – (11)	$	1,403,679
17. Actuarial Gain / (Loss) on Actuarial Accrued Liability (5) – (6)	$	(1,513,600)

TABLE 8

GAIN/(LOSS) BY SOURCE

The purpose of conducting an actuarial valuation of a retirement plan is to estimate the costs and liabilities for the benefits expected to be paid from the plan, to determine the annual level of contribution for the current plan year that should be made to support these benefits and, finally, to analyze the plan's experience. The costs and liabilities of this retirement plan depend not only upon the benefit formula and plan provisions but also upon factors such as the investment return on the Fund, mortality rates among active and retired members, withdrawal and retirement rates among active members, rates at which salaries increase and the rate at which the cost of living increases.

The actuarial assumptions employed as to these and other contingencies in the current valuation are set forth in Appendix C of this report.

Since the overall results of the valuation will reflect the choice of assumptions made, periodic studies of the various components compromising the plan's experience are conducted in which the experience for each component is analyzed in relation to the assumption used for that component (experience study). This summary is not intended to be an actual "experience study", but rather an analysis of sources of gain and loss in the past plan year.

Gain/(Loss) By Source

The Plan experienced a net actuarial loss on liabilities of $1,514,000 during the plan year ended August 31, 2017, as well as an actuarial gain on assets of $1,404,000. The net actuarial loss was $110,000. The major components of this net actuarial experience loss are shown below:

Liability Sources	Gain/(Loss)
Salary Increases	$ 142,000
Mortality	(676,000)
Terminations	(96,000)
Retirements	(44,000)
Disability	(312,000)
New Entrants/Rehires	(95,000)
13th Check	42,000
Data Refinements	(370,000)
Miscellaneous	(105,000)
Total Liability Gain/(Loss)	$ (1,514,000)*
Asset Gain/(Loss)	$ 1,404,000
Net Actuarial Gain/(Loss)	$ (110,000)

* Liability experience was 0.5% of actuarial accrued liability.

The previous two sections were devoted to a discussion of the assets and liabilities of the Plan. A comparison of Tables 3 and 4 indicates that current assets (actuarial value) fall short of meeting the present value of future benefits (total liability). This is expected in all but a completely closed fund, where no further contributions are anticipated. In an active Plan, there will almost always be a difference between the actuarial value of assets and total liabilities. This deficiency has to be made up by future contributions and investment returns. An actuarial valuation sets out a schedule of future contributions that will deal with this deficiency in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. Under an actuarial cost method, the contributions required to meet the difference between current assets and current liabilities are allocated each year between two elements: (1) the normal cost rate and (2) the unfunded actuarial accrued liability contribution rate.

The term "fully funded" is often applied to a Plan in which contributions at the normal cost rate are sufficient to pay for the benefits of existing employees as well as for those of new employees. More often than not, Plans are not fully funded, either because of past benefit improvements that have not been completely funded or because actuarial deficiencies have occurred when experience has not been as favorable as anticipated. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists. Likewise, when the actuarial value of assets is greater than the actuarial accrued liability, a surplus exists.

Description of Contribution Rate Components

The Entry Age Normal (EAN) actuarial cost method is used for the valuation. Under that method, the normal cost for each year from entry age to assumed exit age is a constant percentage of the member's year by year projected compensation. The portion of the present value of future benefits not provided by the present value of future normal costs in the actuarial accrued liability. The unfunded actuarial accrued liability/(surplus) represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

In general, contributions are computed in accordance with a level percent-of-payroll funding objective. The funding policy for the Plan, which determines the City's contribution, can be found in Appendix B of Chapter 2.62 in the Lincoln Municipal Code. The contribution rate developed in the August 31, 2017 actuarial valuation will be used to determine the actuarially determined employer contribution rate to the City of Lincoln Police and Fire Pension Fund for fiscal year end 2019. In this context, the term "contribution rate" means the percentage, which is applied to the estimated active member payroll for the applicable plan year to determine the actual employer contribution amount (i.e., in dollars) for the group.

As of August 31, 2017 the actuarial accrued liability was greater than the valuation assets so an unfunded actuarial accrued liability (UAAL) exists. The UAAL is amortized, as a level-percent of payroll, using a layered approach. The existing UAAL as of August 31, 2016 serves as the initial base and is amortized over a closed 30-year period beginning on August 31, 2014 (27 years remaining in this valuation). For each valuation subsequent to August 31, 2016, annual net experience gains/losses are amortized over a new, closed 20-year period. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

Contribution Rate Summary

In Table 9, the amortization payment related to the unfunded actuarial accrued liability, as of August 31, 2017, is developed. Table 10 develops the actuarially determined employer contribution (ADEC) rate.

The actuarial contribution rates shown in this report are based on the actuarial assumptions and cost methods described in Appendix C.

TABLE 9

DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITY CONTRIBUTION RATE

Amortization Bases	Original Amount	Remaining Payments	Base is Paid Off	Outstanding Balance as of August 31, 2017	Annual Contribution*
2016 UAAL Base	$ 54,590,515	27	8/31/2044	$ 55,165,364	$ 3,496,283
2017 Experience Base	(286,327)	20	8/31/2037	(286,327)	(21,619)
Total				$ 54,879,037	$ 3,474,664

* Amounts reflect mid-year timing. Based on level percentage of payroll, assuming payroll increases 3.0% per year.

1. Total UAAL Amortization Payment	$ 3,474,664
2. Total Projected Payroll for FY 2017-18	$ 44,776,055
3. UAAL Amortization Payment as a Percent of Payroll	7.76%

TABLE 10

ACTUARIALLY DETERMINED EMPLOYER CONTRIBUTION RATE

	Valuation Date	
	8/31/2017	8/31/2016
Normal Cost		
Retirement benefits	13.64%	13.61%
Pre-retirement death benefits	0.49%	0.49%
Termination benefits	1.79%	1.77%
Disability benefits	0.60%	0.60%
Total Normal Cost	16.52%	16.47%
Total UAAL Amortization Payment	7.76%	7.91%
Actuarial Determined Contribution Rate	24.28%	24.38%
Member portion	7.20%	7.06%
City portion	17.08%	17.32%

TABLE 11

FIVE-YEAR BUDGET REQUEST ESTIMATE

The Employer Contribution Amount, per City Ordinance 20495, requires the City to contribute the Actuarially Determined Employer Contribution Amount plus Administrative Expenses to the Plan.

Fiscal Year	(1) Total Payroll*	(2) Employer Normal Cost Rate	(3) UAAL Contribution Rate	(4) Actuarially Determined Employer Contribution Rate (2) + (3)	(5) Actuarially Determined Employer Contribution Amount (1) * (4)	(6) Admin. Expenses**	(7) **Employer Contribution Amount (5) + (6)**
2018-19	46,119,337	9.32%	7.76%	17.08%	7,877,183	456,718	**8,333,901**
2019-20	47,502,917	9.19%	7.58%	16.77%	7,966,239	468,136	8,434,375
2020-21	48,928,005	9.09%	7.76%	16.85%	8,244,369	479,839	8,724,208
2021-22	50,395,845	9.00%	7.43%	16.43%	8,280,037	491,835	8,771,872
2022-23	51,907,720	8.91%	7.17%	16.08%	8,346,761	504,131	8,850,892

Note: Assumes all actuarial assumptions are met in future years, including a 7.50% net return on the market value of assets.

* *Total payroll is projected to increase at 3.00% per year for future years.*
** *Administrative expenses are assumed to increase with price inflation of 2.50% per year.*

HISTORICAL FUNDING AND OTHER INFORMATION

In this section, some historical information regarding the funding progress of the Plan is included. These exhibits retain some of the information that was previously required for accounting purposes and which are included because they assist in explaining the Plan's funding history. An exhibit showing the expected benefit payments for current members of the Plan is also included.

TABLE 12

SCHEDULE OF FUNDING PROGRESS

Two tests of funding progress based on the relationship between valuation assets and actuarial accrued liabilities are shown on the following pages. These tests are based upon the actuarial cost method used in the valuation.

The Ratio of Valuation Assets to Actuarial Accrued Liabilities is a traditional measure of a Plan's funding progress. Except in years when the benefit provisions are amended or actuarial assumptions are revised, the ratio can be expected to gradually tend toward 100%, assuming recommended contribution amounts are received by the plan.

The Ratio of Unfunded Actuarial Accrued Liabilities to Valuation Payroll is another relative index of condition. In an inflationary economy, the value of dollars is decreasing. This environment results in employee salaries increasing in dollar amounts, retirement benefits increasing in dollar amounts, and then, unfunded actuarial accrued liabilities increasing in dollar amounts – all at a time when the actual substance of these items may be decreasing. When looking at dollar amounts, the effects of inflation can hide the actual funding progress from year to year. Unfunded actuarial accrued liability dollars divided by active employee payroll dollars provides an index which attempts to eliminate the misleading effects of inflation. The smaller the ratio of unfunded liabilities to active member payroll, the stronger the Plan. Observation of this relative index over a period of years will provide an indication of whether the Plan is becoming financially stronger or weaker.

TABLE 12 (continued)

Actuarial Valuation Date	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability (AAL)	(3) Percent Funded (1) / (2)	(4) Unfunded AAL (2) - (1)	(5) Total Payroll*	(6) Unfunded AAL as a Percentage of Payroll (4) / (5)
8/31/1991	$68,390,000	$59,149,000	116.00%	($9,241,000)	$15,157,000	(61.00%)
8/31/1992	77,980,000	63,407,000	123.00%	(14,573,000)	15,365,000	(95.00%)
8/31/1993	86,583,000	67,910,000	127.00%	(18,673,000)	16,722,000	(112.00%)
8/31/1994	83,307,827	70,517,314	118.14%	(12,790,513)	17,698,377	(72.27%)
8/31/1995	92,235,349	79,202,449	116.46%	(13,032,900)	18,561,302	(70.22%)
8/31/1996	94,347,990	81,583,068	115.65%	(12,764,922)	19,224,719	(66.40%)
8/31/1997	101,475,648	91,022,617	111.48%	(10,453,031)	20,908,549	(49.99%)
8/31/1998	109,213,474	94,847,667	115.15%	(14,365,807)	21,860,493	(65.72%)
8/31/1999	113,902,477	104,691,766	108.80%	(9,210,711)	23,611,284	(39.01%)
8/31/2000	121,404,314	115,671,249	104.96%	(5,733,065)	25,808,088	(22.21%)
8/31/2001	128,069,831	122,660,542	104.41%	(5,409,289)	28,215,685	(19.17%)
8/31/2002	128,319,145	130,875,473	98.05%	2,556,328	26,606,881	9.61%
8/31/2003	132,577,506	137,507,824	96.41%	4,930,318	27,415,330	17.98%
8/31/2004	136,973,679	144,178,758	95.00%	7,205,079	28,124,862	25.62%
8/31/2005	145,730,474	151,978,408	95.89%	6,247,934	29,029,309	21.52%
8/31/2006	157,527,392	161,583,285	97.49%	4,055,893	30,724,333	13.20%
8/31/2007	171,263,791	169,587,458	100.99%	(1,676,333)	30,546,235	(5.49%)
8/31/2008	179,390,472	179,376,149	100.01%	(14,323)	32,265,715	(0.04%)
8/31/2009	177,526,641	187,292,374	94.79%	9,765,733	33,449,977	29.20%
8/31/2010	172,317,463	195,206,353	88.27%	22,888,890	34,233,197	66.86%
8/31/2011	165,436,361	204,990,324	80.70%	39,553,963	35,763,446	110.60%
8/31/2012	164,500,414	214,878,992	76.55%	50,378,578	36,310,880	138.74%
8/31/2013	164,189,914	229,192,937	71.64%	65,003,023	38,107,652	170.58%
8/31/2014	174,569,411	262,918,401	66.40%	88,348,990	37,887,505	233.19%
8/31/2015	183,011,274	286,493,673	63.88%	103,482,399	42,381,059	244.17%
8/31/2016	217,003,707	271,594,222	79.90%	54,590,515	42,930,194	127.16%
8/31/2017	230,159,635	285,038,672	80.75%	54,879,037	44,776,055	122.56%

Note: For valuation dates prior to 2015, information shown is from the prior actuary's report.
** Non-DROP Payroll in 2002 and later.*

TABLE 13

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Beginning September 1	Actuarial Valuation Date	Actuarially Determined Employer Contribution*	Actual Contribution	Contribution Deficiency/ (Excess)
2003	8/31/2002	$3,297,577	$1,991,672	$1,305,905
2004	8/31/2003	3,684,264	2,562,850	1,121,414
2005	8/31/2004	4,077,037	2,892,711	1,184,326
2006	8/31/2005	4,056,195	3,494,590	561,605
2007	8/31/2006	4,076,536	3,456,424	620,112
2008	8/31/2007	3,316,464	3,521,858	(205,394)
2009	8/31/2008	3,752,124	4,014,414	(262,290)
2010	8/31/2009	4,651,872	4,333,811	318,061
2011	8/31/2010	5,574,482	6,052,020	(477,538)
2012	8/31/2011	6,718,467	6,446,472	271,995
2013	8/31/2012	7,377,763	7,865,929	(488,166)
2014	8/31/2013	8,418,199	8,045,293	372,906
2015	8/31/2014	9,666,852	7,170,104	2,496,748
2016	8/31/2015	7,829,103 **	7,974,731	(145,628)
2017	8/31/2016	8,164,782	N/A	N/A
2018	8/31/2017	8,333,901	N/A	N/A

** Actuarially Determined Employer Contribution is equal to the initial Budget Request amount shown in Table 11 for the appropriate fiscal year. The employer contribution rate from 8/31/02 to 8/31/08 is based on a 10-year amortization of the UAAL/(Surplus). The UAAL was amortized over 30 years from 8/31/09 to 8/31/13. The UAAL is currently amortized using a layered approach, where the initial base is amortized over a closed 30-year period effective 8/31/14. Bases established after 8/31/16 are amortized over a closed 20-year period.*

*** Actuarially Determined Employer Contribution was reduced from $12,065,465 in the 2015 valuation report due to the plan change merging the COLA Pool fund into the general pension fund.*

Note: For valuation dates prior to 2015, information shown is from the prior actuary's report.

TABLE 14

PROJECTED BENEFIT PAYMENTS

The table below shows estimated benefits expected to be paid over the next twenty years, based on the assumptions used in this valuation. The "In-Pay" column shows benefits expected to be paid to members currently receiving benefit payments as of August 31, 2017. The "Not In-Pay" column shows benefits expected to be paid to all other members. This included those who, as of August 31, 2017, are active or have terminated employment and are entitled to a deferred vested benefit. No future members are reflected.

Year Ending August 31	Not In-Pay	In-Pay	Total
2018	$ 823,000	$ 15,454,000	$ 16,277,000
2019	1,585,000	15,297,000	16,882,000
2020	2,375,000	15,161,000	17,536,000
2021	3,299,000	14,949,000	18,248,000
2022	4,307,000	14,780,000	19,087,000
2023	5,484,000	14,609,000	20,093,000
2024	6,665,000	14,426,000	21,091,000
2025	7,904,000	14,168,000	22,072,000
2026	9,161,000	13,923,000	23,084,000
2027	10,594,000	13,621,000	24,215,000
2028	12,002,000	13,341,000	25,343,000
2029	13,462,000	13,055,000	26,517,000
2030	14,936,000	12,708,000	27,644,000
2031	16,470,000	12,347,000	28,817,000
2032	17,970,000	11,969,000	29,939,000
2033	19,453,000	11,581,000	31,034,000
2034	20,987,000	11,180,000	32,167,000
2035	22,695,000	10,765,000	33,460,000
2036	24,378,000	10,337,000	34,715,000
2037	26,058,000	9,931,000	35,989,000

Note: Cash flows are the expected future non-discounted payments to current members. These numbers exclude refund payouts to current nonvested inactives and assume future retirees elect the normal form of payment and future withdrawals elect refunds according to valuation assumptions.

APPENDIX A

SUMMARY OF MEMBERSHIP DATA

MEMBER DATA RECONCILIATION
August 31, 2016 to August 31, 2017

The number of members included in the valuation, as summarized in the table below, is in accordance with the data submitted by the Plan for members as of the valuation date.

	Active Participants	DROP Members	Service Retirees	Disabled Retirees	Beneficiaries	Inactive Vested	Refunds Due	Total
Members as of 08/31/16	573	45	396	50	55	27	1	1,147
New Members	28	0	0	0	0	0	1	29
Terminations								
Refunded	(8)	0	0	0	0	0	0	(8)
Refund Due	(1)	0	0	0	0	0	1	0
Deferred Vested	0	0	0	0	0	0	0	0
Retirements								
Service	(3)	(13)	19	0	0	(3)	0	0
Disability	(1)	0	0	1	0	0	0	0
DROP	(11)	11	0	0	0	0	0	0
Deaths								
Cashed Out	0	0	0	0	0	0	(1)	(1)
Refund Due	0	0	0	0	0	0	0	0
With Beneficiary	(1)	0	(2)	0	3	0	0	0
Without Beneficiary	0	0	(5)	0	(2)	0	0	(7)
Data Adjustments	0	0	0	0	0	0	0	0
Members as of 08/31/17	**576**	**43**	**408**	**51**	**56**	**24**	**2**	**1,160**

RETIRANTS AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

Year Ended	Added to Rolls No.*	Added to Rolls Annual Benefits**	Added to Rolls Post-Ret. Increases	Removed from Rolls No.	Removed from Rolls Annual Benefits**	Rolls End of Year No.	Rolls End of Year Annual Benefits**	% Incr. Annual Benefits	Average Annual Benefit
Aug. 31, 1991	22#	308,940	42,470	2	7,200	142	1,460,670	30.8%	10,286
Aug. 31, 1992	16	221,944	0	1	3,816	157	1,678,798	14.9%	10,693
Aug. 31, 1993	17	219,974	0	1	10,698	173	1,888,074	12.5%	10,914
Aug. 31, 1994	16	218,777	0	4	17,829	185	2,089,022	10.6%	11,292
Aug. 31, 1995	16	211,219	0	4	37,158	197	2,263,083	8.3%	11,488
Aug. 31, 1996	8	149,099	0	2	16,566	203	2,395,616	5.9%	11,801
Aug. 31, 1997	73##	590,041	0	4	56,890	272	3,042,547	27.0%	11,186
Aug. 31, 1998	10	155,262	0	11	71,670	271	3,126,139	2.7%	11,536
Aug. 31, 1999	23	414,130	0	1	22,889	293	3,517,380	12.5%	12,005
Aug. 31, 2000	17	335,244	0	7	62,014	303	3,790,610	7.8%	12,510
Aug. 31, 2001	14	225,737	0	16	105,022	301	3,911,325	3.2%	12,994
Aug. 31, 2002	18	278,160	0	14	115,340	305	4,074,145	4.2%	13,358
Aug. 31, 2003	15	219,569	0	11	119,499	309	4,174,215	2.5%	13,509
Aug. 31, 2004	12	175,551	0	5	74,835	316	4,274,931	2.4%	13,528
Aug. 31, 2005	30	702,721	0	12	73,072	334	4,904,580	14.7%	14,684
Aug. 31, 2006	10	262,420	0	4	36,362	340	5,130,638	4.6%	15,090
Aug. 31, 2007	38	1,101,713	0	8	55,280	370	6,177,071	20.4%	16,695
Aug. 31, 2008	24	621,708	0	10	128,736	384	6,670,043	8.0%	17,370
Aug. 31, 2009	20	560,105	0	2	28,641	402	7,185,166	7.7%	17,874
Aug. 31, 2010	14	408,351	0	8	66,170	408	7,477,874	4.1%	18,328
Aug. 31, 2011	15	455,866	0	8	84,553	415	7,846,879	4.9%	18,908
Aug. 31, 2012	30	1,083,442	0	7	101,972	438	8,828,349	12.5%	20,156
Aug. 31, 2013	21	700,308	0	11	165,739	448	9,362,919	6.1%	20,899
Aug. 31, 2014	20	771,356	0	3	21,973	465	10,112,391	8.0%	21,747
Aug. 31, 2015	27	1,045,339	0	6	106,230	486	11,051,500	9.3%	22,740
Aug. 31, 2016	24	792,387	0	9	108,466	501	11,735,421	6.2%	23,424
Aug. 31, 2017	23	880,462	0	9	105,124	515	13,098,301	11.6%	25,434

** Includes Retirements from DROP*
 # Includes one member not previously reported
*** Beginning in 2017, includes 13th Check amounts. This increased Annual Benefits by $587,542 on Aug. 31, 2017.*
Includes the addition of "Old Plan" members
Note: For valuation dates prior to 2015, information shown is from the prior actuary's report.

NOT-IN-PAY MEMBERS INCLUDED IN VALUATION

Valuation Date	Active Members	Inactive Vested Members	Total Payroll*	Average Age	Average Service	Average Pay	% Increase
Aug. 31, 1991	490	36	$15,157,150	39.3	14.4	$30,933	5.1%
Aug. 31, 1992	471	37	15,364,976	40.0	15.0	32,622	5.5%
Aug. 31, 1993	516	38	16,721,658	39.3	14.5	32,406	(0.7%)
Aug. 31, 1994	521	42	17,698,377	39.0	13.4	33,970	4.8%
Aug. 31, 1995	526	41	18,561,302	39.1	14.5	35,288	3.9%
Aug. 31, 1996	545	42	19,224,719	39.1	14.3	35,275	0.0%
Aug. 31, 1997	549	43	20,908,549	38.9	13.3	38,085	8.0%
Aug. 31, 1998	561	47	21,860,493	38.8	13.2	38,967	2.3%
Aug. 31, 1999	545	48	23,611,284	39.1	13.5	43,323	11.2%
Aug. 31, 2000	543	45	25,808,088	39.5	13.8	47,529	9.7%
Aug. 31, 2001	584	41	28,215,685	39.3	13.3	48,315	1.7%
Aug. 31, 2002	536	36	26,606,881	38.4	12.3	49,640	2.7%
Aug. 31, 2003	535	31	27,415,330	38.7	12.5	51,244	3.2%
Aug. 31, 2004	533	25	28,124,862	38.8	12.5	52,767	3.0%
Aug. 31, 2005	533	25	29,029,309	39.1	12.9	54,464	3.2%
Aug. 31, 2006	558	25	30,724,333	39.2	12.8	55,062	1.1%
Aug. 31, 2007	531	28	30,546,235	39.5	13.0	57,526	4.5%
Aug. 31, 2008	549	30	32,265,715	39.3	12.7	58,772	2.2%
Aug. 31, 2009	553	27	33,449,977	39.3	12.6	60,488	2.9%
Aug. 31, 2010	561	26	34,233,197	39.4	12.4	61,022	0.9%
Aug. 31, 2011	562	28	35,763,446	39.6	12.7	63,636	4.3%
Aug. 31, 2012	559	26	36,310,880	39.5	12.6	64,957	2.1%
Aug. 31, 2013	573	24	38,107,652	39.4	12.4	66,506	2.4%
Aug. 31, 2014	555	27	37,887,505	39.6	12.5	68,266	2.6%
Aug. 31, 2015	576	28	42,381,059	39.4	12.3	73,578	7.8%
Aug. 31, 2016	573	27	42,930,194	39.5	12.3	74,922	1.8%
Aug. 31, 2017	576	24	44,776,055	39.7	12.4	77,736	3.8%

** Reflects Non-DROP projected payroll in 2002 and later*

Note: For valuation dates prior to 2015, information shown is from the prior actuary's report.

MEMBERSHIP DATA – AUGUST 31, 2017

Active Members (Not Participating in DROP)

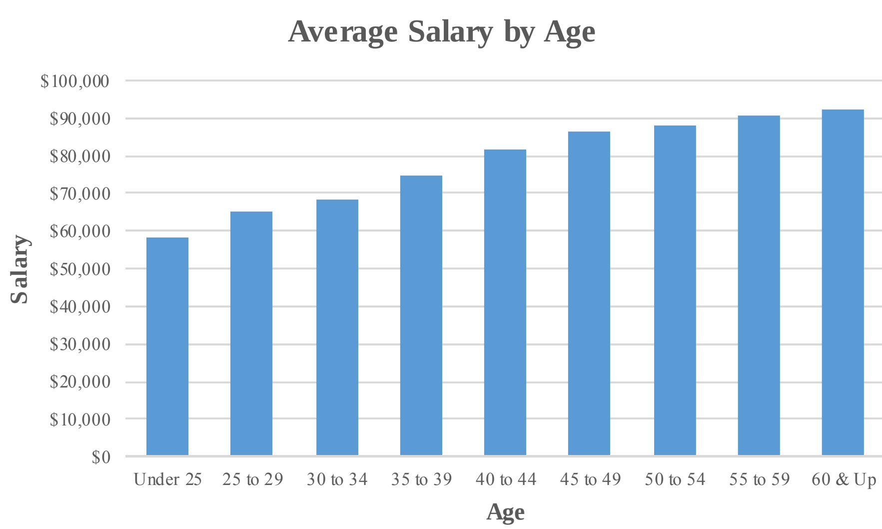
Group	Count	Employee Contribution Rate	Effective Employee Contribution Percentage	Projected Annual Payroll	Average Age	Average Service	Average Salary
Police							
- Old Plan**	2	7.60%	6.91%	$ 154,370	48.8	24.6	$ 77,185
- Plan A	285	8.00%	8.00%	20,716,043	37.0	10.9	72,688
- Plan B*	20	7.60%	0.00%	1,774,166	49.9	26.3	88,708
- Plan C*	5	7.00%	0.00%	463,237	64.9	42.1	92,647
Fire							
- Plan A	241	8.00%	8.00%	19,440,782	40.2	10.9	80,667
- Plan B*	23	7.60%	0.00%	2,227,457	52.0	27.4	96,846
Total	576	7.95%	7.20%	$ 44,776,055	39.7	12.4	$ 77,736

** Employee contributions stop after 21 years of service for this group.*
*** Employee contributions stop after 26 years of service for this group.*

SUMMARY OF ACTIVE MEMBERS
As of August 31, 2017

Fire

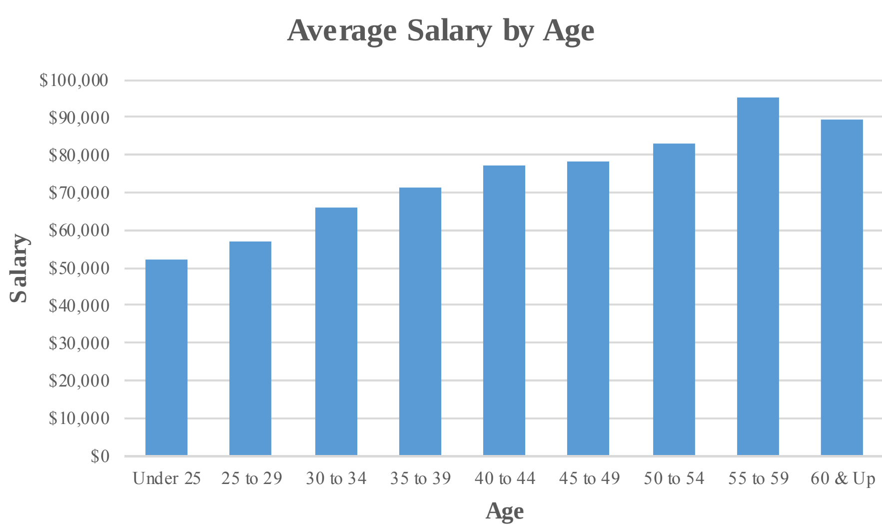
	Number			Annual Reported Compensation		
Age	Male	Female	Total	Male	Female	Total
Under 25	6	0	6	$ 349,605	$ 0	$ 349,605
25 to 29	17	2	19	1,123,671	111,393	1,235,064
30 to 34	44	3	47	3,010,675	202,888	3,213,563
35 to 39	42	6	48	3,121,336	470,220	3,591,556
40 to 44	52	4	56	4,267,156	305,705	4,572,861
45 to 49	40	1	41	3,455,663	81,192	3,536,855
50 to 54	27	2	29	2,385,434	170,165	2,555,599
55 to 59	15	0	15	1,359,074	0	1,359,074
60 & Up	3	0	3	277,003	0	277,003
Total	246	18	264	$ 19,349,617	$ 1,341,563	$ 20,691,180



SUMMARY OF ACTIVE MEMBERS
As of August 31, 2017

Police

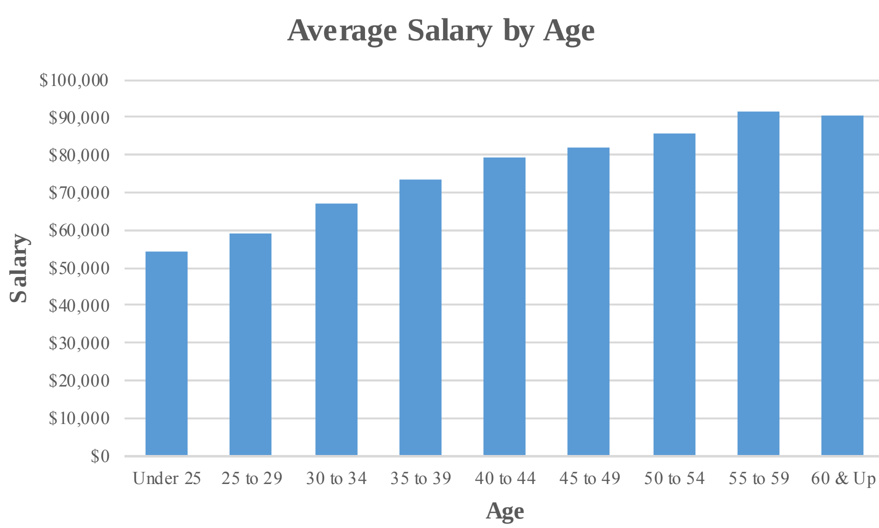
	Number			Annual Reported Compensation		
Age	Male	Female	Total	Male	Female	Total
Under 25	12	3	15	$ 620,060	$ 166,332	$ 786,392
25 to 29	42	11	53	2,390,668	620,834	3,011,502
30 to 34	58	5	63	3,829,489	334,392	4,163,881
35 to 39	33	11	44	2,394,529	754,663	3,149,192
40 to 44	47	8	55	3,593,866	640,938	4,234,804
45 to 49	43	7	50	3,385,277	538,053	3,923,330
50 to 54	23	0	23	1,905,798	0	1,905,798
55 to 59	2	2	4	210,210	170,419	380,629
60 & Up	4	1	5	335,464	112,108	447,572
Total	264	48	312	$ 18,665,361	$ 3,337,739	$ 22,003,100



SUMMARY OF ACTIVE MEMBERS
As of August 31, 2017

Total

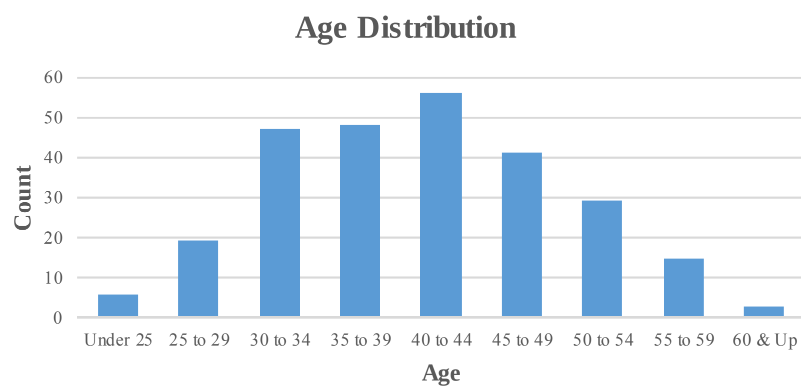
	Number			Annual Reported Compensation		
Age	Male	Female	Total	Male	Female	Total
Under 25	18	3	21	$ 969,665	$ 166,332	$ 1,135,997
25 to 29	59	13	72	3,514,339	732,227	4,246,566
30 to 34	102	8	110	6,840,164	537,280	7,377,444
35 to 39	75	17	92	5,515,865	1,224,883	6,740,748
40 to 44	99	12	111	7,861,022	946,643	8,807,665
45 to 49	83	8	91	6,840,940	619,245	7,460,185
50 to 54	50	2	52	4,291,232	170,165	4,461,397
55 to 59	17	2	19	1,569,284	170,419	1,739,703
60 & Up	7	1	8	612,467	112,108	724,575
Total	510	66	576	$ 38,014,978	$ 4,679,302	$ 42,694,280

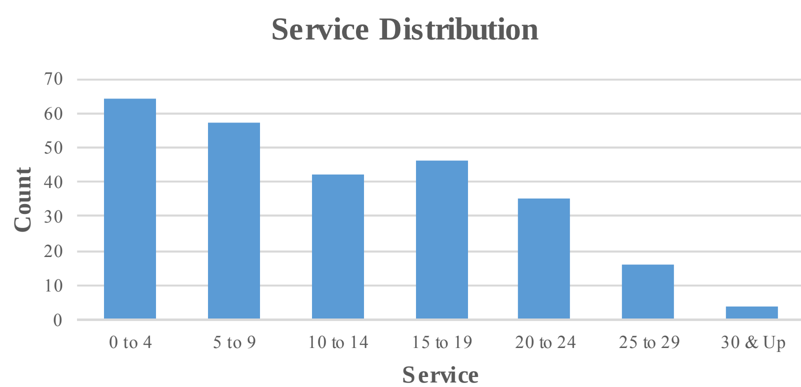


DISTRIBUTION OF ACTIVE MEMBERS
As of August 31, 2017

Fire

Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	6	0	0	0	0	0	0	6
25 to 29	14	5	0	0	0	0	0	19
30 to 34	24	21	2	0	0	0	0	47
35 to 39	14	16	14	4	0	0	0	48
40 to 44	4	10	18	15	9	0	0	56
45 to 49	0	4	6	14	14	3	0	41
50 to 54	2	0	1	7	7	10	2	29
55 to 59	0	0	1	6	5	3	0	15
60 & Up	0	1	0	0	0	0	2	3
Total	64	57	42	46	35	16	4	264

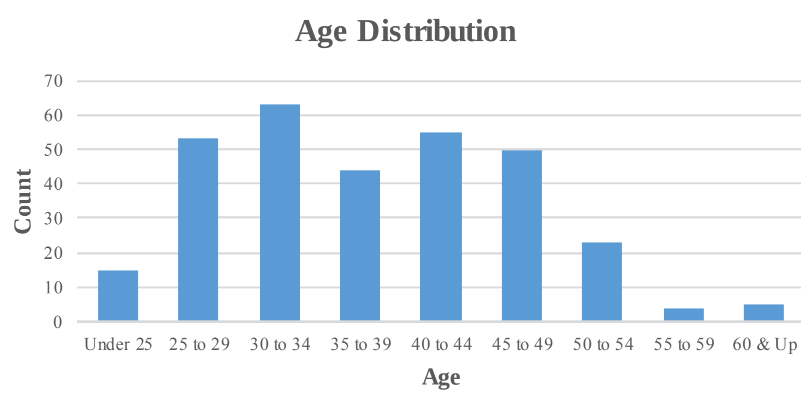




DISTRIBUTION OF ACTIVE MEMBERS
As of August 31, 2017

Police

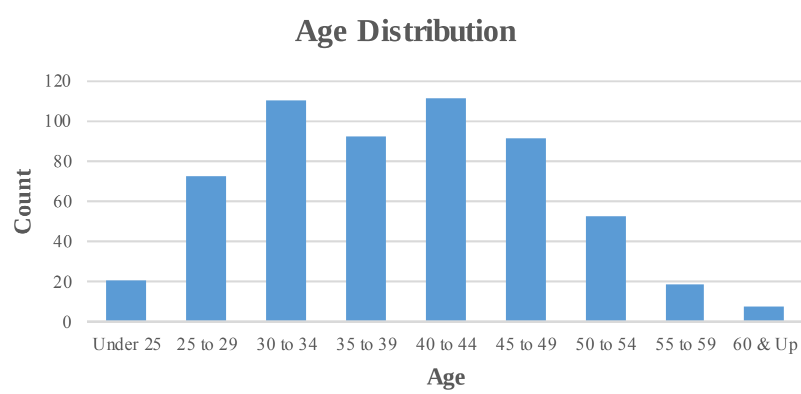
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	15	0	0	0	0	0	0	15
25 to 29	45	8	0	0	0	0	0	53
30 to 34	20	33	10	0	0	0	0	63
35 to 39	4	14	19	7	0	0	0	44
40 to 44	1	5	10	34	5	0	0	55
45 to 49	0	0	3	14	21	12	0	50
50 to 54	0	1	0	4	5	12	1	23
55 to 59	0	0	1	0	1	1	1	4
60 & Up	0	0	0	0	0	0	5	5
Total	85	61	43	59	32	25	7	312

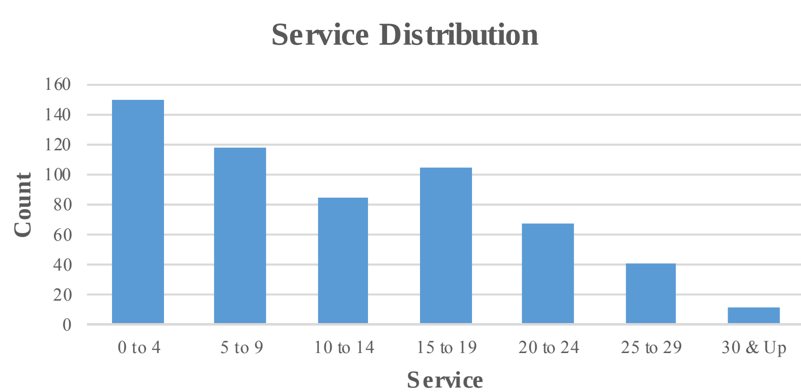


DISTRIBUTION OF ACTIVE MEMBERS
As of August 31, 2017

Total

Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	21	0	0	0	0	0	0	21
25 to 29	59	13	0	0	0	0	0	72
30 to 34	44	54	12	0	0	0	0	110
35 to 39	18	30	33	11	0	0	0	92
40 to 44	5	15	28	49	14	0	0	111
45 to 49	0	4	9	28	35	15	0	91
50 to 54	2	1	1	11	12	22	3	52
55 to 59	0	0	2	6	6	4	1	19
60 & Up	0	1	0	0	0	0	7	8
Total	149	118	85	105	67	41	11	576

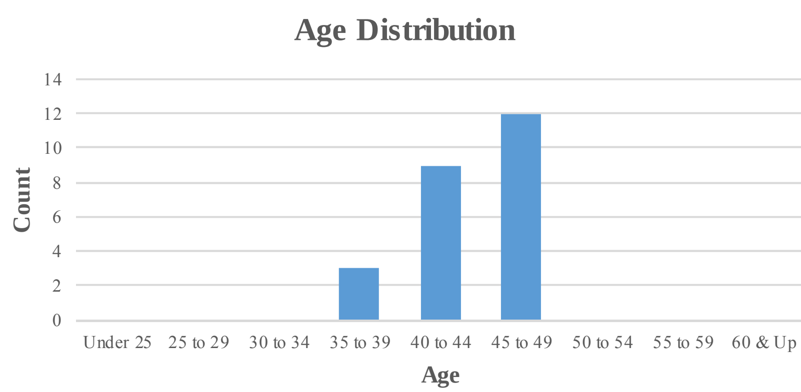


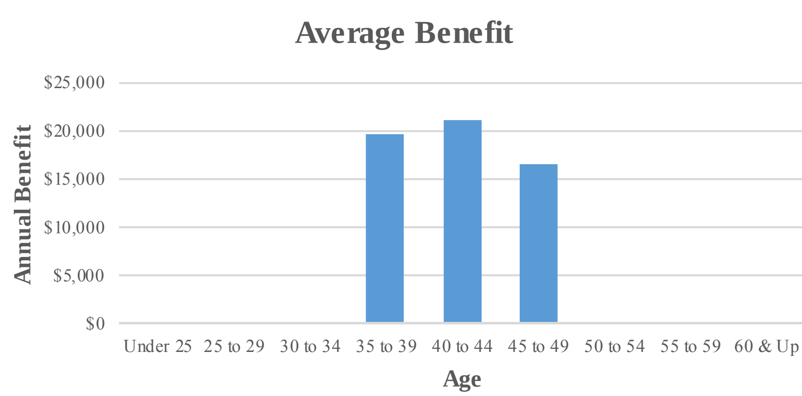


SUMMARY OF INACTIVE VESTED MEMBERS
As of August 31, 2017

Age	Number			Annual Benefit at Retirement*		
	Male	Female	Total	Male	Female	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25 to 29	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0
35 to 39	3	0	3	61,184	0	61,184
40 to 44	7	2	9	160,247	35,964	196,211
45 to 49	7	5	12	116,841	90,713	207,554
50 to 54	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0
60 & Up	0	0	0	0	0	0
Total	17	7	24	$ 338,272	$ 126,677	$ 464,949

* Includes 13th Check amounts.



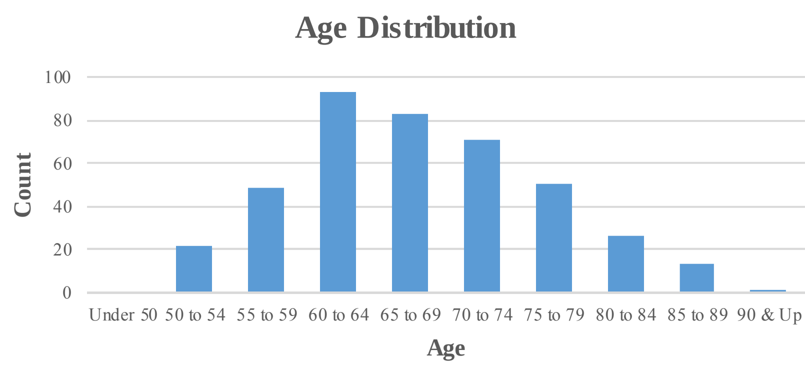


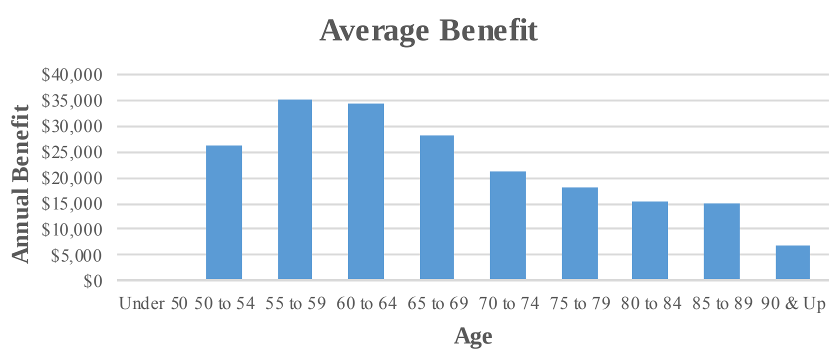
SUMMARY OF RETIRED MEMBERS
As of August 31, 2017

Service Retirees

	Number			Annual Benefit*		
Age	Male	Female	Total	Male	Female	Total
Under 50	0	0	0	$ 0	$ 0	$ 0
50 to 54	14	8	22	342,578	234,796	577,374
55 to 59	40	9	49	1,438,806	288,318	1,727,124
60 to 64	89	4	93	3,035,546	152,558	3,188,104
65 to 69	82	1	83	2,328,034	16,826	2,344,860
70 to 74	70	1	71	1,498,628	19,368	1,517,996
75 to 79	48	2	50	882,491	26,738	909,229
80 to 84	26	0	26	397,189	0	397,189
85 to 89	13	0	13	193,694	0	193,694
90 & Up	1	0	1	6,703	0	6,703
Total	383	25	408	$10,123,669	$ 738,604	$10,862,273

* Includes 13th Check amounts.



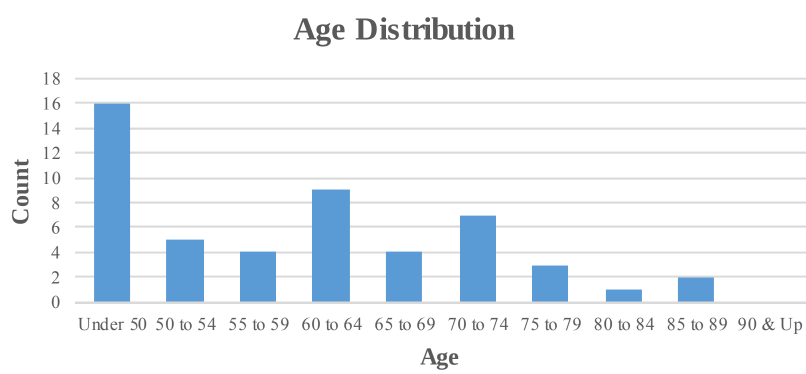


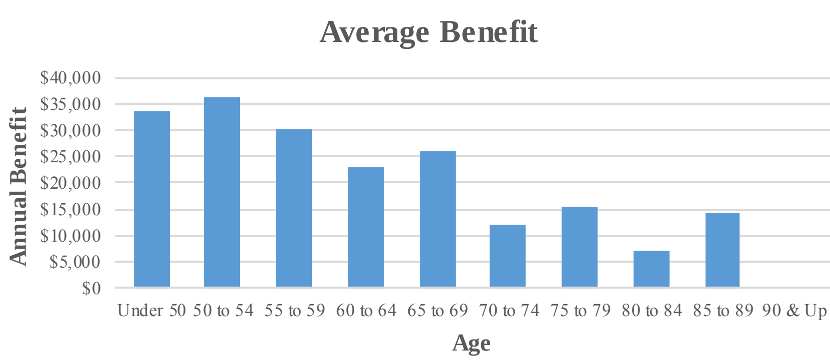
SUMMARY OF RETIRED MEMBERS
As of August 31, 2017

Disabled Retirees

	Number			Annual Benefit*		
Age	Male	Female	Total	Male	Female	Total
Under 50	12	4	16	$ 404,798	$ 134,724	$ 539,522
50 to 54	4	1	5	170,181	11,152	181,333
55 to 59	3	1	4	100,905	19,367	120,272
60 to 64	8	1	9	195,920	10,580	206,500
65 to 69	4	0	4	104,492	0	104,492
70 to 74	7	0	7	83,537	0	83,537
75 to 79	3	0	3	46,194	0	46,194
80 to 84	1	0	1	7,029	0	7,029
85 to 89	2	0	2	28,878	0	28,878
90 & Up	0	0	0	0	0	0
Total	44	7	51	$ 1,141,934	$ 175,823	$ 1,317,757

* Includes 13th Check amounts.



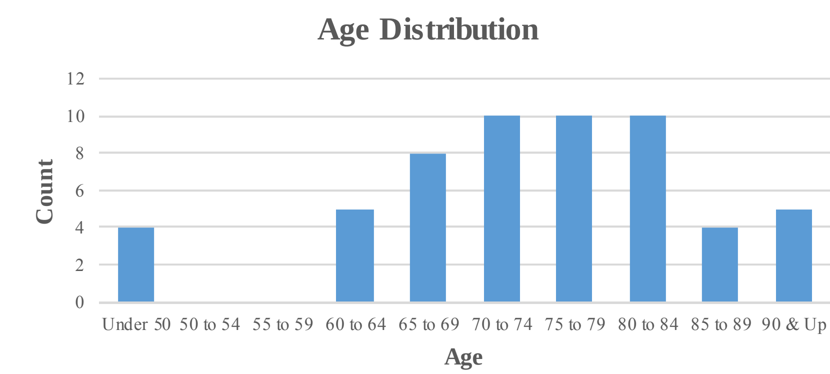


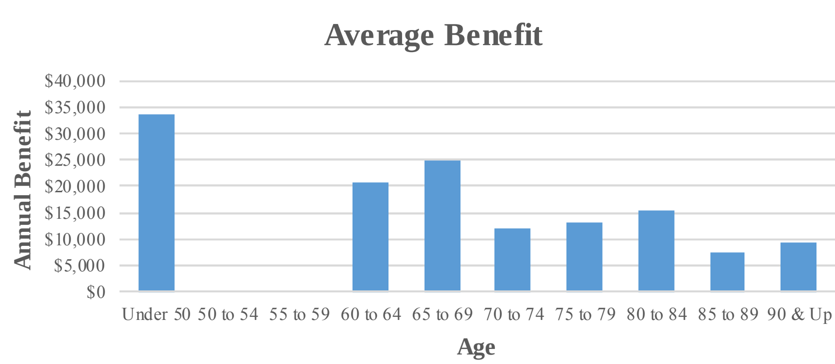
SUMMARY OF RETIRED MEMBERS
As of August 31, 2017

Beneficiaries

	Number			Annual Benefit*		
Age	Male	Female	Total	Male	Female	Total
Under 50	1	3	4	$ 34,132	$ 100,878	$ 135,010
50 to 54	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0
60 to 64	0	5	5	0	103,415	103,415
65 to 69	0	8	8	0	198,908	198,908
70 to 74	2	8	10	15,599	104,508	120,107
75 to 79	1	9	10	13,791	118,599	132,390
80 to 84	1	9	10	15,232	137,304	152,536
85 to 89	0	4	4	0	29,052	29,052
90 & Up	1	4	5	5,060	41,793	46,853
Total	6	50	56	$ 83,814	$ 834,457	$ 918,271

* Includes 13th Check amounts.



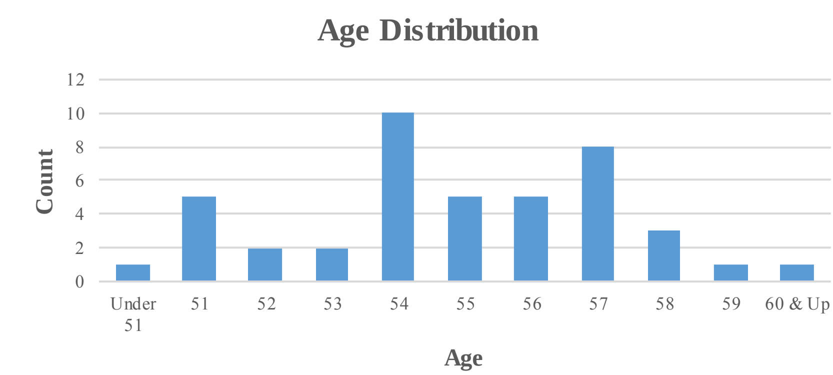


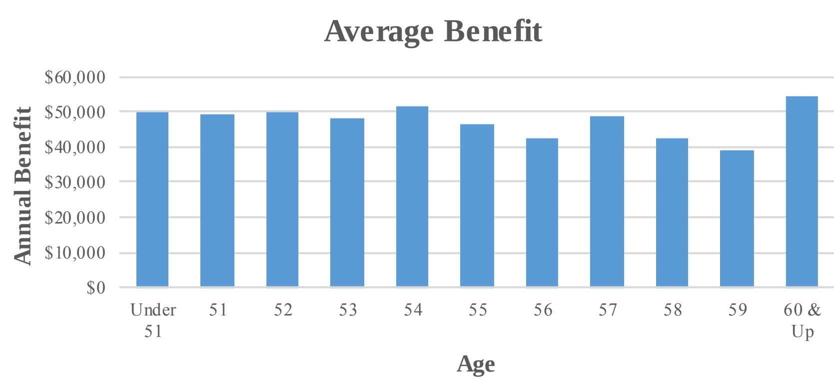
SUMMARY OF RETIRED MEMBERS
As of August 31, 2017

DROP Members

	Number			Annual Benefit*		
Age	Male	Female	Total	Male	Female	Total
Under 51	0	1	1	$ 0	$ 49,809	$ 49,809
51	5	0	5	247,390	0	247,390
52	1	1	2	53,670	46,430	100,100
53	2	0	2	96,603	0	96,603
54	10	0	10	516,292	0	516,292
55	5	0	5	233,121	0	233,121
56	4	1	5	163,870	49,661	213,531
57	8	0	8	389,045	0	389,045
58	3	0	3	126,818	0	126,818
59	1	0	1	39,037	0	39,037
60 & Up	1	0	1	54,532	0	54,532
Total	40	3	43	$ 1,920,378	$ 145,900	$ 2,066,278

* Includes 13th Check amounts.





APPENDIX B

SUMMARY OF BENEFIT PROVISIONS

Plan A is applicable to members who were hired on/after April 1, 1995 or who were hired prior to that date, but elected Plan A coverage.

Plan B is applicable to members who were employed on/after April 11, 1984 or who, prior to April 11, 1984, elected Plan B coverage.

Plan C is applicable to members who were employed before April 11, 1984 and did not elect to move to Plan B or A.

Regular Pay

All plans: Member's base pay and City's contributions to the Post-Employment Health Plan for the last consecutive 26 bi-weekly pay periods. In case of a demotion, or out of class pay, it shall mean the highest consecutive 26 bi-weekly pay periods.

Normal Retirement Age

Plan A:	Age 50
Plans B and C:	Age 53

Normal Retirement

Eligibility – Plan A:	Normal retirement age and 25 years of service.
Plans B and C:	Normal retirement age and 21 years of service.

Amount of Pension – Plan A: 2.56% of Regular Pay times years of service to a maximum of 64% of Regular Pay.

Plan B: 58% of Regular Pay with 21 years of service plus 2% of Regular Pay for each year of service rendered after becoming eligible for retirement to a maximum increase of 10%.

Plan C: 54% of Regular Pay with 21 years of service plus 2% of Regular Pay for each year of service rendered after becoming eligible for retirement to a maximum increase of 10%.

Early Retirement

Eligibility – All Plans: Age 50 and 21 years of service.

Amount of Pension – Plan A: 2.56% of Regular Pay times years of service up to a maximum of 64% of Regular Pay.

Plan B: 52% of Regular Pay plus 2% of Regular Pay for each year of service rendered after becoming eligible to a maximum increase of 6%.

Plan C: 48% of Regular Pay plus 2% of Regular Pay for each year of service rendered after becoming eligible to a maximum increase of 6%.

Partial Annuity

Eligibility – all plans: Early Retirement Age and 10, or more, years of service.

Amount of Pension – Plan A: 2.56% of Regular Pay times years of service.

Plan B: 58% of Regular Pay with 21 years of service. Members with less than 21 years of service receive a ratio of years of service to 21 years of 58% of Regular Pay.

Plan C: 54% of Regular Pay with 21 years of service. Members with less than 21 years of service receive a ratio of years of service to 21 years of 54% of Regular Pay.

Deferred Annuity (Vested Termination)

Eligibility – all plans: Age less than Early Retirement Age and 10, or more, years of service. Payments begin at age 50.

Amount of Pension – Plan A: 2.56% of Regular Pay times years of service.

Plan B: 58% of Regular Pay with 21 years of service. Members with less than 21 years of service receive a ratio of years of service to 21 years of 58% of Regular Pay.

Plan C: 54% of Regular Pay with 21 years of service. Members with less than 21 years of service receive a ratio of years of service to 21 years of 54% of Regular Pay.

Duty-Related Disability

Eligibility – all plans: Permanent inability to perform the duties of position from a cause occurring while in line of duty.

Amount of Pension – Plan A: 58% of Regular Pay.

Plan B and C: A pension equal to 58% or 54% of Regular Pay respectively, plus 2% of Regular Pay for each year of service rendered after becoming eligible for retirement, to a maximum increase of 10% of Regular Pay.

Such pension shall continue after the member's death to the member's surviving spouse, until death or remarriage, minor children or designated Option A beneficiary (a reduced amount in this case). The above amounts are subject to deduction of the amount received from worker's compensation.

Non-Duty Disability

Eligibility – all plans: Permanent inability to perform duties of position from a cause not occurring in the line of duty

Amount of Pension: A pension equal to the following percent of Regular Pay:

Years of Service (YOS)	Plan A	Plan B	Plan C
5 ≤ YOS < 10	23%	23%	21%
10 ≤ YOS < 15	39%	39%	36%
YOS ≥15	53%	53%	49%

Duty-Related Death

Eligibility – all plans: Active member dies in the line of duty or as a result of injuries received while in the line of duty.

Amount of Pension: Spouse beneficiary paid at Duty Related Disability rate until remarriage or death. Upon spouse's remarriage or death, dependent children paid prorate at the same rate until age 19. Non-spouse beneficiary paid at 100% survivor rate for lifetime.

The above amounts are subject to deduction of the amount received from worker's compensation.

Non-Duty Death

Eligibility – All Plans:	5 years of service.
Amount of Pension:	Pension which would have been payable as a Non-Duty Disability awarded the day prior to death and elected Option A (joint & 100% survivor).

Death After Retirement – Remainder Refund

Eligibility – all plans:	Employed on January 1, 1992 or hired between January 1, 1992 and March 31, 2010.
Amount of Benefit:	Upon retirement, the member's balance of contributions plus accrued interest is reduced each month by a level amount equal to the member's balance divided by the expected number of payments. Once both the member and, if applicable, their joint annuitant have died, the remaining balance is paid as a lump sum to a designated beneficiary.

The expected number of monthly payments is established in the Internal Revenue Code in effect April 1, 2010 and depends on the age of the retiree at retirement, or the combined ages of the retiree and joint annuitant.

Non-Vested Termination

Eligibility – all plans:	Termination of employment and no pension is or will become payable.
Amount of Benefit:	Refund of member's contributions plus annual interest.

Employee Contributions

Plan A:	8.0% of pay.
Plan B:	7.6% of pay.
Plan C:	7.0% of pay.

Upon reaching 21 years of service, member contributions are discontinued for Plan B and Plan C members. Members participating in Old Plan B or Old Plan C contribute until reaching 26 years of service.

Deferred Retirement Option Plan (DROP)

Eligibility for the DROP:

Members of Plan B and C may join the DROP within 1 year of becoming eligible for normal retirement benefits as described earlier in this section.

Grandfather provision allows members of Plan B and C who were eligible to retire on the date of DROP implementation, a one-time opportunity to join the DROP.

Members of Plan A may join the DROP at any time after meeting the eligibility conditions for normal retirement.

DROP benefits:

100% of the member's accrued benefit at the time of DROP will be contributed to the member's DROP account.

If the member elects annuity withdrawal (available to members of Plans B and C) the lump sum payment and corresponding reduced annuity will be credited to the member's DROP account.

DROP funding Period:

Both the City and the employee will contribute (in accordance with the provisions of each Plan) until the employee enters the DROP. No contributions are made on the payroll of DROP members.

DROP Period:

Maximum of 5 years.

13th Check

For members who have been receiving a pension for at least 12 months, a lump sum payment will be made on each September 1. The base amount of the lump sum payment is $750 effective 9/1/1994. The base amount is increased each year by the lesser of 3.0% and the annual the percentage increase in the CPI-U. Members who retired with at least 21 years of service and members who were granted a duty disability pension will receive the full payment amount. All other members who have been receiving a pension for at least 12 months (and their beneficiaries) will receive a partial payment. The payment for these members is determined on a pro-rata basis according to their service.

APPENDIX C

ACTUARIAL ASSUMPTIONS AND METHODS

Investment Return: 7.50% compounded annually, net of investment expenses. (effective August 31, 2016)

Inflation Rate: 2.50% compounded annually

Salary Increases: These assumptions are used to project current salaries to those upon which benefits will be based.

Sample Ages	Annual Rate of Pay Increase for Sample: Base (Economic)	Merit and Longevity	Total
20	3.0%	4.3%	7.3%
25	3.0%	3.6%	6.6%
30	3.0%	3.1%	6.1%
35	3.0%	2.8%	5.8%
40	3.0%	1.5%	4.5%
45	3.0%	1.1%	4.1%
50	3.0%	0.5%	3.5%
55	3.0%	0.5%	3.5%

Payroll Growth: 3.0% per year

Mortality:

Actives and Inactive Vested Members: RP-2000 Employees mortality table with generational mortality improvement using Scale AA.

Healthy Retirees and Beneficiaries: RP-2000 Healthy Annuitant mortality table with generational mortality improvement using Scale AA.

Disabled Retirees: RP-2000 Disabled Retiree mortality table with generational mortality improvement using Scale AA.

Termination:

Sample Ages	Years of Service	% Separating within Next Year Police	Fire
ALL	0	12.00%	8.00%
	1	8.00%	6.00%
	2	7.00%	4.50%
	3	6.00%	3.00%
	4	5.00%	2.00%
25	5 & Over	4.50%	2.00%
30		4.35%	1.40%
35		3.50%	1.00%
40		2.10%	0.80%
45		1.00%	0.60%
50		0.62%	0.10%
55		0.50%	0.10%

Disability:

Sample Ages	% Becoming Disabled Within Next Year
20	0.05%
25	0.05%
30	0.06%
35	0.09%
40	0.14%
45	0.23%
50	0.40%
55	0.60%
60	0.80%

50% of assumed liabilities were assumed to be duty related and 50% were assumed to be non-duty related.

Retirement and DROP Entry:

		Rates of Retirement and/or DROP Entry			
	Old Plan	Plan A		Plan B & C	
Ages		Police	Fire	Police	Fire
50	35%	15%	10%	5%	6%
51	15%	15%	10%	5%	6%
52	15%	15%	10%	5%	6%
53	15%	25%	20%	25%	24%
54	15%	35%	20%	35%	35%
55	40%	35%	20%	35%	35%
56	15%	25%	20%	25%	18%
57	15%	10%	20%	10%	30%
58	15%	10%	20%	10%	42%
59	15%	10%	15%	10%	15%
60	100%	10%	15%	10%	15%
61	100%	10%	15%	10%	15%
62	100%	35%	35%	35%	35%
63	100%	20%	25%	20%	15%
64	100%	20%	25%	20%	15%
65	100%	100%	100%	100%	100%

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption: 100% of both males and females are assumed to be married for purposes of death-in-service benefits.

Decrement Timing: All decrements are assumed to occur mid-year.

Eligibility Testing: Eligibility for benefits is determined based upon the age nearest birthday and years of service on the date the decrement is assumed to occur.

Benefit Service: Exact fractional service on the decrement date is used to determine the amount of benefit payable.

Decrement Operation: Disability decrements to not operate during the first five years of service. They also do not operate during retirement eligibility.

Normal Form of Benefit: The assumed normal form of benefit is the straight life form.

Incidence of Contributions: Contributions are assumed to be received continuously throughout the applicable fiscal year based upon the contribution rate shown in this report, and the actual payroll at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

Funding Period: Both the City and employee contribute (in accordance with the provisions of each plan) until the employee enters the DROP or otherwise exits the Plan.

DROP Period: Members are assumed to remain in DROP for five years.

13^{th} Check: The 13^{th} Check amount is assumed to increase 2.50% annually.

ACTUARIAL METHODS

Funding Method

Under the Entry Age Normal (EAN) cost method, the actuarial present value of each member's projected benefits is allocated on a level basis over the member's compensation between the entry age of the member and the assumed exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability (UAAL) represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

The UAAL is amortized, as a level-percent of payroll, using a layered approach. The August 31, 2016 UAAL serves as the initial base and is amortized over a closed 28-year period (closed 30-year period beginning on August 31, 2014). For each valuation subsequent to August 31, 2016, annual net experience gains/losses will be amortized over a new, closed 20-year period. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

Asset Valuation Method

The actuarial value of assets is based on a five-year smoothing method and is determined by spreading the effect of each year's investment return in excess of or below the expected return. The Market Value of assets as of the valuation date is reduced by the sum of the following:

i. 80% of the return to be spread during the first year preceding the valuation date,
ii. 60% of the return to be spread during the second year preceding the valuation date,
iii. 40% of the return to be spread during the third year preceding the valuation date, and
iv. 20% of the return to be spread during the fourth year preceding the valuation date.

The return to be spread is the difference between (1) the actual investment return on Market Value and (2) the expected return on Actuarial Value.

APPENDIX D

GLOSSARY OF TERMS

Actuarial Accrued Liability — The difference between the actuarial present value of Plan benefits and the actuarial value of future normal costs. Also referred to as "accrued liability" or "actuarial liability".

Actuarial Assumptions — Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Accrued Service — Service credited under the Plan which was rendered before the date of the actuarial valuation.

Actuarial Equivalent — A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate assumptions.

Actuarial Cost Method — A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement Plan benefit between future normal cost and actuarial accrued liability. Sometimes referred to as the "actuarial funding method".

Experience Gain (Loss) — The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.

Actuarial Present Value — The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.

Amortization — Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with a lump sum payment.

Normal Cost	The actuarial present value of retirement Plan benefits allocated to the current year by the actuarial cost method.
Unfunded Actuarial Accrued Liability	The difference between actuarial accrued liability and the valuation assets. Sometimes referred to as "unfunded actuarial liability" or "unfunded accrued liability". Most retirement Plans have an unfunded actuarial accrued liability. They arise each time new benefits are added and each time an actuarial loss is realized.

I. Introduction

This funding policy pertains to the City of Lincoln, Nebraska (“City”) Police and Fire Pension (“Pension”) as described in Lincoln Municipal Code § 2.62.010, 2.65.010 and 2.66.010. The Plan Administrator sets the following guiding principles in the development of a comprehensive funding plan to maintain long-term sustainability, if needed:

- Shared responsibility among members and employer;
- Intergenerational equity;
- Preservation of the defined benefit plan.

II. Funding Goals

The objective of funding the Plan is to accumulate sufficient assets during a member’s employment with the City to fully finance the benefits the member receives throughout retirement. In meeting this objective, the Pension Plan will strive to meet the following funding goals:

- To maintain a pattern of stable contribution rates as a percentage of member’s payroll;
- To maintain an increasing funded ratio absent the impact of any changes to the assumptions or benefit provisions;
- To maintain adequate assets so that benefit payments can be paid to members and their beneficiaries as they become due.

III. Benchmarks

To track progress in achieving the previously outlined funding goals, the following benchmarks will be measured annually as part of the actuarial valuation with recognition that a single year’s results may not be indicative of long-term trends.

Funded Ratio: The funded ratio, defined as the actuarial value of assets divided by the actuarial accrued liability, should be increasing over time, before any adjustments for changes in benefits, actuarial methods, or actuarial assumptions.

City’s Contribution: An Actuarial Valuation Report shall be prepared annually, as of the City’s fiscal year-end date, to calculate the Actuarially Determined Employer Contribution for the fiscal year ending two years after the valuation date. For example, the Actuarially Determined Employer Contribution for the fiscal year September 1, 20XX+1 to August 31, 20XX+2 shall be based on metrics in the August 31, 20XX Actuarial Valuation Report. The Actuarial Valuation Report shall be based on the actuarial assumptions and methods, as approved by the Plan Administrator. The Actuarially Determined Employer Contribution Rate shall be the greater of the Employer Normal Cost Rate or the sum of the Employer Normal Cost rate and the UAAL contribution rate. A negative amortization payment shall only be applied if the plan has been at least 115 percent funded for the current and prior two years. The dollar amount of the Employer Contribution shall be the ADEC rate multiplied by the valuation payroll projected forward to the fiscal year under consideration, plus the actual administrative expenses for the fiscal year ending on the valuation date projected forward one year with the valuation's inflation assumption.

IV. Actuarial Methods and Assumptions

Actuarial Cost Method: The actuarial cost method is a mathematical budgeting procedure for allocating how the total present value of future benefits for current active and inactive members is allocated to each year of service, including past years. Due to the goal of stable contribution rates, the Plan Administrator has adopted the Entry Age Normal actuarial cost method.

Asset Smoothing Method: The method of valuing assets is intended to recognize a "smoothed" value of assets that is market related. Asset smoothing methods reduce the effect of short term volatility on contributions while still tracking the overall movement of the market value of assets by recognizing the effects of investment gains and losses over a period of years. The asset valuation method used to develop the actuarial value of assets first calculates the expected earnings on the prior year's market value of assets plus net cash flow (contributions minus benefit payments for the year) and then compares it the actual earnings on the market value of asses. The difference, positive or negative, is recognized equally over a five-year period.

Actuarial Assumptions: The actuarial assumptions used in the actuarial valuation shall be derived and proposed by the Plan's actuary in conformity with the applicable *Actuarial Standards of Practice* issued by the Actuarial Standards Board. The assumptions are intended to represent the best estimate of anticipated experience and are intended to be long-term in nature. In the development of actuarial assumptions, not only past experience but also trends, external economic forces, and future demographic and economic expectations shall be considered. A formal investigation into the actual experience of the Pension Plan shall be conducted by the actuary at least every five years and the results of the investigation used to form the basis of the actuary's recommendations for changes in the assumptions. In addition, the actual experience compared to the actuarial assumptions will be monitored each year in the annual actuarial valuation by including an analysis of the actuarial gain or loss.

Amortization Policy: For the Actuarial Valuation Report prepared as of August 31, 2016, the amortization period of the Unfunded Actuarial Accrued Liability (UAAL) shall be a 28-year closed term. This will be designated as the initial UAAL base for subsequent valuations and will be amortized over the remaining years of the 30-year closed period set on August 31, 2014. For each Actuarial Valuation Report subsequent to August 31, 2016, annual net experience gains/losses will be amortized over a new, closed 20-year period. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

If the valuation shows a surplus, i.e., funded ratio above 100%, the prior amortization bases will be eliminated and one base equal to the amount of surplus shall be established. The amortization period of a surplus shall be a 20-year open period.

The amortization payment on each UAAL base will be calculated as a level percent of valuation payroll using the actuarial assumption for future payroll growth. Such calculation is consistent with the development of the normal cost rate and is intended to serve as a method to provide stability to the actuarial contribution rate.

Risk Control: The Plan Administrator will carefully monitor the key risk measures of funding the system and shall consider steps to mitigate risk, particularly as the funded ratio increases. Risk mitigation may involve such things as a reduction in the assumed rate of investment return, review of asset allocation with a goal of reducing the standard deviation of the portfolio return, establishment of a contribution rate stabilization reserve, and other strategies identified by the Plan Administrator.

V. Funding Policy Review

The Plan Administrator may periodically conduct special studies to provide insight into whether the goals and objectives established in this Policy are being met. These special studies may include asset liability studies, projection modeling studies, and sensitivity analysis of key risk factors. These special studies may be performed at the Plan Administrator's discretion.

It is recognized that this funding policy may need to be amended in the future as the funding of the Plan is a dynamic process which is dependent on a number of variables. Therefore, the funding policy will be reviewed by the Plan Administrator not less frequently than every five years following the actuarial experience study. Proposed amendments to the funding policy shall be forwarded to the City Council for their consideration and approval. (Ord. 20495; May 15, 2017).