



**Cavanaugh Macdonald**  
CONSULTING, LLC

*The experience and dedication you deserve*

# **The City of Omaha Employees' Retirement System**

## **Actuarial Valuation as of January 1, 2015**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

September 25, 2015

Board of Trustees  
City of Omaha Employees' Retirement System  
1819 Farnam Street  
Omaha, NE 68183

**RE: January 1, 2015 Actuarial Valuation**

Members of the Board:

In accordance with your request, we have completed an actuarial valuation of the City of Omaha Employees' Retirement System as of January 1, 2015 for the plan year ending December 31, 2015. The major findings of the valuation are contained in this report. The actuarial assumptions and methods are unchanged from the prior valuation, however the valuation reflects the impact of a number of changes to the pension plan provisions as a result of recent labor agreements. In addition to the changes in the benefit structure for current and future members, the City's contribution rate increases from 11.75% in 2012 to and ultimate rate of 18.775% in 2015 and beyond. Please see the Summary of Plan Provisions in Appendix A of this report for a more detailed description of the changes that impacted this valuation.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the City's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information provided in prior years. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our calculations may need to be revised.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: experience differing from that anticipated by the 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 System's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Actuarial computations presented in this report are for purposes of determining the actuarial contribution rates for funding the System. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained

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Board of Trustees  
September 25, 2015  
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in this report. Accordingly, additional determinations may be needed for other purposes. For example, actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standard No. 67 are provided in a separate report.

The consultants who worked on this assignment are pension actuaries. CMC's advice is not intended to be a substitute for qualified legal or accounting counsel.

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries, have experience in performing valuations for public retirement plans, and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board and 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 System. The Board of Trustees has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix B.

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

Sincerely,

A handwritten signature in blue ink that reads 'Patrice Beckham'.

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

A handwritten signature in blue ink that reads 'Brent A. Banister'.

Brent A. Banister, PhD, FSA, EA, FCA, MAAA  
Chief Pension Actuary



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## EXECUTIVE SUMMARY

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This report presents the results of the January 1, 2015 actuarial valuation of the City of Omaha Employees' Retirement System. The primary purposes of performing the valuation are:

- to estimate the liabilities for the future benefits expected to be paid by the System;
- to determine the actuarial contribution rate, based on the System's funding policy;
- to measure and disclose various asset and liability measures;
- to monitor any deviation between actual System experience and experience predicted by the actuarial assumptions so that recommendations for assumption changes can be made when appropriate;
- to analyze and report on any significant trends in contributions, assets and liabilities over the past several years.

The actuarial assumptions and methods are unchanged from the prior valuation, however the current valuation results reflect a number of changes to the plan provisions that were the result of recent labor agreements. These changes include certain adjustments to the benefit provisions for current members as well as changes to the City's contribution rate. A short summary of the changes follows:

- (1) Reduce the benefit multiplier from 2.25% to 1.90% for years of service after March 1, 2015.
- (2) Final average compensation is based on the last five years rather than the last one year (transitional rules apply).
- (3) Normal retirement age (age at which the benefit is payable without reduction) changes from age 60 with 5 years of service or Rule of 80 with a minimum of age 50 to age 65 and 5 years of service or Rule of 85 with a minimum age of 55 (transitional rules apply).
- (4) The service-connected disability benefit is 1.75% times Final Average Compensation times years of service less any Social Security disability payments or Workers Compensation payments (previously 60% of final monthly compensation offset by Social Security and Workers Compensation).
- (5) The non-service-connected disability benefit is 1.50% times Final Average Compensation times years of service less any Social Security disability payments (previously 60% of final monthly compensation offset by Social Security).
- (6) Members hired on or after March 1, 2015 are covered by a different type of retirement plan, called a Cash Balance plan. Due to the effective date of this provision, there are no Cash Balance members in this valuation and, therefore, this change had no effect on the valuation results.
- (7) The City retroactively contributed an additional 2% of pay for 2013 (total of 13.775%) and an additional 4% of pay for 2014 (total of 17.775%). For 2015 and beyond, the City contribution rate is 18.775%.

These changes were made to address concerns about the sustainability of the System, which was projected, based on the 2014 valuation, to run out of assets in 2036. If all assumptions are met in the future, the changes in both the benefit structure and City contribution rate are expected to move the System to fully funded status in about 25 years. As a result of these changes, the actuarial liability as of January 1, 2015 decreased by \$19.7 million and the total actuarial contribution rate decreased by 5.636%. The contribution shortfall is down to 4.874%. This shortfall only indicates that the System will not meet its goal of being fully funded in 17 years.

The actuarial valuation results provide a "snapshot" view of the System's financial condition on January 1, 2015. The valuation results reflect net favorable experience for the past plan year as demonstrated by an unfunded actuarial liability that was less than what was expected based on the actuarial assumptions used in the January 1, 2014 actuarial valuation. Unfavorable experience on the actuarial value of assets



## EXECUTIVE SUMMARY

resulted in a loss of \$1.2 million, while favorable experience on liabilities resulted in an experience gain of \$3.2 million. Actual contributions during 2014 were lower than the actuarial contribution rate which increased the unfunded actuarial liability by \$6.0 million. As discussed earlier, the plan provision changes lowered the actuarial liability by \$19.7 million. The overall impact was a decrease of \$16.3 million in the UAL from January 1, 2014 to January 1, 2015.

The System uses an asset smoothing method in the valuation process. As a result, the System’s funded status and the actuarial contribution rate are based on the actuarial (smoothed) value of assets – not the pure market value. The investment return, net of expenses, on the market value of assets during 2014 was 4.7%. Coupled with the deferred investment gain, the rate of return on the actuarial value of assets was 7.5% for 2014, lower than the assumed 8% return, which generated an actuarial loss. As of January 1, 2015, the actuarial value of assets exceeds the market value by \$3.5 million or 1.5% of the market value, so a deferred investment loss now exists. Actual market returns over the next few years will determine when the deferred investment loss is actually recognized.

The change in the assets, liabilities, and contribution rate of the System over the last year are discussed in more detail in the following sections.

### ASSETS

As of January 1, 2015, the System had total funds of \$238.7 million, when measured on a market value basis. This was a decrease of \$1.6 million from the prior year, and represents an approximate rate of return, net of expenses, of 4.7%.

The market value of assets is not used directly in the actuarial calculation of the System’s funded status and the actuarial contribution rate. An asset valuation method is used to smooth the effects of market fluctuations. The actuarial value of assets is equal to the expected asset value (based on last year’s actuarial value of assets, net cash flows and a rate of return equal to the actuarial assumed rate of 8.0%) plus 25% of the difference between the actual market value and the expected asset value. See Exhibit 2 for the detailed development of the actuarial value of assets as of January 1, 2015. The rate of return on the actuarial value of assets was 7.5%. The portion of the deferred and current year’s investment experience recognized in the calculation of the January 1, 2015 actuarial value of assets resulted in an actuarial loss of \$1 million.

The components of the change in the market value and actuarial value of assets are shown below:

	Market Value (\$M)		Actuarial Value (\$M)	
<b>Net Assets, January 1, 2014</b>	\$	240.3	\$	237.6
City and Member Contributions	+	18.6	+	18.6
Benefit Payments and Refunds	-	31.3	-	31.3
Investment Gain/(Loss)	+	11.1	+	17.3
<b>Net Assets, January 1, 2015</b>		238.7		242.2
<b>Estimated Rate of Return</b>		4.7%		7.5%



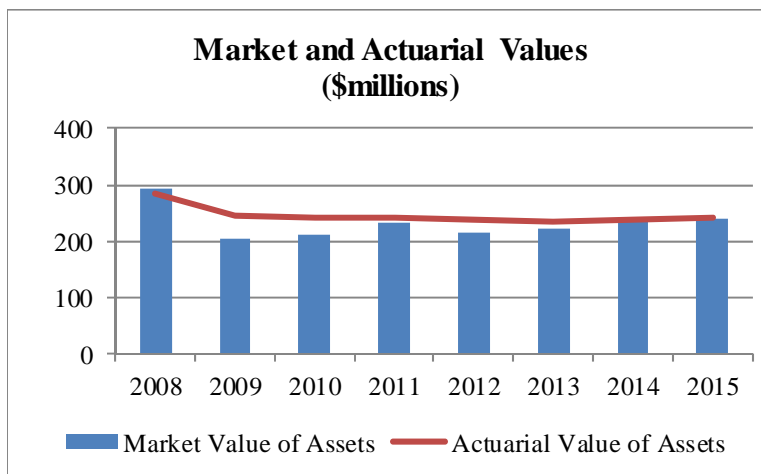
## EXECUTIVE SUMMARY

The net investment loss that is not recognized as of January 1, 2015 is \$3.5 million, compared with a \$2.7 million unrecognized gain in last year's valuation. The unrecognized losses of \$3.5 million will be reflected in the determination of the actuarial value of assets for funding purposes in the next few years to the extent they are not offset by the recognition of gains derived from future experience. This means that earning the assumed rate of investment return of 8% per year (net of investment expenses) on a market value basis will result in small actuarial losses on the actuarial value of assets over the next few years.

The unrecognized investment losses represent about 1.5% of the market value of assets (compared to deferred gains equal to 1.2% of the market value in the 2014 valuation). If the deferred losses were recognized immediately in the actuarial value assets, the unfunded actuarial liability would increase by \$3.5 million to \$192.4 million, the funded ratio would decrease to 55%, the actuarial contribution rate would increase from 33.724% to 34.118%, and the contribution shortfall would increase to 5.268%.

A comparison of asset values on both a market and actuarial basis for the last five years is shown in the following tables.

	2015	2014	2013	2012	2011
Actuarial Value of Assets	\$242	\$238	\$236	\$237	\$240
Market Value of Assets	\$239	\$240	\$223	\$215	\$232
Actuarial Value/Market Value	101%	99%	106%	110%	103%



*An asset smoothing method is used to mitigate the volatility in the market value of assets. By using a smoothing method, the actuarial (or smoothed) value can be either above or below the pure market value*

## LIABILITIES

The first step in determining the actuarial contribution rate for the System is to calculate the liabilities for all expected future benefit payments. These liabilities represent the present value of future benefits (PVFB) expected to be earned by the current System members, assuming that all actuarial assumptions are realized. Thus, the PVFB reflects service and salary increases that are expected to occur in the future before the benefit becomes payable. The PVFB for the various types of benefit provided by the System can be found in the liabilities portion of the valuation balance sheet (see Exhibit 3).



## EXECUTIVE SUMMARY

The other critical measurement of System liabilities in the valuation process is the actuarial liability (AL). This is the portion of the PVFB that will not be paid by the future normal costs (i.e. it is the portion of the PVFB that is allocated to prior service periods). As of January 1, 2015, the actuarial liability for the System was \$431,160,038.

The following chart compares the Actuarial Liability (AL) and System assets for the current and prior valuation:

	As of January 1	
	2015	2014
Actuarial Liability (AL)	\$431,160,038	\$442,754,113
Assets at Actuarial Value	\$242,248,074	\$237,579,690
Unfunded Actuarial Liability (AVA)	\$188,911,964	\$205,174,423
Funded Ratio (Actuarial Value)	56%	54%
Assets at Market Value	\$238,730,446	\$240,342,815
Unfunded Actuarial Liability (MVA)	\$192,429,592	\$202,411,298
Funded Ratio (Market Value)	55%	54%

The valuation reflects a number of changes to the plan provisions that were the result of recent labor agreements. These changes include certain adjustments to the benefit provisions for current members, including reducing the benefit multiplier for future years of service, changing the period used to determine final average compensation, and extending normal retirement age for most members (see discussion on page 1 for details). In addition, the City’s contribution rate increased to 18.775%. As a result of the benefit provision changes, the actuarial liability, as of January 1, 2015, decreased by \$19.7 million.

### **EXPERIENCE FOR THE 2014 PLAN YEAR**

The difference between the actuarial liability and the actuarial value of assets at the same date is referred to as the unfunded actuarial liability (UAL). Benefit improvements, experience gains/losses, changes in the actuarial assumptions or methods, and actual contributions made will impact the amount of the unfunded actuarial liability.

Actuarial gains (or losses) result from actual experience that is more (or less) favorable than anticipated based on the actuarial assumptions. These “experience” (or actuarial) gains or losses are reflected in the unfunded actuarial liability and are measured as the difference between the expected unfunded actuarial liability and the actual unfunded actuarial liability, taking into account any changes due to assumptions/methods or benefit provision changes. The experience, in total, was favorable (a lower unfunded actuarial liability than expected). There was an actuarial loss for 2014 of around \$1.2 million on the actuarial value of assets and an actuarial gain of about \$3.2 million on liabilities.

The change in the unfunded actuarial liability between January 1, 2014 and January 1, 2015 is shown below (in millions):





## EXECUTIVE SUMMARY

<b>Unfunded Actuarial Liability, January 1, 2014</b>	205
• Expected change in UAL	0
• Contribution shortfall in 2014	6
• Investment experience	1
• Demographic and other experience	(3)
• Changes in plan provisions	(20)
<b>Unfunded Actuarial Liability, January 1, 2015</b>	189

Due to the use of an asset smoothing method, there were deferred investment gains in the prior valuation which had not been fully recognized. As a result, the loss on the actuarial value of assets due the actual investment return in 2014 was smaller than would otherwise have occurred. The experience loss on the actuarial value of assets increased the unfunded actuarial liability by \$1 million. There was a \$3 million gain on demographic experience, resulting largely from lower than expected salaries. However, there was also an increase in the UAL due to actual contributions during 2014 that were less than the full actuarial contribution rate. This increased the UAL by \$6 million. Lastly, there was a decrease in the UAL of \$20 million which was due to changes in the pension plan provisions for current employees.

### CONTRIBUTION LEVELS

The actuarial contribution rate of the System is composed of two parts:

- (1) The normal cost (which is the allocation of costs attributed to the current year's membership service) and,
- (2) The amortization payment on the Unfunded Actuarial Liability (UAL).

The normal cost rate is independent of the System's funded status and represents the cost, as a percent of payroll, of the benefits provided by the System which is allocated to the current year of service. The total normal cost for the System is 9.881% of pay, or about \$6 million this year. The normal cost rate represents the long-term cost of the current benefit structure. The pension plan changes that resulted from recent labor agreements reduced the normal cost rate.

The System's total actuarial contribution rate (payable as a percentage of member payroll) decreased by 4.730% of pay, to 33.724% on January 1, 2015, from 38.454% on January 1, 2014. The primary components of the change in the actuarial contribution rate are shown in the following table:

	<b>Rate</b>
Total Actuarial Contribution Rate, January 1, 2014	38.454 %
• Actuarial (Gain) / Loss - Investment Experience	0.148
• Actuarial (Gain) / Loss - Demographic Experience	(0.404)
• Other Experience	0.354
• Contributions Less Than Actuarial Rate	0.753
• Change in Plan Provisions	(5.636)
• Change in Normal Cost Rate	0.055
Total Actuarial Contribution Rate, January 1, 2015	33.724 %



## EXECUTIVE SUMMARY

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As the result of the changes to the plan provisions as well as experience during 2014, the System has an unfunded actuarial liability of \$189 million (actuarial liability is greater than actuarial assets). The unfunded actuarial liability is being funded using a “layered” approach. The UAL that existed as of January 1, 2013 (the largest base) is amortized over a closed 30-year period that began January 1, 2002 (17 years remain on this base as of January 1, 2015). The changes that occurred in the UAL each year since 2013 are established as a new amortization base with payments determined as a level percentage of payroll over a closed 20 year period beginning on that valuation date (see page 13 for more details). The total UAL amortization payment is the sum of the amortization payments on all of the bases. For the current valuation, the resulting total UAL payment is 23.843% of pay. As a result, the total contribution rate for 2015 is 33.724% of pay (9.881% + 23.843%). The City’s required contribution rate in the city ordinance for 2015 is 18.775% and the employee contribution rate is 10.075%, for a total of 28.850%. The difference between the actuarial contribution rate and the actual contribution rates creates a contribution shortfall for 2015 of 4.874% of pay or approximately \$3 million. The contribution shortfall indicates only that the targeted 17 years to reach full funding will not be met at the current contribution rates. However, the long term projections that were performed when the benefit changes were negotiated indicated the System is expected to be fully funded in about 25 years.

### COMMENTS

The return on the market value of assets in 2014 was about 5%, which eliminated the deferred investment gains that existed on January 1, 2014 and created an actuarial loss in the current valuation. The funded ratio of the system, on a market value basis, is 55% in the January 1, 2015 actuarial valuation. The System has made significant progress toward addressing the long term funding problems identified in prior valuations, but it should continue to be monitored to ensure the actual impact of the plan changes unfolds as expected. In order to provide insight into expectations about the future funding of the System, we recommend a projection model be prepared as part of the annual actuarial valuation process in the future.

The actual contributions to the System for 2014 of 27.850% of pay were significantly below the actuarial contribution rate of 38.454%. This shortfall in the contribution rate of 10.604% of pay, or about \$6 million, resulted in an increase in the unfunded actuarial liability. The actuarial contribution rate in the 2015 valuation is 33.724% compared to the total contribution rate for 2015 in the City ordinance of 28.850%, which results in a shortfall of 4.874% of pay for 2015 or \$3 million. A fundamental principle of sound funding for any defined benefit plan is to consistently pay the full actuarial contribution rate. Contributions to the City of Omaha Employees’ Retirement System have been less than the full actuarial contribution rate for more than ten years. This situation, exacerbated by adverse investment experience over the last decade that was lower than the 8% assumed rate of return, has resulted in a sharp decline in the System’s funded status.

The changes to the pension plan provisions reflected in the recent labor agreements reduced the UAL by \$19.7 million and reduced the contribution shortfall by 5.636%. Additional saving should be seen in future years as members covered by the provisions of the Cash Balance Plan begin to replace current members who are covered by the Final Pay Plan. If all actuarial assumptions are met (including the 8% return on plan assets) in the future, the System’s funded ratio is expected to increase and eventually reach 100% in about 25 years.



## EXECUTIVE SUMMARY

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As mentioned earlier in this report, the System uses an asset smoothing method in the actuarial valuation. While this is a very common procedure for public retirement systems, it is important to be aware of the potential impact of the unrecognized investment experience. The System currently has a deferred loss of about \$3.5 million. It is valuable to compare the key valuation results from the 2015 valuation using both the actuarial and market value of assets (see following table).

	\$ Millions	
	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Liability	\$431.2	\$431.2
Asset Value	242.2	238.7
Unfunded Actuarial Liability	\$189.0	\$192.5
Funded Ratio	56.2%	55.4%
Normal Cost Rate	9.881%	9.881%
UAL Contribution Rate	<u>23.843%</u>	<u>24.237%</u>
Actuarial Contribution Rate	33.724%	34.118%



EXECUTIVE SUMMARY

THE CITY OF OMAHA EMPLOYEES' RETIREMENT SYSTEM

PRINCIPAL VALUATION RESULTS

	January 1, 2015	January 1, 2014	% Chg
<b>MEMBERSHIP</b>			
1. Active Membership			
- Number of Members	1,143	1,116	2.4
- Projected Payroll for Upcoming Fiscal Year	\$64,876,227	\$63,413,206	2.3
- Average Projected Payroll	\$56,760	\$56,822	(0.1)
- Average Attained Age	46.6	47.1	(1.1)
- Average Entry Age	36.5	36.7	(0.5)
2. Inactive Membership			
- Number of Retirees / Beneficiaries	1,286	1,249	3.0
- Number of Disabled Members	114	121	(5.8)
- Number of Deferred Vested Members	74	77	(3.9)
- Average Annual Benefit	\$22,238	\$21,983	1.2
<b>ASSETS AND LIABILITIES</b>			
1. Net Assets			
- Market Value	\$238,730,446	\$240,342,815	(0.7)
- Actuarial Value	242,248,074	237,579,690	2.0
2. Projected Liabilities			
- Retired Members and Beneficiaries	\$283,499,476	\$275,480,078	2.9
- Disabled Members	22,016,233	23,378,166	(5.8)
- Other Inactive Members	4,922,153	5,412,234	(9.1)
- Active Members	<u>165,303,113</u>	<u>196,306,331</u>	(15.8)
- Total Liability	\$475,740,975	\$500,576,809	(5.0)
3. Actuarial Liability	431,160,038	442,754,113	(2.6)
4. Unfunded Actuarial Liability	\$188,911,964	\$205,174,423	(7.9)
5. Funded Ratios			
Actuarial Value Assets / Actuarial Liability	56.19%	53.66%	4.7
Market Value Assets / Actuarial Liability	55.37%	54.28%	2.0
<b>CONTRIBUTIONS</b>			
1. Normal Cost Rate	9.881%	13.231%	(25.3)
2. UAL Contribution Rate	<u>23.843%</u>	<u>25.223%</u>	(5.5)
3. Total Actuarial Contribution Rate (1) + (2)	33.724%	38.454%	(12.3)
4. Less Employee Contribution Rate	(10.075%)	(10.075%)	0.0
5. Less City Contribution Rate Per Ordinance	<u>(18.775%)</u>	<u>(17.775%)</u>	5.6
6. Contribution Shortfall	4.874%	10.604%	(54.0)



**SECTION I – VALUATION RESULTS**

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**EXHIBIT 1**  
**SUMMARY OF FUND ACTIVITY**  
**(Market Value Basis)**  
**For Year Ended December 31, 2014**

<b>Assets at January 1, 2014</b>	\$ 240,342,815
<b>Receipts:</b>	
City Contributions	12,326,643
Employee Contributions	6,321,141
Investment Earnings, Net of Expenses	<u>11,121,873</u>
<b>Total Receipts</b>	29,769,657
<b>Disbursements:</b>	
Benefit Payments	30,647,763
Refund of Contributions	668,480
Administrative Expenses	<u>65,783</u>
<b>Total Disbursements</b>	31,382,026
<b>Assets as of December 31, 2014</b>	\$ 238,730,446
<b>Annualized Net Yield</b>	4.7%



## SECTION I – VALUATION RESULTS

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### EXHIBIT 2

#### DETERMINATION OF ACTUARIAL VALUE OF ASSETS

The actuarial value of assets is used to minimize the impact of annual fluctuations in the market value of investments on the contribution rate. The current asset valuation method is called the “Expected +25% Method.”

The “expected value” of assets is determined by applying the investment return assumption to last year’s actuarial value of assets and the net difference of receipts and disbursements for the year. The actual market value is compared to the expected value and 25% of the difference (positive or negative) is added to the expected value to arrive at the actuarial value of assets for the current year.

1. Actuarial Value of Assets as of January 1, 2014	\$	237,579,690
2. Actual Receipts / Disbursements		
a. Total Contributions		18,647,784
b. Benefit Payments/Other		(31,316,243)
c. Net Change		<u>(12,668,459)</u>
3. Expected Actuarial Value of Assets as of January 1, 2015 [(1) * 1.08] + [(2c) * 1.08 <sup>1/2</sup> ]		243,420,616
4. Market Value of Assets as of January 1, 2015		238,730,446
5. Excess of Market Value over Expected Actuarial Value as of January 1, 2015		(4,690,170)
6. Preliminary Actuarial Value of Assets as of January 1, 2015 [ (3) + 25% of (5) ]		242,248,074
7. 20% Calculation of Corridor		
a. 80% of (4)		190,984,357
b. 120% of (4)		286,476,535
8. Final Actuarial Value of Assets as of January 1, 2015 (6) but not < (7a) nor > (7b)	\$	242,248,074
9. Rate of Return on Actuarial Value of Assets		7.5%

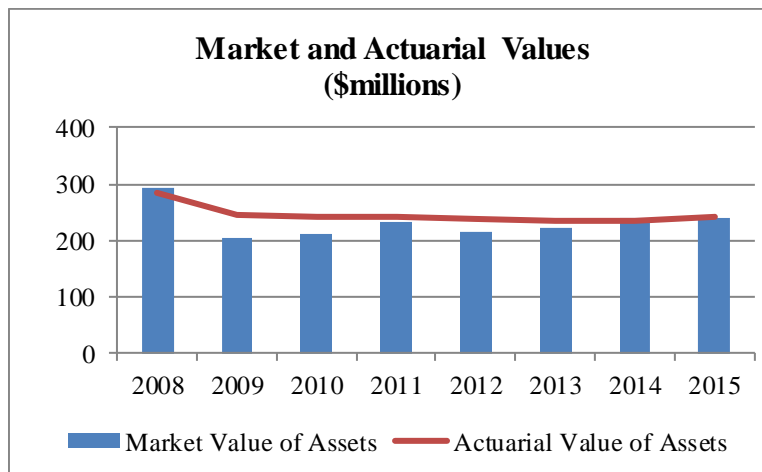


## SECTION I – VALUATION RESULTS

### EXHIBIT 2 (continued)

A historical comparison of the market and actuarial value of assets is shown below:

Date	Market Value of Assets (MVA)	Actuarial Value of Assets (AVA)	AVA / MVA
1/1/2008	\$294,658,022	\$283,243,750	96.13%
1/1/2009	204,452,506	245,343,007	120.00%
1/1/2010	213,219,632	240,109,413	112.61%
1/1/2011	232,346,583	240,291,310	103.42%
1/1/2012	215,434,784	236,741,347	109.89%
1/1/2013	223,233,088	235,591,941	105.54%
1/1/2014	240,342,815	237,579,690	98.85%
1/1/2015	238,730,446	242,248,074	101.47%





## SECTION I – VALUATION RESULTS

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### EXHIBIT 3

#### ACTUARIAL BALANCE SHEET

An actuarial statement of the status of the System in balance sheet form as of January 1, 2015 is as follows:

##### Assets

Current assets (actuarial value)	\$	242,248,074
Present value of future normal costs		44,580,937
Present value of future employer contributions to fund unfunded actuarial liability		<u>188,911,964</u>
<b>Total Assets</b>	<b>\$</b>	<b><u><u>475,740,975</u></u></b>

##### Liabilities

Present value of future retirement benefits for:

Active employees	\$	151,737,599
Retired employees, contingent annuitants and spouses receiving benefits		283,499,476
Deferred vested employees		4,699,570
Inactive employees due refunds		222,583
Inactive employees – disabled		<u>22,016,233</u>
<b>Total</b>	<b>\$</b>	<b>462,175,461</b>
Present value of future death benefits payable upon death of active members		2,467,939
Present value of future benefits payable upon termination of active members		<u>11,097,575</u>
<b>Total Liabilities</b>	<b>\$</b>	<b><u><u>475,740,975</u></u></b>





**SECTION I – VALUATION RESULTS**

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**EXHIBIT 4**  
**UNFUNDED ACTUARIAL LIABILITY**

As of January 1, 2015

The actuarial liability is the portion of the present value of future benefits which will not be paid by future normal costs. The actuarial value of assets is subtracted from the actuarial liability to determine the unfunded actuarial liability.

1. Present Value of Future Benefits	\$	475,740,975
2. Present Value of Future Normal Costs		<u>44,580,937</u>
3. Actuarial Liability (1) – (2)		431,160,038
4. Actuarial Value of Assets		<u>242,248,074</u>
5. Unfunded Actuarial Liability (3) – (4)	\$	188,911,964
6. Funded Ratio (4) / (3)		56.19%



## SECTION I – VALUATION RESULTS

### EXHIBIT 5

#### SCHEDULE OF AMORTIZATION BASES

The System amortizes the unfunded actuarial liability (UAL) using a “layered” approach for the UAL where the UAL as of January 1, 2013 is amortized over the remainder of its initial closed amortization period of 17 years. Changes to the UAL in subsequent years are set up as a new amortization base with payments determined as a level percentage of payroll over a closed 20 year period beginning on that valuation date. The total UAL payment is the sum of the amortization payments on each of the amortization bases.

Amortization Bases	January 1, 2015			Outstanding Balance as of January 1, 2015	Annual Contribution (mid-year)
	Original Amount	Remaining Years	Year of Last Payment		
2013 Initial UAL Base	\$ 200,678,468	17	2032	\$ 200,822,065	\$ 16,323,006
2014 Experience Base	4,125,355	19	2034	4,143,976	\$ 311,638
2015 Plan Changes Base	(19,702,625)	20	2035	(19,702,625)	(1,431,132)
2015 Experience Base	3,648,548	20	2035	3,648,548	265,018
<b>Total</b>				<b>\$ 188,911,964</b>	<b>\$ 15,468,530</b>



## SECTION I – VALUATION RESULTS

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### EXHIBIT 6

#### DEVELOPMENT OF 2015 ACTUARIAL CONTRIBUTION RATE

The actuarial cost method used to determine the required level of annual contributions to support the expected benefits is the Entry Age Normal Cost Method. Under this method, the total cost is comprised of the normal cost rate and the unfunded actuarial liability (UAL) payment. The System is financed by contributions from the employees and the City.

1. (a)	Normal Cost	\$	5,822,238
(b)	Expected Payroll in 2015 for Current Actives	\$	58,926,534
(c)	Normal Cost Rate		
(a) / (b)			9.881%
2.	Unfunded Actuarial Liability at Valuation Date	\$	188,911,964
3.	Unfunded Actuarial Liability Payment	\$	15,468,530
4.	Total Projected Payroll for 2015	\$	64,876,227
5.	Unfunded Actuarial Liability Payment as Percent of Pay (3) / (4)		23.843%
6.	Total Contribution Rate (1c) + (5)		33.724%
7.	Employee Contribution Rate		10.075%
8.	City Contribution Rate		18.775%
9.	Contribution Shortfall (6) – (7) – (8)		4.874%



## SECTION I – VALUATION RESULTS

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### EXHIBIT 7

#### CALCULATION OF ACTUARIAL GAIN/(LOSS) For Plan Year Ending December 31, 2014

##### Liabilities

1. Actuarial liability as of January 1, 2014	\$ 442,754,113
2. Normal cost for 2014	7,808,536
3. Interest at 8.00% on (1) and (2) to December 31, 2014	36,045,012
4. Benefit payments during 2014	31,316,243
5. Interest on benefit payments	1,228,551
6. Change in Plan provisions	(19,702,625)
7. Expected actuarial liability as of December 31, 2014 (1) + (2) + (3) - (4) - (5) + (6)	\$ 434,360,242
8. Actuarial liability as of December 31, 2014	\$ 431,160,038

##### Assets

9. Actuarial value of assets as of January 1, 2014	\$ 237,579,690
10. Contributions during 2014	18,647,784
11. Benefit payments during 2014	31,316,243
12. Interest on items (9), (10) and (11)	18,509,385
13. Expected actuarial value of assets as of December 31, 2014 (9) + (10) - (11) + (12)	\$ 243,420,616
14. Actual actuarial value of assets as of December 31, 2014	\$ 242,248,074

##### Gain / (Loss)

15. Expected unfunded actuarial liability / (surplus) (7) - (13)	\$ 190,939,626
16. Actual unfunded actuarial liability / (surplus) (8) - (14)	188,911,964
17. Actuarial Gain / (Loss) (15) - (16)	2,027,662
18. Actuarial Gain / (Loss) on Actuarial Assets (14) - (13)	(1,172,542)
19. Actuarial Gain / (Loss) on Actuarial Liability (7) - (8)	\$ 3,200,204



**SECTION I – VALUATION RESULTS**

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**EXHIBIT 8**

**ANALYSIS OF EXPERIENCE**

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 contributions 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 system assets, mortality rates among active and retired members, withdrawal and retirement rates among active members, and rates at which salaries increase.

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

Since the overall results of the valuation will reflect the choice of assumptions made, periodic studies of the various components comprising the plan’s experience are conducted in which the experience for each component is analyzed in relation to the assumption used for that component (called an 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 System experienced a net actuarial gain on liabilities of \$3,200,000 during the plan year ended December 31, 2014, and an actuarial loss on assets of \$1,173,000. The total actuarial gain was \$2,027,000. The major components of this net actuarial experience gain are shown below:

<b>Liability Sources</b>	<b><u>Gain/(Loss)</u></b>
Salary Increases	\$ 2,527,000
Mortality	1,360,000
Terminations	(908,000)
Retirements	176,000
Disability	(132,000)
New Entrants/Rehires	(325,000)
Miscellaneous	502,000
<b>Total Liability Gain/(Loss)</b>	<b>\$ 3,200,000</b>
<b>Asset Gain/(Loss)</b>	<b>\$ (1,173,000)</b>
<b>Total Actuarial Gain/(Loss)</b>	<b>\$ 2,027,000</b>



**SECTION II  
OTHER INFORMATION**

The actuarial liability is a measure intended to help the reader assess (i) a retirement system’s funded status on an ongoing concern basis and (ii) progress being made toward accumulating the assets needed to pay benefits as due. Allocation of the actuarial present value of projected benefits between past and future service was based on service using the Entry Age Normal actuarial cost method. Assumptions, including projected pay increases, were the same as used to determine the System’s level percent of payroll annual required contribution between entry age and assumed exit age. Entry age was established by subtracting credited service from current age on the valuation date. The Entry Age Normal actuarial liability was determined as part of an actuarial valuation of the System as of January 1, 2015. The actuarial assumptions used in determining the actuarial liability can be found in Appendix B.

In the past, Governmental Accounting Standards Board (GASB) Statements No. 25, *Financial Reporting for Defined Benefit Pension Plans*, and Statement No. 27, *Accounting for Pensions by State and Local Governmental Employers*, applied to the preparation of financial reports of pension plans for state and local governments.

GASB 67, which was effective for the plan year end 2014, replaced GASB 25 and represents a significant departure from the requirements of that older statement. GASB 25 was issued as a “funding friendly” statement that required pension plans to report items consistent with the results of the plan’s actuarial valuations, as long as those valuations met certain parameters. GASB 67 basically separates accounting from funding by creating disclosure and reporting requirements that may or may not be consistent with the basis used for funding the System. A separate report that contains all of the information and exhibits of an actuarial nature that are necessary for the System’s financial reporting under GASB 67 will be prepared.

GASB 68 will replace GASB 27 for fiscal year end 2015. It represents a significant departure from the requirements of the prior statement. GASB 27 required employers providing benefits through pension plans to report items consistent with the results of the plan’s actuarial valuations as long as those valuations meet certain parameters. GASB 68 will create disclosure and reporting requirements that may or may not be consistent with the basis used to fund the System.



**SECTION II – OTHER INFORMATION**

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**EXHIBIT 9**

**SCHEDULE OF EMPLOYER CONTRIBUTIONS**

Fiscal Year Ending	Annual Required Contribution* (a)	Total Employer Contribution* (b)	Percentage of ARC Contributed* ( b/a )
12/31/1999	\$ 3,055,718	\$ 3,129,693	102.42%
12/31/2000	3,014,845	3,282,203	108.87%
12/31/2001	3,231,662	3,415,119	105.68%
12/31/2002	6,245,299	3,653,704	58.50%
12/31/2003	6,191,651	4,349,621	70.25%
12/31/2004	6,848,743	4,449,203	64.96%
12/31/2005	6,877,913	4,500,192	65.43%
12/31/2006	6,213,801	4,145,033	66.71%
12/31/2007	8,883,617	4,975,039	56.00%
12/31/2008	9,212,669	5,374,082	58.33%
12/31/2009	12,893,331	5,310,754	41.19%
12/31/2010	14,149,386	5,717,610	40.41%
12/31/2011	14,564,847	6,618,110	45.44%
12/31/2012	15,658,045	7,216,050	46.09%
12/31/2013	17,406,168	7,194,482	41.33%
12/31/2014	17,996,034	12,326,643	68.50%

\*Information prior to 2011 was provided by the prior actuary and has not been reviewed or verified by Cavanaugh Macdonald Consulting.



**SECTION II – OTHER INFORMATION**

**EXHIBIT 10**

**DEVELOPMENT OF THE NET PENSION OBLIGATION  
IN ACCORDANCE WITH GASB STATEMENT NO. 27**

<b>Fiscal Year End:</b>	<b>12/31/2008</b>	<b>12/31/2009</b>	<b>12/31/2010</b>	<b>12/31/2011</b>	<b>12/31/2012</b>	<b>12/31/2013</b>	<b>12/31/2014</b>
<b>Assumptions and Methods</b>							
Interest Rate	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Payroll Growth	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Amortization Period (years)	30	30	30	21	20	19	Varies
Cost Method	EA Normal	EA Normal	EA Normal	EA Normal	EA Normal	EA Normal	EA Normal
<b>Annual Pension Cost</b>							
Annual Required Contribution (ARC)	\$9,212,669	\$12,893,331	\$14,149,386	\$14,564,847	\$15,658,045	\$17,406,168	\$17,996,034
Interest on NPO	1,112,817	1,410,080	2,004,239	2,661,089	3,322,571	4,022,396	4,858,628
Adjustment to ARC	(1,235,608)	(1,565,673)	(2,225,393)	(2,339,292)	(3,016,753)	(3,781,184)	(4,920,311)
Annual Pension Cost	\$9,089,878	\$12,737,738	\$13,928,232	\$14,886,644	\$15,963,863	\$17,647,380	\$17,934,351
<b>Contribution for the Year</b>	\$5,374,082	\$5,310,754	\$5,717,610	\$6,618,110	\$7,216,050	\$7,194,482	\$12,326,643
<b>Net Pension Obligation (NPO)</b>							
NPO at beginning of year	\$13,910,207	\$17,626,003	\$25,052,987	\$33,263,609	\$41,532,143	\$50,279,956	\$60,732,854
Annual Pension Cost for Year	9,089,878	12,737,738	13,928,232	14,886,644	15,963,863	17,647,380	17,934,351
Contributions for year	(5,374,082)	(5,310,754)	(5,717,610)	(6,618,110)	(7,216,050)	(7,194,482)	(12,326,643)
NPO at end of year	\$17,626,003	\$25,052,987	\$33,263,609	\$41,532,143	\$50,279,956	\$60,732,854	\$66,340,562

Note: All information prior to 2011 in this exhibit was provided by the prior actuary and has not been reviewed or verified by Cavanaugh Macdonald Consulting, LLC.





SECTION II – OTHER INFORMATION

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EXHIBIT 11

SCHEDULE OF FUNDING PROGRESS

<b>Actuarial Valuation Date<sup>1</sup></b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Liability (AAL) (b)</b>	<b>Unfunded AAL (UAAL) (b-a)</b>	<b>Funded Ratio (a/b)</b>	<b>Covered Payroll (P/R) (c)</b>	<b>UAAL as a Percentage of Covered P / R [(b-a)/c]</b>
12/31/2008	\$204,500,000	\$387,700,000	\$ 183,200,000	52.7%	\$56,400,000	324.8%
12/31/2009	213,200,000	402,800,000	189,600,000	52.9%	55,700,000	340.4%
12/31/2010	232,400,000	414,500,000	182,100,000	56.1%	56,700,000	321.2%
1/1/2011	240,291,310	409,442,601	169,151,291	58.7%	59,235,591	285.6%
1/1/2012	236,741,347	420,810,359	184,069,012	56.3%	62,825,685	293.0%
1/1/2013	235,591,941	436,270,409	200,678,468	54.0%	63,327,394	316.9%
1/1/2014	237,579,690	442,754,113	205,174,423	53.7%	63,413,206	323.6%
1/1/2015	242,248,074	431,160,038	188,911,964	56.2%	64,876,227	291.2%

1. Results prior to 2011 were provided by the prior actuary and were reported at the end of the year rather than the valuation date.



APPENDIX A

SUMMARY OF PLAN PROVISIONS

This valuation reflects the benefit provisions used in this valuation (January 1, 2015). A different benefit structure will apply to employees hired on or after March 1, 2015. A description of that benefit structure is not included here as there were no such members in this valuation.

Effective Date:

Section 22 - 21

January 1, 1949

Active Member:

Section 22 – 24 and 25

All City employees except: policemen, firemen, persons paid on a contractual or fee basis, seasonal, temporary and part-time employees, and elected officials who do not make written application.

Final Average Compensation:

Section 22 - 32

Highest 78 pay periods in the employee's last 130 pay periods of employment divided by three for members who are within five years of normal retirement as of March 1, 2015 under the eligibility criteria set forth in the 2009 through 2012 labor agreements; or the last 130 pay periods divided by five for all other employees. Minimum FAC, regardless of retirement date, shall never be less than the FAC determined as of 2/28/2015 (highest consecutive 26 pay periods in 130 pay periods prior to 2/28/2015).

Member Contributions:

Section 22 – 26(a)

Each member will contribute 10.075% of total compensation.

City of Omaha Contributions:

Section 22 – 26(e)

The City will contribute a percentage of each member's total compensation as shown in the following table.

<u>Year</u>	<u>Percent Contributed</u>
2013	13.775%
2014	17.775%
2015	18.775%

Service Credits

Section 22 – 28 and 29

The member shall receive membership service credit for each full pay period of employment. Intervening periods of military service in time of emergency shall be counted, provided the member is honorably discharged and returns to work within 90 days after such discharge.

Membership credits shall be earned by those receiving a disability pension. However, the total credited service will not exceed 30, unless more than 30 years were earned as an active member.



APPENDIX A

SUMMARY OF PLAN PROVISIONS  
(continued)

Service Retirement Eligibility:  
Section 22 - 30

Members who are within five years of normal retirement as of March 1, 2015 under the eligibility criteria set forth in the 2009 through 2012 labor agreement will remain eligible for a service retirement if (a) they are age 60 with 5 years of service or (b) meet the Rule of 80 with a minimum age of 50. A member is eligible for a service retirement after reaching age 55 with 5 years of service, but the pension is reduced 8% per year for years prior to age 60.

Members who are more than five but less than ten years of normal retirement as of March 1, 2015 under the eligibility criteria set forth in the 2009 through 2012 labor agreement are eligible to retire after age 55 if their age plus service is 85 or more (Rule of 85). Otherwise, a member is eligible to retire after age 57 and 5 years of service, but the pension is reduced 8% per year for years prior to age 62.

Members who are not within ten years of normal retirement as of March 1, 2015 under the eligibility criteria set forth in the 2009 through 2012 labor agreement, are eligible to retire after age 55 if their age plus service is 85 or more (Rule of 85). Otherwise, such member is eligible to retire after age 60 and 5 years of service, but the pension is reduced 8% per year for years prior to age 65.

Service Retirement Pension:  
Section 22 - 32

A monthly pension equal to 2.25% of Final Average Compensation times years of service during and before 2014, plus 1.90% for years of service during and after 2015.

Disability Benefits:

1. Non-Service Related  
Section 22 - 35

An employee who sustains an injury or illness not in the line of duty and as a result becomes unfit for active duty shall be granted a non-service-connected disability retirement of 1.50% multiplied by the employee's years of service multiplied by their Final Average Compensation. This benefit is available only if the member has served a minimum of five years of service.



APPENDIX A

SUMMARY OF PLAN PROVISIONS  
(continued)

- 2. Service-Related  
Section 22 - 35

An employee who is a member of the system who sustains an injury or illness in the line of duty and as a result becomes unfit for active duty shall be granted a service-connected disability retirement of 1.75% multiplied by the employee's years of service multiplied by their Final Average Compensation. This benefit is available only if the member has served a minimum of six months of service.

Spouse's Pension:

- 1. Death of Active Member  
Section 22 - 36
- 2. Death of a Member Eligible for Retirement or Death of Retired Member  
Section 22 - 36

A monthly pension equal to 75% of the member's accrued pension is paid to the surviving spouse until death or remarriage. The member must have had five years of service or had a service-connected death and six months of service.

If legally married to the member for at least one year, surviving spouse shall be entitled to 75% of the pension the member was receiving or was eligible to receive at the time of death. Upon the spouse's remarriage, all benefits cease.

- Children's Pension:  
Section 22 - 36

Upon the death of an active or retired member, the following benefit will be paid to the surviving children until age 18 or prior to death or marriage, except that if a child is totally disabled, the full pension continues until the cessation of total disability or dependency for support whichever occurs first:

<u>Number of Dependent Children</u>	<u>Percentage of Accrued Benefit</u>
1	5%
2	10%
3	15%
4 or more	20%

Lump Sum Death Benefits:

- 1. Active Member without Eligible Dependents  
Section 22 - 37

Accumulated member's contributions, plus \$5,000.



APPENDIX A

SUMMARY OF PLAN PROVISIONS  
(continued)

2. Retired Member without Eligible Dependents Section 22 - 37	Accumulated member's contribution less previous pension payments made, plus \$5000.
3. Active Member with Eligible Dependents: Section 22 - 37	\$5,000
4. Retired Member with Eligible Dependents Section 22 - 37	\$5,000
Vesting: Section 22 – 39	Upon severance of employment by a member with less than 5 years of service and prior to obtaining eligibility under Section 22 – 30, a refund of such member's accumulated contributions, including credited interest, will be paid.
Section 22 – 40	Upon severance of employment by a member with more than 5 years of service and prior to obtaining eligibility for retirement, the member may elect, in lieu of receiving a refund of contributions, to receive a monthly pension, reduced for early retirement if applicable. Such deferred pension shall be based on service credited to the date of severance.
Supplemental Pension: Section 22 – 123	Retirees (including widows, widowers and children) receive a supplemental pension (Cost of Living Adjustment – COLA) after five years equal to the lesser of 3% or \$50 per month. The COLA is granted for the full remaining period that benefits are payable. No COLAs will be available for members who retire after January 28, 1998.
Cash Balance Plan:	Employees who are hired by the City on or after March 1, 2015 will become members of the System's Cash Balance Plan. Since there are no members in the Cash Balance Plan as of January 1, 2015 a description of those provisions is not included in this valuation.



## APPENDIX B

### ACTUARIAL METHODS AND ASSUMPTIONS

#### **Actuarial Cost Method**

Valuation of the System uses the “*entry age-normal*” cost method. Under this actuarial method, the value of future costs attributable to future employment of participants is determined. This is called present value of future normal costs. The following steps indicate how this is determined for benefits expected to be paid upon normal retirement.

1. The expected pension benefit at normal retirement is determined for each participant.
2. A normal cost, as a level percent of pay, is determined for each participant assuming that such level percent is paid from the employee’s entry age into employment to his normal retirement. This normal cost is determined so that its accumulated value at normal retirement is sufficient to provide the expected pension benefits.
3. The sum of the normal costs for all participants for one year determines the total normal cost of the System for one year.
4. The value of future payments of normal cost in future years is determined for each participant based on his years of service to normal retirement age.
5. The sum of the value of future payments of normal cost for all participants determines the present value of future normal costs.

The value of future costs attributable to past employment of participants, which is called the actuarial liability, is equal to the present value of benefits less the present value of future normal costs. The unfunded actuarial liability is equal to the excess of the actuarial liability over assets.

As experience develops with the System, actuarial gains and losses result. These actuarial gains and losses indicate the extent to which actual experience is deviating from that expected on the basis of the actuarial assumptions. In each year, as they occur, actuarial gains and losses are recognized in the unfunded actuarial liability as of the valuation date.

#### **Actuarial Value of Assets**

The actuarial value of assets is equal to the expected asset value (based on last year’s actuarial value of assets, net cash flows and a rate of return equal to the actuarial assumed rate of 8.0%) plus 1/4 of the difference between the actual market value and the expected asset value. The actuarial value of assets cannot exceed 120% or fall below 80% of the market value of assets.

#### **Unfunded Actuarial Liability Amortization Method**

The unfunded actuarial liability (UAL) is funded on a “layered” basis, with the first part being funded as a level percent of payroll over a 30-year closed period that began January 1, 2002. A new base is created each valuation and is equal to the additional UAL created in that year. Each base is funded as a level percent of payroll over a 20-year closed period.



**APPENDIX B**

**ACTUARIAL METHODS AND ASSUMPTIONS  
(continued)**

**Interest:** 8.00% per year, net of investment expenses.

**Inflation:** 3.25% per year, net of investment expenses.

**Salary Increases:**

<u>Years of Service</u>	<u>Annual Rate of Increase For Sample Years</u>			<u>Total Increase</u>
	<u>Inflation</u>	<u>Productivity</u>	<u>Merit &amp; Longevity</u>	
1	3.25%	.75%	5.0%	9.0%
5	3.25%	.75%	1.5%	5.5%
10	3.25%	.75%	1.0%	5.0%
15	3.25%	.75%	0.5%	4.5%
20+	3.25%	.75%	0.0%	4.0%

**Payroll Growth Assumption** 4.0%

**Service Retirement Age** **Members within 5 Years of Unreduced Retirement Eligibility as of March 1, 2015**

<u>Age</u>	<u>Eligible for Unreduced Retirement</u>	
	<u>1<sup>st</sup> Year Eligible</u>	<u>Subsequent Years</u>
50-53	40%	25%
54-58	40%	20%
59	35%	20%
60	25%	20%
61		20%
62		30%
63-64		25%
65-69		30%
70		100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at a rate of 5% per year from age 55 to 59.



APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS  
(continued)

Members within 6-10 Years of Unreduced Retirement Eligibility as of March 1, 2015

<u>Eligible for Unreduced Retirement</u>		
<u>Age</u>	<u>1<sup>st</sup> Year Eligible</u>	<u>Subsequent Years</u>
50-53	40%	25%
54-60	40%	20%
61	35%	20%
62	35%	30%
63-64		25%
65-69		30%
70		100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at a rate of 5% per year from age 57 to 61.

Members more than 10 Years from Unreduced Retirement Eligibility as of March 1, 2015

<u>Eligible for Unreduced Retirement</u>		
<u>Age</u>	<u>1<sup>st</sup> Year Eligible</u>	<u>Subsequent Years</u>
50-53	40%	25%
54-61	40%	20%
62	40%	30%
63-64	35%	25%
65	35%	30%
66-69		30%
70		100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at a rate of 5% per year from age 60 to 64.

Deferred vested members are assumed to begin receiving benefits at age 60.

Decrement Timing

Middle of year





APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS  
(continued)

Mortality:

<b>Active Members</b>	RP-2000 Employee Table with generational improvements using scale AA, set forward one year
<b>Pensioners</b>	RP-2000 Healthy Annuitant Table with generational improvements using scale AA, set forward one year
<b>Disabled</b>	RP-2000 Disabled Table with generational improvements

Disability:

<u>Age</u>	<u>Annual Rate</u>
20	0.11%
30	0.14%
40	0.19%
50	0.41%
60	1.48%

20% of disabilities are assumed to be service-connected.

**Percent Married at Death or Retirement:**

75%

**Spouse Age Difference:**

Husbands assumed to be three years older than wives.

**Number of Children per Married Member:**

0

Termination:

SAMPLE RATES

<u>Years of Service</u>	<u>Annual Rate</u>
1	11.00%
5	6.00%
10	4.25%
15	3.00%
17+	2.50%

**Vested Terminations Electing Refund:**

<u>Age</u>	<u>Percent</u>
34 and Below	100%
35-41	70%
42-46	50%
47	40%
48	30%
49	20%
50 and Above	0%



APPENDIX C

HISTORICAL SUMMARY OF MEMBERSHIP

The following table displays selected historical data as available.

Valuation		Active Members							Number	
Date	Total	Number	Age	Entry	Average	Annual	Pay	Disabled	Deferred	Retired
1-Jan	Count			Age	Service	Pay (\$)*	Increase		Vested	
2009	2,440	1,116	47.3	36.4	10.9	47,495	2.21%	122	81	1,121
2010	2,456	1,116	47.8	37.1	10.8	49,667	4.57%	124	83	1,133
2011	2,493	1,130	47.4	36.9	10.5	49,030	(1.28)%	120	82	1,161
2012	2,541	1,156	47.3	36.8	10.5	50,335	2.66%	121	77	1,187
2013	2,580	1,150	46.9	36.7	10.2	50,842	1.01%	122	75	1,233
2014	2,563	1,116	47.1	36.7	10.4	51,501	1.30%	121	77	1,249
2015	2,617	1,143	46.6	36.5	10.1	50,774	(1.41)%	114	74	1,286

\* Annual Pay is the actual pay reported for the prior plan year.



### MEMBERSHIP DATA FOR VALUATION

The summary of employee characteristics presented below covers the employee group as of January 1, 2015. The schedules at the end of the report show the distribution of the various employee groups by present age along with other pertinent data.

**Total number of employees in valuation:**

(a) Active employees	1,143
(b) Deferred vested employees	74
(c) Disabled employees	114
(d) Retired employees, spouses and children receiving benefits	<u>1,286</u>
(e) Total employees in valuation	2,617

**Average age of employees in valuation:**

(a) Active employees	
Attained Age	46.6
Hire Age	36.5
(b) Deferred vested employees	48.7
(c) Disabled employees	62.3
(d) Retired employees	68.9
(e) Spouses and children receiving benefits	71.9

**Active employees eligible for vested benefits as of January 1, 2015:**

(a) Employees under age 55 with 5 or more years of service – eligible for deferred vested benefits	473
(b) Employees age 55 and over with 5 or more years of service – eligible for early or normal retirement benefits	280
(c) Employees eligible for refund of contributions only	<u>390</u>
(d) Total	1,143



APPENDICES

MEMBERSHIP DATA RECONCILIATION

January 1, 2014 to January 1, 2015

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

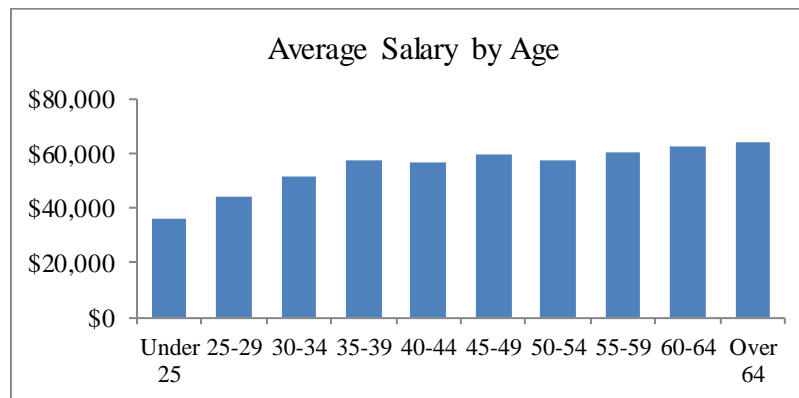
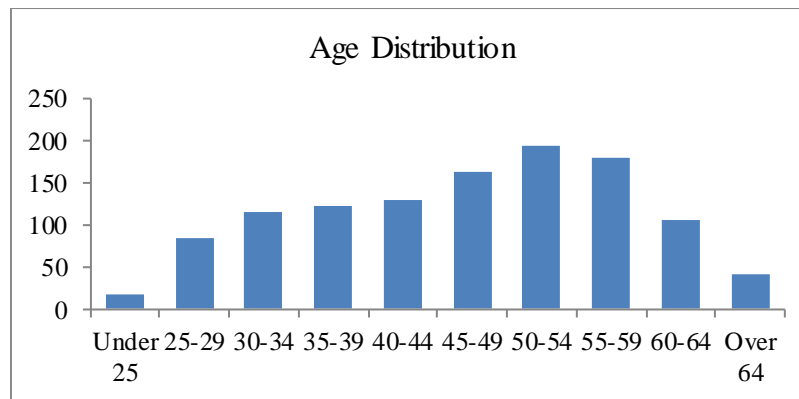
	<u>Active Members</u>	<u>Deferred Vested</u>	<u>Disabled</u>	<u>Retirees</u>	<u>Beneficiaries</u>	<u>Total</u>
<b>Members as of 1/1/2014</b>	1,116	77	121	988	261	2,563
New Members	122	0	0	0	0	122
Terminations						
Rehired	2	(2)	0	0	0	0
Refunded	(22)	(2)	0	0	0	(24)
Terminated, refund due	(12)	0	0	0	0	(12)
Deferred Vested	(7)	7	0	0	0	0
LTD	(1)	0	1	0	0	0
Retirements	(51)	(6)	0	57	0	0
Alternate Payees (QDRO)	0	0	0	0	0	0
Benefits Expired	0	0	0	0	(3)	(3)
Data Corrections	0	0	0	0	0	0
Deaths						
With Beneficiary	(4)	0	(1)	(18)	25	2
Without Beneficiary	0	0	(7)	(8)	(16)	(31)
<b>Total Members 1/1/2015</b>	1,143	74	114	1,019	267	2,617



SCHEDULE I

ACTIVE MEMBERS AS OF JANUARY 1, 2015

Age	Count of Members			Valuation Salaries of Members		
	Males	Females	Total	Males	Females	Total
Under 25	15	2	17	\$ 534,878	\$ 81,371	\$ 616,249
25-29	52	31	83	2,260,954	1,380,612	3,641,566
30-34	72	42	114	3,660,752	2,200,131	5,860,883
35-39	83	39	122	4,673,587	2,284,618	6,958,205
40-44	96	32	128	5,614,862	1,613,571	7,228,433
45-49	124	39	163	7,445,793	2,216,028	9,661,821
50-54	136	56	192	8,024,995	2,956,839	10,981,834
55-59	118	60	178	7,162,744	3,581,128	10,743,872
60-64	68	38	106	4,328,017	2,295,663	6,623,680
Over 64	29	11	40	1,986,586	573,098	2,559,684
<b>Total</b>	<b>793</b>	<b>350</b>	<b>1,143</b>	<b>\$45,693,168</b>	<b>\$19,183,059</b>	<b>\$64,876,227</b>



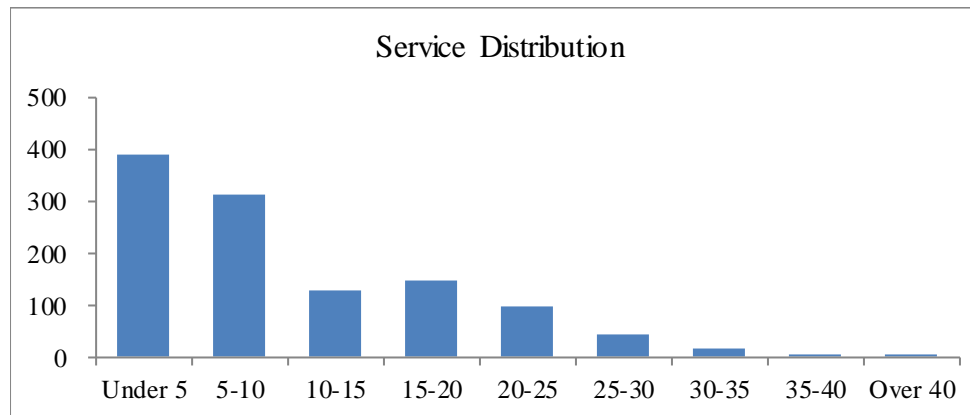


APPENDICES

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2015

Age	Service									Total
	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	
Under 25	17	0	0	0	0	0	0	0	0	17
25-29	77	6	0	0	0	0	0	0	0	83
30-34	70	40	4	0	0	0	0	0	0	114
35-39	63	43	10	6	0	0	0	0	0	122
40-44	45	45	17	20	1	0	0	0	0	128
45-49	37	48	27	34	13	4	0	0	0	163
50-54	37	45	25	28	34	17	6	0	0	192
55-59	32	51	25	27	23	11	7	2	0	178
60-64	10	24	12	28	16	8	4	3	1	106
Over 64	2	11	7	5	9	4	1	0	1	40
Total	390	313	127	148	96	44	18	5	2	1,143

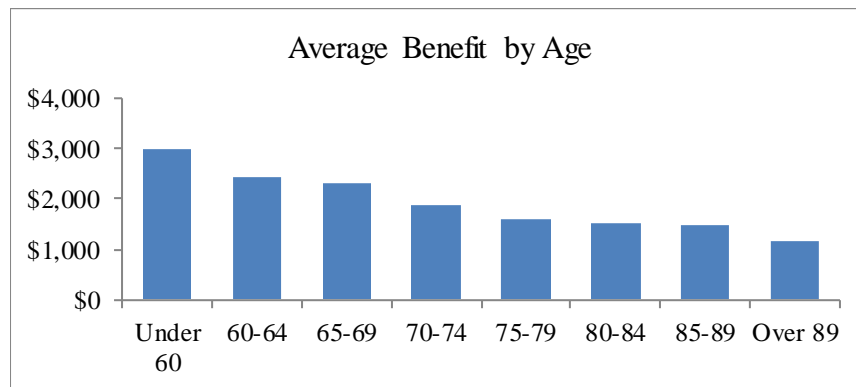
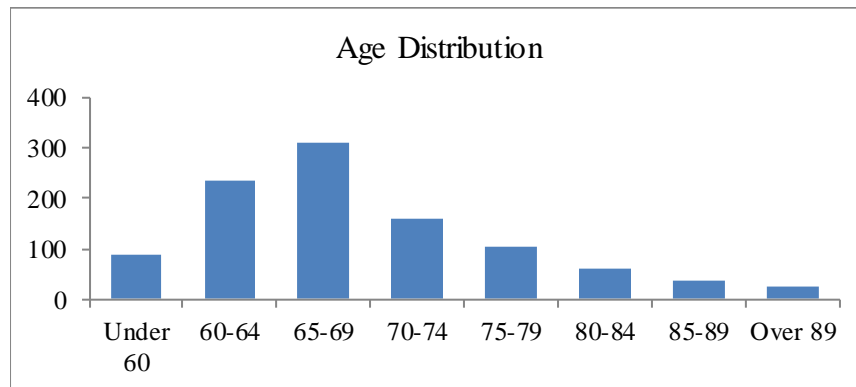




**SCHEDULE II**

**RETIRED MEMBERS AS OF JANUARY 1, 2015**

<u>Age</u>	<u>Count of Retirees</u>			<u>Current Monthly Benefits</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 60	46	41	87	\$ 137,364	\$122,362	\$ 259,726
60-64	156	80	236	400,634	168,896	569,530
65-69	210	100	310	518,246	198,570	716,816
70-74	113	47	160	226,776	73,249	300,025
75-79	74	29	103	127,017	38,284	165,301
80-84	43	18	61	75,953	15,887	91,840
85-89	27	11	38	45,039	10,909	55,948
Over 89	12	12	24	18,252	9,948	28,200
<b>Total</b>	<b>681</b>	<b>338</b>	<b>1,019</b>	<b>\$1,549,281</b>	<b>\$638,105</b>	<b>\$2,187,386</b>

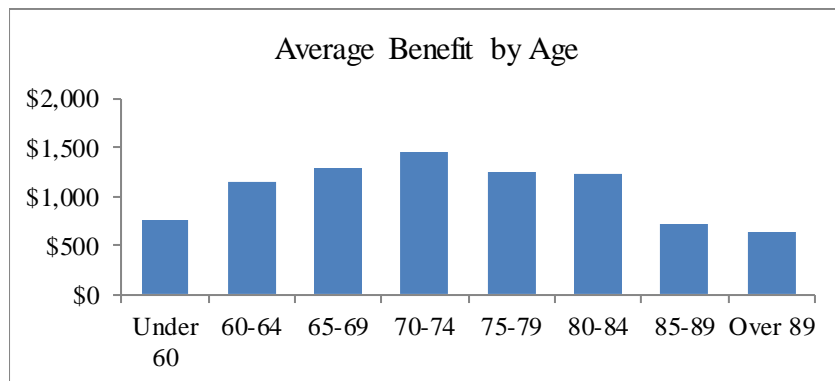
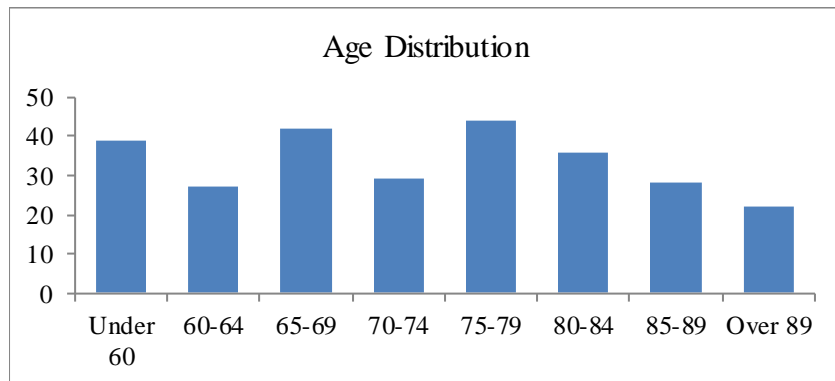




**SCHEDULE III**

**BENEFICIARIES RECEIVING BENEFITS AS OF JANUARY 1, 2015**

Age	Count of Beneficiaries			Current Monthly Benefits		
	Males	Females	Total	Males	Females	Total
Under 60	4	35	39	\$ 1,119	\$ 28,794	\$ 29,913
60-64	5	22	27	4,886	26,248	31,134
65-69	6	36	42	5,799	48,633	54,432
70-74	0	29	29	0	42,177	42,177
75-79	0	44	44	0	54,634	54,634
80-84	3	33	36	4,614	39,724	44,338
85-89	2	26	28	1,670	18,390	20,060
Over 89	1	21	22	618	13,197	13,815
<b>Total</b>	<b>21</b>	<b>246</b>	<b>267</b>	<b>\$18,706</b>	<b>\$271,797</b>	<b>\$290,503</b>







SCHEDULE IV

DEFERRED VESTED MEMBERS AS OF JANUARY 1, 2015

<u>Age</u>	<u>Count of Members</u>			<u>Expected Monthly Benefit</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25-29	0	0	0	0	0	0
30-34	1	2	3	840	1,316	2,156
35-39	4	3	7	3,138	2,650	5,788
40-44	3	10	13	2,684	9,881	12,565
45-49	9	2	11	7,803	1,614	9,417
50-54	13	5	18	14,606	5,804	20,410
55-59	6	14	20	5,558	12,897	18,455
Over 59	1	1	2	1,681	911	2,592
Total	37	37	74	\$36,310	\$35,073	\$71,383



SCHEDULE V

DISABLED MEMBERS RECEIVING BENEFITS AS OF JANUARY 1, 2015

<u>Age</u>	<u>Count of Members</u>			<u>Current Monthly Benefit</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	3	0	3	5,639	0	5,639
45-49	6	0	6	12,009	0	12,009
50-54	13	1	14	23,897	1,319	25,216
55-59	22	5	27	40,782	10,220	51,002
Over 59	52	12	64	74,503	13,912	88,415
Total	96	18	114	\$156,830	\$25,451	\$182,281