



**Cavanaugh Macdonald**  
CONSULTING, LLC

*The experience and dedication you deserve*

***NEBRASKA PUBLIC EMPLOYEES  
RETIREMENT SYSTEM***

**SCHOOL RETIREMENT SYSTEM**

**ACTUARIAL VALUATION REPORT  
as of July 1, 2017**

**Sixty-Fifth Actuarial Report for  
System Plan Year Beginning July 1, 2017  
and  
State Fiscal Year Ending June 30, 2019**







**TABLE OF CONTENTS**

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<b><u>Sections</u></b>	<b><u>Page</u></b>
<b>Actuarial Certification Letter</b>	
<b>Section 1 – Board Summary.....</b>	<b>1</b>
<b>Section 2 – Scope of the Report.....</b>	<b>11</b>
<b>Section 3 – Assets .....</b>	<b>12</b>
Table 1 – Market Value of Assets by Investment Category.....	13
Table 2 – Change in Market Value of Assets.....	14
Table 3 – Development of Actuarial Value of Assets.....	15
<b>Section 4 – System Liabilities.....</b>	<b>17</b>
Table 4 – Present Value of Future Benefits.....	18
Table 5 – Actuarial Accrued Liability.....	19
Table 6 – Actuarial Balance Sheet.....	20
Table 7 – Actuarial Gain/(Loss).....	21
Table 8 – Gain/(Loss) Analysis by Source.....	22
Table 9 – Projected Benefit Payments.....	23
<b>Section 5 – Employer Contributions .....</b>	<b>24</b>
Table 10 – Schedule of Amortization Bases .....	25
Table 11 – Actuarial Required Contribution and Development of Additional State Contribution.....	26
<b>Section 6 – Other Information .....</b>	<b>27</b>
Table 12 – Schedule of Funding Progress.....	28
Table 13 – Schedule of Contributions from Employers and Other Contributing Entities.....	29
Appendix A – Membership Data .....	30
Appendix B – Summary of Plan Provisions .....	41
Appendix C – Summary of Actuarial Assumptions.....	45
Appendix D – Glossary of Terms .....	52





# Cavanaugh Macdonald

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November 8, 2017

Public Employees Retirement Board  
Nebraska Public Employees Retirement System  
Post Office Box 94816  
Lincoln, NE 68509

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the School Retirement System as of July 1, 2017 for the purpose of determining the actuarial required contribution rate for the plan year ending June 30, 2018. It is our understanding that any required additional State contributions for this plan year will be made on July 1, 2018 (State fiscal year end 2019). The major findings of the valuation are contained in this report, which reflects the benefit provisions in place on July 1, 2017. The 2017 Legislature passed LB 415, which affects only the benefit provisions for members hired on or after July 1, 2017 (with additional changes for those hired on or after July 1, 2018). Since these changes do not affect current members, the adopted changes have no impact on the current valuation. At the Public Employees Retirement Board (PERB) meeting on October 17, 2016, the results of an experience study covering the four-year period ending June 30, 2015 were presented to the PERB. All of the recommended assumptions were adopted and are first used in this valuation. The net impact of the assumption changes was an increase in both the unfunded actuarial accrued liability and the actuarial contribution rate.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, member data and financial information. We found this information to be reasonably consistent and comparable with the information received in prior years. 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.

We further certify that all costs, liabilities, rates of interest and other factors for the School Retirement System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer the best estimate of anticipated experience affecting the System. Nevertheless, the emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions. The Public Employees Retirement Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C.



Public Employees Retirement Board  
November 8, 2017  
Page 2

Future actuarial measurements may differ significantly from the current measurements 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 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.

The actuarial computations presented in this report are for purposes of determining the funding amounts for the System as set out in the Nebraska state statutes. 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 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 Standards No. 67 and No. 68 will be presented in completely separate reports.

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

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We 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 the report or to provide explanations or further details as may be appropriate.

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 Ph.D., FSA, EA, MAAA, FCA  
Chief Pension Actuary



## SECTION 1 – BOARD SUMMARY

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This report presents the results of the July 1, 2017 actuarial valuation of the School Retirement System. The primary purposes of performing this actuarial valuation are to:

- Determine whether the employer, member and State contribution rates defined in the Nebraska state statutes are sufficient to fund the total Formula Annuity for the Nebraska School System, and whether additional State contributions are required along with the calculation of the State contribution for the Omaha Service Annuity for the plan year ending June 30, 2018;
- Disclose asset and liability measurements as well as the current funded status of the System on the valuation date;
- Compare the actual and expected experience of the System during the plan year ended June 30, 2017; and
- Analyze and report on trends in System contributions, assets and liabilities over the past several years.

The Nebraska statutes require the State to make an additional contribution if the regular, payroll-related contributions by members, employers, and the State are insufficient to meet the actuarial required contribution for the plan year. **Based on the results of the July 1, 2017 actuarial valuation, no additional State contribution is necessary for this plan year.**

The 2017 Legislature passed LB 415, which affects the benefit provisions only for members hired on or after July 1, 2017 (with additional changes for those hired on or after July 1, 2018). For members hired on or after July 1, 2017, the Public Employees Retirement Board (PERB) has the authority to set the actuarial assumptions used to determine the benefit amounts payable under optional forms of payment. In addition, LB 415 changed the minimum age required to qualify for retirement under the Rule of 85 from 55 to 60 for members who are hired on or after July 1, 2018. Since these changes do not affect current members, they have no impact on the current valuation.

The results of an experience study covering the four-year period ending June 30, 2015 were presented to the PERB on October 17, 2016. All of the recommended assumption changes were adopted and are first reflected in this valuation, including:

- The inflation assumption decreased from 3.25% to 2.75%.
- The investment return assumption declined from 8.00% to 7.50%.
- The cost of living adjustment assumption decreased from 2.50% to 2.25% for members hired before January 1, 2013.
- The covered payroll growth assumption decreased from 4.00% to 3.50%.
- The individual salary increase assumption was lowered by 0.50% in order to remain consistent with the inflation assumption.
- The assumed interest rate credited on employee contributions was lowered from 4.25% to 3.00%.
- The mortality assumption was changed to the RP-2014 White Collar Mortality Table, with adjustments made to better reflect observed experience. Generational mortality improvements are modeled using a System-specific projection scale.
- Retirement rates were adjusted to better reflect observed experience.
- Termination rates were adjusted to better reflect observed experience.
- Disability rates were adjusted to better reflect observed experience.



## SECTION 1 – BOARD SUMMARY

As a result of the assumption changes, the actuarial accrued liability (AAL) increased by \$853 million and the actuarial required contribution rate increased by 4.65% of pay. The changes to the investment return and mortality assumptions had the most significant impact on the valuation results. The impact of these changes on the July 1, 2017 valuation results is summarized in the following table (in millions):

	Old Assumptions	New Assumptions	Difference
Actuarial Accrued Liability (AAL)	\$11,613	\$12,466	\$853
Actuarial Value of Assets (AVA)	<u>10,811</u>	<u>10,811</u>	<u>0</u>
Unfunded AAL (UAAL)	\$ 803	\$ 1,656	\$853
Funded Ratio	93.09%	86.72%	(6.37%)
Normal Cost Rate	11.97%	13.32%	1.35%
UAAL Amortization Rate	<u>3.52%</u>	<u>5.99%</u>	<u>2.47%</u>
Actuarial Required Contribution Rate	15.49%	19.31%	3.82%

Note: Numbers may not add due to rounding.

The actuarial valuation results provide a “snapshot” view of the System’s financial condition on July 1, 2017. The System’s unfunded actuarial accrued liability (UAAL) increased from \$1.161 billion last year to \$1.656 billion this year and the funded ratio decreased from 90% to 87%. In addition, the actuarial required contribution rate increased from 16.59% of pay last year to 19.31% of pay in this year’s valuation, an increase of 2.72%. The primary factor in the changes from the prior valuation to the current valuation was the change in the set of actuarial assumptions adopted by the Board.

The valuation results reflect net favorable experience for the past plan year as demonstrated by an UAAL that was lower than expected, taking into account the impact of the new set of assumptions. The UAAL on July 1, 2017 is \$1.656 billion compared to an expected UAAL of \$1.909 billion. The favorable experience was due to the combined impact of an experience gain on both the System liabilities and the actuarial value of assets. The rate of return on the market value of assets for FY 2017 was 13.8%, as reported by the Nebraska Investment Council. However, the asset smoothing method only recognizes 20% of the excess/shortfall between the assumed rate of return and the actual return. Note that the assumed rate of return for the year ended June 30, 2017 is the investment return assumption from the 2016 valuation (8.0%). The 7.5% assumption applies prospectively from July 1, 2017. The partial recognition of FY 2017 experience, coupled with the scheduled recognition of the deferred experience from recent years, resulted in a rate of return on the actuarial (smoothed) value of assets of 9.1%. This generated an experience gain of \$109.0 million on the actuarial value of assets. There was also a net experience gain of \$144.4 million on the System’s liabilities, largely as the result of salary increases that were lower than expected and a lower cost of living adjustment (COLA) than expected being granted this year to members currently receiving benefits (1.50% actual versus 2.50% expected).

Legislation passed in the 2013 session made changes to the benefit structure for members hired on or after July 1, 2013 (Tier Two), including changing final average salary to the highest 60 months rather than the highest 36 months of service and changing the maximum cost of living adjustment from 2.5% to 1.0%. There were 11,818 members in Tier Two as of July 1, 2017, about 28% of the active membership, compared to 22% in the prior valuation. The small impact of Tier Two members is even more evident when considering that they represent only 19% of total covered payroll. It will be many years before Tier





**SECTION 1 – BOARD SUMMARY**

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Two has a meaningful impact on the valuation results. With the passing of LB 415 by the 2017 Legislature, a new tier will be effective July 1, 2018.

A summary of the key results from the July 1, 2017 actuarial valuation, excluding the Omaha State Service annuity, is shown in the following table. As the table indicates, the statutory contribution rates are sufficient to meet the actuarial required contribution rate and no additional State appropriation is required for the current year. Further detail on the valuation results can be found in the following sections of this Board Summary.

	<b>July 1, 2017 Valuation Results</b>	<b>July 1, 2016 Valuation Results</b>
Unfunded Actuarial Accrued Liability (\$M)	\$1,656	\$1,161
Funded Ratio (Actuarial Assets)	86.72%	89.64%
Normal Cost Rate	13.32%	12.04%
UAAL Amortization Rate	5.99%	4.55%
Total Actuarial Required Contribution	<u>19.31%</u>	<u>16.59%</u>
Member Contribution Rate	(9.78%)	(9.78%)
Employer Contribution Rate	(9.88%)	(9.88%)
State Contribution Rate	(2.00%)	(2.00%)
Total Contribution Rate	<u>(21.66%)</u>	<u>(21.66%)</u>
Shortfall/(Margin)	(2.35%)	(5.07%)
Additional Required State Contribution	\$0	\$0

***EXPERIENCE FOR THE LAST PLAN YEAR***

Numerous factors contributed to the change in the System’s assets, liabilities, and actuarial required contribution rate between July 1, 2016 and July 1, 2017. The components are examined in the following discussion.

**ASSETS**

As of June 30, 2017, the System had net assets of \$10.877 billion, when measured on a market value basis, an increase of \$1.178 billion from the prior year value.

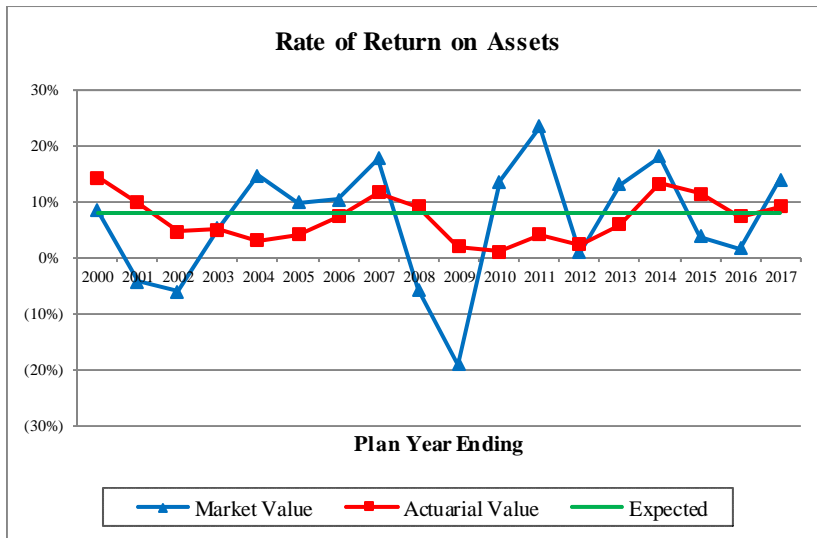
The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability and the actuarial required contribution rate. An asset valuation method, which smoothes the effect of market fluctuations, is used to determine the value of assets used in the valuation. The resulting amount is called the actuarial value of assets. In this year’s valuation, the actuarial value of assets is \$10.811 billion, an increase of \$0.765 billion from the prior year. The components of change in the asset values are shown in the following table:



**SECTION 1 – BOARD SUMMARY**

	Market Value (\$M)	Actuarial Value (\$M)
<b>Net Assets, June 30, 2016</b>	\$ 9,698.58	\$ 10,045.93
- Employer and Member Contributions	+ 410.11	+ 410.11
- Benefit Payments	- 554.37	- 554.37
- Net Investment Income	+ 1,322.54	+ 908.87
<b>Net Assets, June 30, 2017</b>	\$ 10,876.86	\$ 10,810.54
Rate of Return, Net of Expenses	13.8%	9.1%

The rate of return on the actuarial value of assets was 9.1%, which was higher than the 8.0% investment return assumption applicable for the year ended June 30, 2017 (set in the July 1, 2016 valuation). As a result, there was an experience gain on assets of \$109.0 million. The investment return on the market value of assets for FY 2017 of 13.8% resulted in a change in the deferred investment experience from a net deferred investment loss of \$347 million in last year’s valuation to a net deferred investment gain of \$66 million in the current valuation. Please see Section 3 of this report for more detailed information on the market and actuarial value of assets.



*The rate of return of the actuarial value of assets has been less volatile than the market value return, illustrating the benefit of 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 normal costs. The difference between this liability and the actuarial value of assets as of the valuation date is called the unfunded actuarial accrued liability (UAAL). The dollar amount of unfunded actuarial accrued liability is reduced if the contributions to the System exceed the normal cost for the year plus interest on the prior year’s UAAL.



**SECTION 1 – BOARD SUMMARY**

The unfunded actuarial accrued liability is shown as of July 1, 2017 in the following table:

	<b>Actuarial Value of Assets</b>	<b>Market Value of Assets</b>
Actuarial Accrued Liability	\$12,466,139,649	\$12,466,139,649
Value of Assets	<u>10,810,539,558</u>	<u>10,876,861,507</u>
Unfunded Actuarial Accrued Liability	\$1,655,600,091	\$1,589,278,142
Funded Ratio	86.72%	87.25%

See Section 4 of the report for the detailed development of the unfunded actuarial accrued liability.

The net change in the UAAL from July 1, 2016 to July 1, 2017 was an increase of \$494.2 million. As the following table illustrates, the change in assumptions was the main reason for the increase in the UAAL. The components of this net change are shown in the following table:

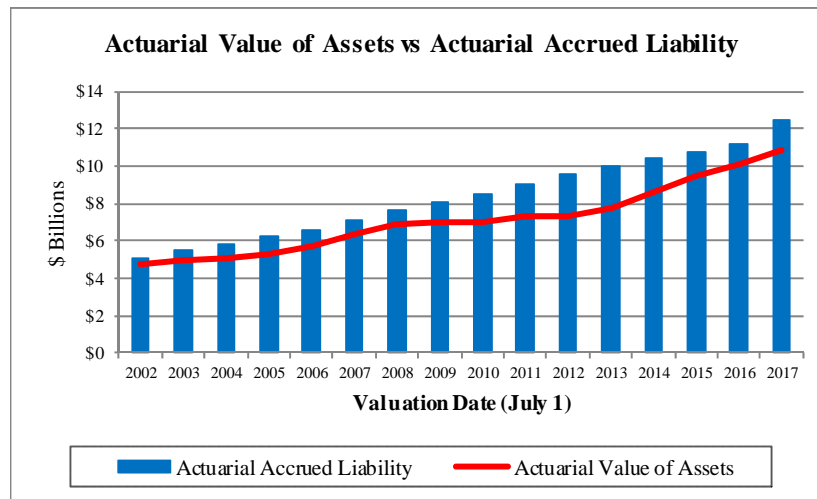
	<b>(\$ Millions)</b>
<b>Unfunded Actuarial Accrued Liability, July 1, 2016</b>	\$1,161.4
- Expected increase from amortization method	2.7
- Contributions above the Actuarial Required Contribution	(100.2)
- Investment experience	(109.0)
- Liability experience	(144.4)
- Assumption changes	853.1
- Other experience	(8.0)
<b>Unfunded Actuarial Accrued Liability, July 1, 2017</b>	\$1,655.6

As shown above, various components impacted the UAAL. Actuarial gains (losses), which result from actual experience that is more (less) favorable than anticipated based on the actuarial assumptions, are reflected in the UAAL and are measured as the difference between the expected UAAL and the actual UAAL, taking into account any changes due to actuarial assumptions and methods, or benefit provision changes. Overall, the System experienced a net actuarial gain of \$253.4 million. The net actuarial gain may be explained by considering the separate experience of assets and liabilities. As noted earlier, there was an experience gain of \$109.0 million on the actuarial value of assets. Favorable experience on System liabilities resulted in an actuarial gain of \$144.4 million. The liability gain was the net result of various components of actuarial gains and losses, the largest of which were a gain from salary increases that were lower than expected and a gain from a smaller COLA than expected (1.50% actual vs 2.50% expected) being granted to members currently receiving benefits. The biggest impact on the UAAL was the change in the actuarial assumptions which increased the UAAL by \$853 million. A breakdown of the components of experience gains and losses can be found in Table 8 of this report.



**SECTION 1 – BOARD SUMMARY**

As the following graph of historical actuarial assets and accrued liabilities shows, the System’s liabilities grew at a faster pace than the System’s assets for the five-year period beginning after the FY 2009 market downturn. As a result, the funded ratio declined over that period. Recently, the System’s assets have been growing at a faster rate than the System’s liabilities and the funded ratio has been improving. However, changes to actuarial assumptions in the current valuation significantly increased the System’s liabilities and lowered the funded ratio.



An evaluation of the UAAL on a pure dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both very large numbers) is reflected. Another way to evaluate the UAAL and the progress made in its funding is to track the funded ratio, the ratio of the actuarial value of assets to the actuarial accrued liability. The funded status information, using the actuarial value of assets, is shown below (in millions).

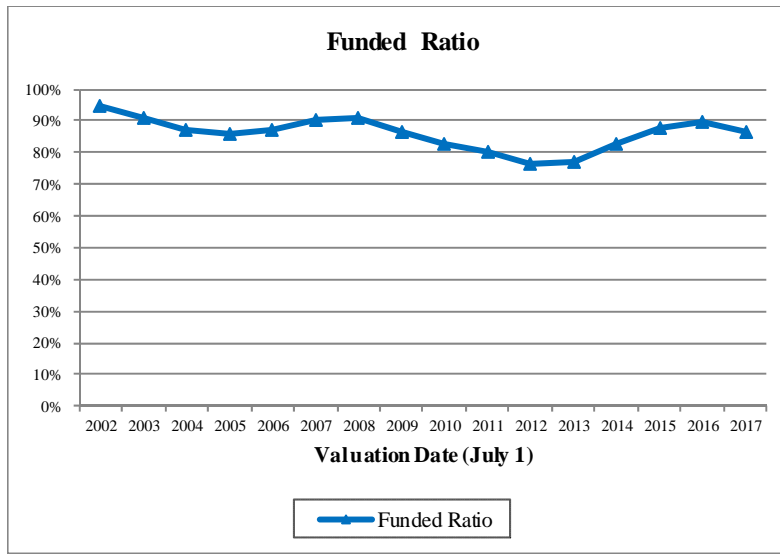
	7/1/2013	7/1/2014	7/1/2015	7/1/2016	7/1/2017
Funded Ratio	77.1%	82.7%	88.0%	89.6%	86.7%
UAAL	\$2,281.8	\$1,804.1	\$1,292.7	\$1,161.4	\$1,655.6

Note that the funded ratio does not indicate whether or not the System assets are sufficient to settle benefits earned to date. The funded ratio, by itself, also may not be indicative of future funding requirements. In addition, if the funded ratios were shown using the market value of assets, the results would differ.

The funded ratio over a longer period is shown in the following graph:



## SECTION 1 – BOARD SUMMARY



### ACTUARIAL REQUIRED CONTRIBUTION RATE

The System is funded by statutory contribution rates for members (9.78% of pay), employers (101% of the member rate) and the State (2.00% of pay). State statutes require the State to make an additional contribution if the regular, payroll-related contributions by employees, employers and the State are insufficient to meet the actuarial required contribution for the plan year. The additional State contributions for the plan year are made on the July 1 following the plan year end. Based on the results of the July 1, 2017 actuarial valuation, no additional State contribution is necessary for the current plan year.

Under the Entry Age Normal cost method, the actuarial contribution rate consists of two components:

- A “normal cost” for the portion of projected liabilities allocated by the actuarial cost method to service of members during the year following the valuation date.
- 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.

The UAAL contribution rate is determined by calculating the amortization payments as a level percentage of payroll. This methodology results in payments that are lower in the initial years of the amortization period, but increase each year in the future with the assumed payroll growth assumption of 3.50%. Because the UAAL contribution rate is determined as a level percent of payroll, the dollar amount of the UAAL contribution is scheduled to increase 3.50% each year in the future even if all actuarial assumptions are met. Therefore, if the increase in covered payroll is less than 3.50% per year, the UAAL contribution rate will increase.

See Section 5 of the report for the detailed development of the contribution rates, which are summarized in the following table:



**SECTION 1 – BOARD SUMMARY**

<b>Contribution Rates</b>	<b>July 1, 2017</b>	<b>July 1, 2016</b>
1. Normal Cost Rate	13.32%	12.04%
2. UAAL Contribution Rate	5.99%	4.55%
3. Total Actuarial Required Contribution Rate	19.31%	16.59%
4. Member Contribution Rate	(9.78%)	(9.78%)
5. Employer Contribution Rate	(9.88%)	(9.88%)
6. State Contribution Rate	(2.00%)	(2.00%)
7. Total Contribution Rate	(21.66%)	(21.66%)
8. Shortfall/(Margin) [3 + 7]	(2.35%)	(5.07%)
9. Estimated Payroll	\$ 1,966,968,901	\$ 1,901,967,362
10. Additional State Required Contribution [8 * 9, but not less than \$0]	\$ 0	\$ 0

Note: Contribution rates exclude State funding of Omaha Service Annuity.

The actuarial required contribution rate for the current plan year is 19.31%. The member contribution rate of 9.78%, School District contributions of 9.88% (101% of 9.78%), and State contributions of 2.00% of pay result in total statutory contributions of 21.66% of pay. As a result, there is a contribution margin of 2.35% which indicates that the System will reach fully funded status sooner than targeted by the amortization schedule, if all actuarial assumptions are met in future years. The actuarial required contribution, determined this year based on the snapshot of the System taken on the valuation date of July 1, 2017, will change each year as the deferred investment experience is recognized and other experience (both investment and demographic) impacts the System. Therefore, it is expected to change each year.

A history of actuarial required contribution rates and any resulting additional required State contributions, whether or not actually contributed, is shown in the following table:



**SECTION 1 – BOARD SUMMARY**

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<b><u>History of Required Contribution Rates and Additional State Funding</u></b>		
<b>Fiscal Year</b>	<b>Required Contribution Rate</b>	<b>Additional State Contributions*</b>
2018/2019	19.31%	\$ 0
2017/2018	16.59%	0
2016/2017	17.03%	0
2015/2016	18.39%	0
2014/2015	19.94%	0
2013/2014	23.27%	48,092,426
2012/2013	20.45%	23,465,817
2011/2012	19.21%	18,871,705
2010/2011	17.24%	0
2009/2010	15.46%	0
2008/2009	15.64%	0
2007/2008	16.58%	0
2006/2007	17.95%	12,847,537
2005/2006	16.97%	15,415,949
2004/2005	15.26%	0
2003/2004	13.45%	0

\* Excludes funding of Omaha Service Annuity.

Note: Information before Fiscal Year 2014/2015 was produced by prior actuary.

While there is a contribution margin for the current plan year, this should not be viewed an unnecessary or excess contribution. In order for the financing of the System on a fixed contribution rate basis to succeed, contributions above the actuarial required contribution rate must be made to offset years where the fixed contribution rate will be below the actuarial required contribution rate.

**SECTION 1 – BOARD SUMMARY****SUMMARY OF PRINCIPAL RESULTS**

	7/1/2017 Valuation	7/1/2016 Valuation	% Change
<b>1. PARTICIPANT DATA</b>			
Number of:			
Active Members			
- Tier One	30,125	32,211	(6.48%)
- Tier Two	11,818	9,232	28.01%
- Total	41,943	41,443	1.21%
Retired Members and Beneficiaries	23,325	22,530	3.53%
Disabled Members	329	327	0.61%
Inactive Members	22,301	21,585	3.32%
Total Members	87,898	85,885	2.34%
Projected Annual Salaries of Active Members	\$ 1,966,968,901	\$ 1,901,967,362	3.42%
Annual Retirement Payments for Retired Members, Disabled Members and Beneficiaries	\$ 549,070,389	\$ 519,410,038	5.71%
<b>2. ASSETS AND LIABILITIES</b>			
a. Market Value of Assets	\$ 10,876,861,507	\$ 9,698,584,810	12.15%
b. Actuarial Value of Assets	10,810,539,558	10,045,925,478	7.61%
c. Total Actuarial Accrued Liability	12,466,139,649	11,207,298,169	11.23%
d. Unfunded Actuarial Accrued Liability [c - b]	\$ 1,655,600,091	\$ 1,161,372,691	42.56%
e. Funded Ratio (Actuarial Value of Assets) [b / c]	86.72%	89.64%	(3.26%)
f. Funded Ratio (Market Value of Assets) [a / c]	87.25%	86.54%	0.82%
<b>3. CONTRIBUTION RATES AS A PERCENT OF PAYROLL (excluding Omaha Service Annuity)</b>			
Normal Cost	13.32%	12.04%	10.63%
Amortization of Unfunded Actuarial Accrued Liability	5.99%	4.55%	31.65%
Actuarial Required Contribution Rate	19.31%	16.59%	16.40%
Member Contribution Rate	(9.78%)	(9.78%)	0.00%
Employer Required Contribution Rate*	(9.88%)	(9.88%)	0.00%
State Contribution Rate	(2.00%)	(2.00%)	0.00%
Shortfall/(Margin)	(2.35%)	(5.07%)	(53.65%)
Additional Required State Contribution Amount	\$ 0	\$ 0	0.00%

\* 101% of employee contribution rate





## **SECTION 2 – SCOPE OF THE REPORT**

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This report presents the actuarial valuation results of the School Retirement System as of July 1, 2017. This valuation was prepared at the request of the Public Employees Retirement Board of the Nebraska Public Employees Retirement System.

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 System. Sections 4 and 5 describe how the obligations of the System are to be met under the actuarial cost method in use. Section 6 includes some historical funding information that was required by the Governmental Accounting Standards Board (GASB) in the past.

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 July 1, 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.



## SECTION 3 – ASSETS

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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 July 1, 2017. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the System, 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 System assets and liabilities.

### **Market Value of Assets**

The current market value represents the "snapshot" or "cash-out" value of System 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 System assets as of July 1, 2017, and July 1, 2016, in total and by investment category. Table 2 summarizes the change in the market value of assets from July 1, 2016 to July 1, 2017.

### **Actuarial Value of Assets**

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

To arrive at a suitable value of assets 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 and assumed investment return on the market 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**  
**SCHOOL RETIREMENT SYSTEM**  
**MARKET VALUE OF ASSETS**  
**by Investment Category**

	<u>June 30, 2017</u>	<u>June 30, 2016</u>
1. Cash and Equivalents	\$ 7,057,700	\$ 5,363,084
2. Investments	11,078,355,469	9,874,183,106
3. Capital Assets	5,432	2,655
4. Receivables and Prepaids	872,562,724	642,154,771
5. Accounts Payable	<u>(1,081,119,818)</u>	<u>(823,118,806)</u>
6. Net Assets Available for Pension Benefits	\$ 10,876,861,507	\$ 9,698,584,810

**SECTION 3 – ASSETS**

**TABLE 2**  
**SCHOOL RETIREMENT SYSTEM**  
**CHANGE IN MARKET VALUE OF ASSETS**

	<u>Nebraska School</u> <u>System</u>	<u>Omaha Service</u> <u>Annuity</u>	<u>Total</u>
1. Market Value of Assets, July 1, 2016	\$ 9,688,102,023	\$ 10,482,787	\$ 9,698,584,810
2. Contributions			
(a) Member (includes purchased service)	\$ 186,176,743	\$ 0	\$ 186,176,743
(b) Employer	184,903,366	0	184,903,366
(c) State appropriations	38,039,347	992,451	39,031,798
(d) Total	<u>\$ 409,119,456</u>	<u>\$ 992,451</u>	<u>\$ 410,111,907</u>
3. Expenditures			
(a) Benefit payments	\$ 552,669,534	\$ 1,700,186	\$ 554,369,720
(b) Administrative expenses	3,334,436	0	3,334,436
(c) Total	<u>\$ 556,003,970</u>	<u>\$ 1,700,186</u>	<u>\$ 557,704,156</u>
4. Investment Return, Net of Expenses			
(a) Investment income	\$ 133,843,542	\$ 145,159	\$ 133,988,701
(b) Securities lending income	2,815,586	2,642	2,818,228
(c) Securities lending expense	(1,280,076)	(1,201)	(1,281,277)
(d) Net appreciation/(depreciation) in fair value of investments	1,189,098,353	1,211,291	1,190,309,644
(e) Other	33,650	0	33,650
(f) Total investment return	<u>\$ 1,324,511,055</u>	<u>\$ 1,357,891</u>	<u>\$ 1,325,868,946</u>
5. Market Value of Assets, June 30, 2017 [1 + 2(d) - 3(c) + 4(f)]	\$ 10,865,728,564	\$ 11,132,943	\$ 10,876,861,507
6. Rate of Return, Net of Expenses*			13.8%

\* As reported by the Nebraska Investment Council



**TABLE 3**  
**SCHOOL RETIREMENT SYSTEM**  
**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS**

	Year End			
	6/30/2014	6/30/2015	6/30/2016	6/30/2017
1. Actuarial Value of Assets, Beginning of Year	\$ 7,703,084,507	\$ 8,622,023,999	\$ 9,485,594,650	\$ 10,045,925,478
2. Unrecognized Return Beginning of Year	\$ 389,868,523	\$ 828,957,724	\$ 200,221,403	\$ (347,340,668)
3. Contributions During Year				
(a) Member	\$ 169,200,529	\$ 174,797,341	\$ 178,613,265	\$ 186,176,743
(b) Employer	167,710,406	173,013,848	178,608,695	184,903,366
(c) State appropriations	35,613,157	36,491,449	37,916,718	39,031,798
(d) Total	<u>\$ 372,524,092</u>	<u>\$ 384,302,638</u>	<u>\$ 395,138,678</u>	<u>\$ 410,111,907</u>
4. Benefit Payments	\$ 466,161,224	\$ 502,190,816	\$ 528,499,067	\$ 554,369,720
5. Expected Investment Income on (1), (2), (3) and (4)*	\$ 645,313,812	\$ 753,124,603	\$ 771,391,900	\$ 772,071,965
6. Actual Return on Market Value, Net of All Expenses	\$ 1,451,665,825	\$ 352,722,508	\$ 146,129,146	\$ 1,322,534,510
7. Return to be Spread, End of Year	\$ 806,352,013	\$ (400,402,095)	\$ (625,262,754)	\$ 550,462,545

\* Based on the investment return assumption applicable at the beginning of the year. The assumption was 8.0% for all years shown.



**TABLE 3  
(continued)**

**SCHOOL RETIREMENT SYSTEM**

**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS**

8. Return to be Spread

<u>Plan Year</u> <u>Ending</u>	<u>Return to be</u> <u>Spread</u>	<u>Unrecognized</u> <u>Percent</u>	<u>Unrecognized</u> <u>Return</u>
2017	\$550,462,545	80%	\$440,370,036
2016	(625,262,754)	60%	(375,157,652)
2015	(400,402,095)	40%	(160,160,838)
2014	806,352,013	20%	161,270,403
			<hr/> \$66,321,949

9. Total Market Value of Assets as of July 1, 2017 \$10,876,861,507

10. Total Actuarial Value of Assets as of July 1, 2017 \$10,810,539,558  
[9 - 8]

11. Asset Ratios

(a) Actuarial Value to Market Value [10 / 9]	99.39%
(b) Market Value to Actuarial Value [9 / 10]	100.61%



## SECTION 4 – SYSTEM LIABILITIES

---

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 School Retirement System as of the valuation date, July 1, 2017. In this section, the discussion will focus on the commitments (future benefit payments) of the System, 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 the 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 July 1, 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 System. The Entry Age Normal actuarial cost method is used to develop the actuarial accrued liability.



**TABLE 4**  
**SCHOOL RETIREMENT SYSTEM**  
**PRESENT VALUE OF FUTURE BENEFITS (PVFB)**  
**AS OF JULY 1, 2017**

	<u>Nebraska School System</u>	<u>Omaha Service Annuity</u>	<u>Total</u>
1. Active Employees			
(a) Retirement	\$ 7,317,973,515	\$ 19,108,629	\$ 7,337,082,144
(b) Withdrawal	504,307,926	1,809,965	506,117,891
(c) Death	77,110,086	136,501	77,246,587
(d) Disability	51,353,673	214,710	51,568,383
(e) Total	<u>\$ 7,950,745,200</u>	<u>\$ 21,269,805</u>	<u>\$ 7,972,015,005</u>
2. Inactive Vested Members	338,473,796	1,409,779	339,883,575
3. Inactive Nonvested Members	42,158,167	0	42,158,167
4. Disabled Members	50,178,756	0	50,178,756
5. Retirees	6,190,397,544	0	6,190,397,544
6. Beneficiaries	<u>231,345,858</u>	<u>0</u>	<u>231,345,858</u>
7. Total Present Value of Future Benefits [1(e) + 2 + 3 + 4 + 5 + 6]	<u>\$ 14,803,299,321</u>	<u>\$ 22,679,584</u>	<u>\$ 14,825,978,905</u>





**TABLE 5**  
**SCHOOL RETIREMENT SYSTEM**  
**ACTUARIAL ACCRUED LIABILITY**  
**AS OF JULY 1, 2017**

	<u>Nebraska School</u> <u>System</u>	<u>Omaha Service</u> <u>Annuity</u>	<u>Total</u>
1. Present Value of Future Benefits for Active Members	\$ 7,950,745,200	\$ 21,269,805	\$ 7,972,015,005
2. Present Value of Future Normal Costs for Active Members			
(a) Retirement benefit	\$ 1,802,003,040	\$ 4,509,273	\$ 1,806,512,313
(b) Termination benefit	508,852,441	1,403,005	510,255,446
(c) Pre-Retirement death benefit	25,170,219	40,012	25,210,231
(d) Disability benefit	17,779,014	82,252	17,861,266
(e) Total	<u>\$ 2,353,804,714</u>	<u>\$ 6,034,542</u>	<u>\$ 2,359,839,256</u>
3. Actuarial Accrued Liability for Active Members [1 - 2(e)]	\$ 5,596,940,486	\$ 15,235,263	\$ 5,612,175,749
4. Actuarial Accrued Liability for Inactive Members	6,852,554,121	1,409,779	6,853,963,900
5. Total Actuarial Accrued Liability [3 + 4]	12,449,494,607	16,645,042	12,466,139,649
6. Actuarial Value of Assets	10,799,474,498	11,065,060	10,810,539,558
7. Unfunded Actuarial Accrued Liability [5- 6]	\$ 1,650,020,109	\$ 5,579,982	\$ 1,655,600,091



**SECTION 4 – SYSTEM LIABILITIES**

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**TABLE 6**  
**SCHOOL RETIREMENT SYSTEM**  
**ACTUARIAL BALANCE SHEET**  
**AS OF JULY 1, 2017**

<u>ASSETS</u>	
Actuarial Value of Assets	\$ 10,810,539,558
Unfunded Actuarial Accrued Liability	1,655,600,091
Present Value of Future Normal Costs	<u>2,359,839,256</u>
Total Assets	\$ 14,825,978,905
<u>LIABILITIES</u>	
Present Value of Future Benefits	
Active members	
Retirement	\$ 7,317,973,515
Withdrawal	504,307,926
Death	77,110,086
Disability	51,353,673
Total	<u>\$ 7,950,745,200</u>
Inactive members	
Currently receiving benefits	6,471,922,158
Not currently receiving benefits	380,631,963
Total	<u>\$ 6,852,554,121</u>
Omaha Service Annuity	
Active	21,269,805
Inactive vested	1,409,779
Total	<u>\$ 22,679,584</u>
Total Liabilities	\$ 14,825,978,905



**TABLE 7**  
**SCHOOL RETIREMENT SYSTEM**  
**ACTUARIAL GAIN/(LOSS)**

**Liabilities**

1. Actuarial Accrued Liability as of July 1, 2016	\$ 11,207,298,169
2. Normal Cost for Plan Year Ending June 30, 2017	211,012,399
3. Benefit Payments During Plan Year Ending June 30, 2017	(554,369,720)
4. Interest at 8.0% (assumed rate on July 1, 2016)	893,561,137
5. Assumption changes	<u>853,085,886</u>
6. Expected Actuarial Accrued Liability as of July 1, 2017	\$ 12,610,587,871
7. Actuarial Accrued Liability as of July 1, 2017	\$ 12,466,139,649

**Assets**

8. Actuarial Value of Assets as of July 1, 2016	\$ 10,045,925,478
9. Contributions During Plan Year Ending June 30, 2017	410,111,907
10. Benefit Payments During Plan Year Ending June 30, 2017	(554,369,720)
11. Interest at 8.0% (assumed rate on July 1, 2016)	<u>799,859,218</u>
12. Expected Actuarial Value of Assets as of July 1, 2017	\$ 10,701,526,883
13. Actuarial Value of Assets as of July 1, 2017	\$ 10,810,539,558

**Gain / (Loss)**

14. Actuarial Gain / (Loss) on Liabilities [6 - 7]	\$ 144,448,222
15. Actuarial Gain / (Loss) on Assets [13 - 12]	\$ 109,012,675
16. Total Actuarial Gain / (Loss) for Plan Year Ending June 30, 2017 [14 + 15]	\$ 253,460,897



**TABLE 8**  
**SCHOOL RETIREMENT SYSTEM**  
**GAIN/(LOSS) ANALYSIS BY SOURCE**

<b>Liability Sources</b>	<b>Gain/(Loss)</b>
Retirement	\$ 5,840,059
Termination	(31,958,150)
Disability	(637,876)
Mortality	(4,137,695)
Salary	89,015,351
New Entrants/Rehires	(21,106,088)
COLA	67,305,267
Inactive Vested Interest Credit	20,878,426
Miscellaneous	19,248,928
Total Liability Gain/(Loss)	\$ 144,448,222
Asset Gain/(Loss)	\$ 109,012,675
Net Actuarial Gain/(Loss)	\$ 253,460,897

Note: The expected experience is based on the assumptions used in the July 1, 2016 actuarial valuation. New assumptions apply prospectively from July 1, 2017.



SECTION 4 – SYSTEM LIABILITIES

TABLE 9
SCHOOL RETIREMENT SYSTEM
PROJECTED BENEFIT PAYMENTS
AS OF JULY 1, 2017

Table with 4 columns: Plan Year Ending June 30, Current Active Members, Current In-Pay Members, and Total. Rows range from 2018 to 2047.

Note: Cash flows are the expected future non-discounted payments to current members. These numbers exclude refund payouts to any current vested or nonvested inactives and assume future retirees elect the normal form of payment. Also excludes Omaha appropriations.



## **SECTION 5 – EMPLOYER CONTRIBUTIONS**

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The previous two sections were devoted to a discussion of the assets and liabilities of the System. A comparison of Tables 3 and 4 indicates that current assets 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 system, 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 system 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, systems are not fully funded, either because of past benefit improvements that have not been completely funded or because of actuarial deficiencies that have occurred because experience has not been as favorable as anticipated by the actuarial assumptions. 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 is 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 and losses.

In general, contributions are computed in accordance with a level percent-of-payroll funding objective. The contribution rate based on the July 1, 2017 actuarial valuation will be used to determine the actuarial required employer contribution rate to the School Retirement System for the plan year ending June 30, 2018. Any State contributions are expected to be deposited on July 1, 2018 (State fiscal year 2019). In this context, the term "contribution rate" means the percentage, which is applied to a particular active member payroll to determine the actual employer contribution amount (i.e., in dollars) for the group.

### **Contribution Rate Summary**

In Table 10 the amortization payment related to the unfunded actuarial accrued liability, as of July 1, 2017, is developed. Table 11 develops the actuarial required contribution rate for the System and the amount of required State contributions.

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



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 10
SCHOOL RETIREMENT SYSTEM
SCHEDULE OF AMORTIZATION BASES

Table with 6 columns: Amortization Bases, Original Amount, July 1, 2017 Remaining Payments, Date of Last Payment, Outstanding Balance as of July 1, 2017, Annual Contribution\*. Rows include UAAL Bases from 2006 to 2017, Experience Bases from 2013 to 2016, and a Total row.

\* Contribution amount reflects mid-year timing.

- 1. Total UAAL Amortization Payments \$ 118,142,566
2. Projected Payroll for FY 2018 \$ 1,966,968,901
3. UAAL Amortization Payment Rate 6.01%

Note: Beginning with the July 1, 2017 valuation, the payments on each UAAL base are determined as a level percent of payroll using a 3.50% payroll growth assumption.



**SECTION 5 – EMPLOYER CONTRIBUTIONS**

**TABLE 11**

**SCHOOL RETIREMENT SYSTEM**

**ACTUARIAL REQUIRED CONTRIBUTION  
FOR PLAN YEAR ENDING JUNE 30, 2018**

**and  
DEVELOPMENT OF ADDITIONAL STATE CONTRIBUTION**

1. Normal Cost - Nebraska School System		
(a) Amount	\$	242,081,348
(b) Expected pay for current actives		1,816,982,838
(c) Normal Cost Rate as % of pay		13.32%
2. Amortization Cost - Nebraska School System		
(a) Amount		117,744,382
(b) Expected pay for all actives		1,966,968,901
(c) Amortization Rate as % of pay		5.99%
3. Total Actuarial Required Contribution Rate - Nebraska School System		19.31%
[1(c) + 2(c)]		
4. Statutory Contribution Rates - Nebraska School System		
(a) Member		9.78%
(b) Employer (101% of Member)		9.88%
(c) State		2.00%
(d) Total		<u>21.66%</u>
5. Shortfall/(Margin) - Nebraska School System		(2.35%)
[3 - 4(d)]		
6. Expected pay for all actives for FY 2018		1,966,968,901
7. Additional Required State Contribution payable July 1, 2018		
[5 * 6 , but not less than 0]	\$	0
8. State Contribution due July 1, 2018		
(a) State Statutory Amount due July 1, 2018	\$	39,339,378
[2% x Expected pay]		
(b) Omaha Service Annuity due July 1, 2018		
(i) Normal Cost amount	\$	830,323
(ii) Amortization amount		<u>412,846</u>
(iii) Total amount		1,243,169
(d) Additional Contribution		<u>0</u>
(e) Total	\$	<u>40,582,547</u>





## **SECTION 6 – OTHER INFORMATION**

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### **HISTORICAL FUNDING AND OTHER INFORMATION**

This section of the report provides a historical perspective on the System's funding and contribution practices, along with other information that may be of interest.



SECTION 6 – OTHER INFORMATION

TABLE 12  
SCHOOL RETIREMENT SYSTEM  
HISTORICAL FUNDING INFORMATION  
SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded Actuarial Accrued Liability (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a % of Covered Payroll [(b - a) / c]
June 30, 2003	\$4,952,902,870	\$5,464,572,876	\$511,670,006	90.6%	\$1,138,776,241	44.9%
June 30, 2004	5,118,011,165	5,868,266,970	750,255,805	87.2%	1,170,601,127	64.1%
June 30, 2005	5,335,197,409	6,234,657,830	899,460,421	85.6%	1,214,227,197	74.1%
June 30, 2006	5,739,048,994	6,584,275,406	845,226,412	87.2%	1,247,684,378	67.7%
June 30, 2007	6,396,336,863	7,070,308,583	673,971,720	90.5%	1,325,616,322	50.8%
June 30, 2008	6,932,918,638	7,654,536,359	721,617,721	90.6%	1,389,124,819	51.9%
June 30, 2009	7,007,581,825	8,092,339,318	1,084,757,493	86.6%	1,481,568,432	73.2%
June 30, 2010	7,040,908,599	8,542,119,000	1,501,210,401	82.4%	1,543,930,532	97.2%
June 30, 2011	7,267,497,259	9,039,744,995	1,772,247,736	80.4%	1,590,225,983	111.4%
June 30, 2012	7,358,964,135	9,609,157,134	2,250,192,999	76.6%	1,593,184,929	141.2%
June 30, 2013	7,703,084,507	9,984,898,998	2,281,814,491	77.1%	1,735,175,956	131.5%
June 30, 2014	8,622,023,999	10,426,112,609	1,804,088,610	82.7%	1,774,679,549	101.7%
June 30, 2015	9,485,594,650	10,778,303,637	1,292,708,987	88.0%	1,845,979,997	70.0%
June 30, 2016	10,045,925,478	11,207,298,169	1,161,372,691	89.6%	1,901,967,362	61.1%
June 30, 2017	10,810,539,558	12,466,139,649	1,655,600,091	86.7%	1,966,968,901	84.2%

Note: Information before 2013 was produced by the prior actuary.



TABLE 13

SCHOOL RETIREMENT SYSTEM

HISTORICAL FUNDING INFORMATION

SCHEDULE OF CONTRIBUTIONS FROM EMPLOYERS AND OTHER CONTRIBUTING ENTITIES

Plan Year Ending	Actuarial Required Contributions*			Percent Contributed
	School	State	Total	
June 30, 2005	\$90,178,025	\$30,274,438	\$120,452,463	87%
June 30, 2006	102,089,105	28,056,703	130,145,808	100%
June 30, 2007	102,849,748	15,219,871	118,069,619	104%
June 30, 2008	101,368,968	15,832,941	117,201,909	104%
June 30, 2009	105,497,775	20,620,548	126,118,323	104%
June 30, 2010	121,277,758	21,380,352	142,658,110	105%
June 30, 2011	135,328,339	40,779,653	176,107,992	89%
June 30, 2012	145,582,040	45,866,350	191,448,390	88%
June 30, 2013	161,922,831	64,966,961	226,889,792	79%
June 30, 2014	138,544,708	34,703,519	173,248,227	117%
June 30, 2015	115,776,948	35,493,591	151,270,539	138%
June 30, 2016	94,929,605	36,919,600	131,849,205	163%
June 30, 2017	90,038,793	38,039,347	128,078,140	174%

\* Excludes Omaha appropriations.

Note: Contribution information is consistent with that shown in the GASB 67 report prepared for the System.



**APPENDIX A – MEMBERSHIP DATA**

**SCHOOL RETIREMENT SYSTEM  
MEMBER DATA RECONCILIATION**

	<b>Active Members</b>	<b>Inactive Vested</b>	<b>Inactive Non-vested</b>	<b>Retirees and Beneficiaries</b>	<b>Disabled Members</b>	<b>Total</b>
As of July 1, 2016	41,443	6,011	15,574	22,530	327	85,885
Changes in status						
a) Retirement	(981)	(265)	0	1,246	0	0
b) Death	(33)	(22)	0	(572)	(13)	(640)
c) Non-vested termination	(1,571)	0	1,571	0	0	0
d) Vested termination	(792)	792	0	0	0	0
e) Contribution refund	(743)	(225)	(903)	0	0	(1,871)
f) Beneficiary in receipt	0	0	0	158	0	158
g) Disability retirement	(13)	(2)	0	0	15	0
h) Return to active service	559	(199)	(360)	0	0	0
i) Expired benefit	0	0	0	(37)	0	(37)
j) Data adjustment	<u>(4)</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>(4)</u>
Total changes in status	(3,578)	79	308	795	2	(2,394)
New entrants	4,078	0	329	0	0	4,407
Net Change	500	79	637	795	2	2,013
As of July 1, 2017	41,943	6,090	16,211	23,325	329	87,898



**APPENDIX A – MEMBERSHIP DATA**

**SCHOOL RETIREMENT SYSTEM  
SUMMARY OF MEMBERSHIP DATA**

<b>A. ACTIVE MEMBERS</b>	<b>July 1, 2017</b>	<b>July 1, 2016</b>	<b>% Change</b>
1. Number of Active Members			
(a) Tier 1	30,125	32,211	(6.5%)
(b) Tier 2	11,818	9,232	28.0%
(c) Total	<u>41,943</u>	<u>41,443</u>	1.2%
2. Annual Reported Salary			
(a) Tier 1	\$ 1,513,758,740	\$ 1,538,919,963	(1.6%)
(b) Tier 2	350,359,957	255,145,088	37.3%
(c) Total	<u>\$ 1,864,118,697</u>	<u>\$ 1,794,065,051</u>	3.9%
3. Accumulated Contributions	\$ 1,710,638,753	\$ 1,634,092,305	4.7%
4. Active Member Averages			
(a) Age	45.2	45.3	(0.2%)
(b) Service	11.3	11.3	0.0%
(c) Compensation	\$ 44,444	\$ 43,290	2.7%
<b>B. INACTIVE MEMBERS</b>			
1. Number of Inactive Members			
(a) System vested	6,090	6,011	1.3%
(b) System nonvested (refund only)	16,211	15,574	4.1%
(d) Total	<u>22,301</u>	<u>21,585</u>	3.3%
2. Accumulated Member Contributions (excluding Omaha)	\$ 204,521,872	\$ 197,803,267	3.4%
3. Inactive Member Averages (excluding Omaha)			
(a) Age (vesteds only)	51.8	52.0	(0.4%)
(b) Accumulated member contributions	\$ 9,171	\$ 9,164	0.1%
<b>C. RETIREES, DISABLEDS, AND BENEFICIARIES</b>			
1. Number of Members			
(a) Retired	21,974	21,258	3.4%
(b) Disabled	329	327	0.6%
(c) Beneficiaries	1,351	1,272	6.2%
(d) Total	<u>23,654</u>	<u>22,857</u>	3.5%
2. Annual Benefits			
(a) Retired	\$ 518,831,509	\$ 491,371,424	5.6%
(b) Disabled	4,628,917	4,470,019	3.6%
(c) Beneficiaries	25,609,963	23,568,595	8.7%
(d) Total	<u>\$ 549,070,389</u>	<u>\$ 519,410,038</u>	5.7%



**OMAHA SCHOOL EMPLOYEES**  
**SUMMARY OF MEMBERSHIP DATA**

<b>A. ACTIVE MEMBERS</b>	<b>January 1, 2017</b>	<b>September 1, 2015</b>	<b>% Change</b>
1. Number of Active Members	7,466	7,393	1.0%
2. Average Age	44.5	44.5	0.0%
3. Average Service	10.5	9.9	6.1%
<b>B. INACTIVE VESTED MEMBERS</b>			
1. Number of Inactive Members	1,035	984	5.2%
2. Average Age	45.8	46.0	(0.4%)
3. Average Service	9.1	8.9	2.2%

Note: Data was provided by the Omaha Schools Employee Retirement System (OSERS) for use in estimating the Service Annuity obligation. The data provided is from the most recent OSERS valuation.

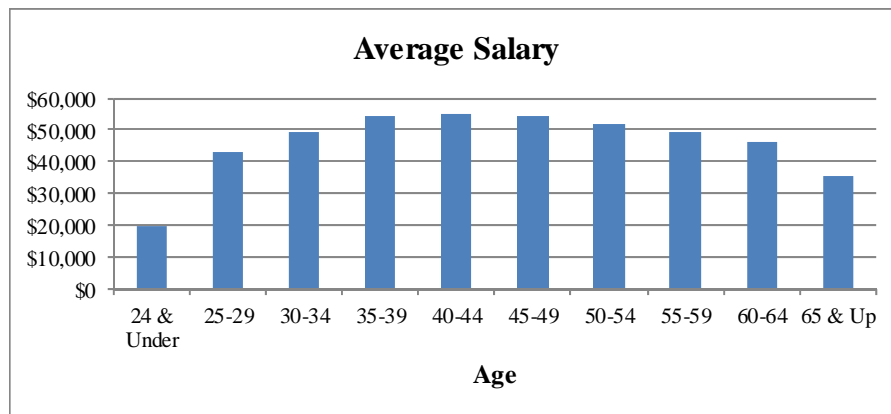
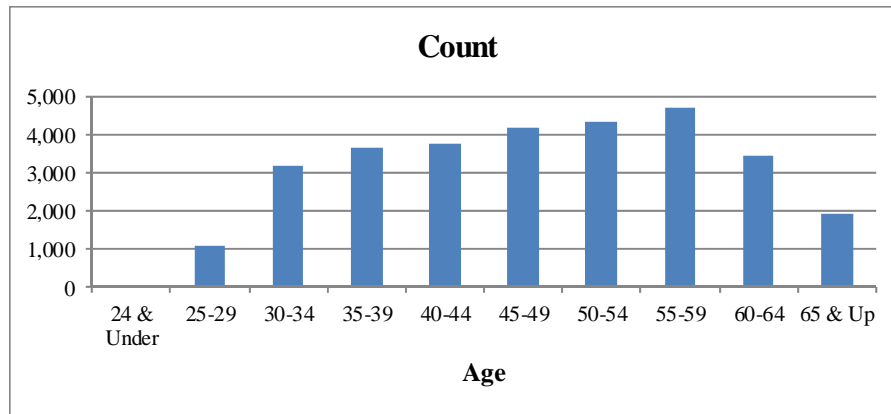


**APPENDIX A – MEMBERSHIP DATA**

**ACTIVE MEMBERS  
AS OF JULY 1, 2017**

**Tier 1 Members**

Age	Count			Reported FY 2017 Earnings		
	Male	Female	Total	Male	Female	Total
24 & Under	1	6	7	\$ 3,321	\$ 133,696	\$ 137,017
25-29	253	818	1,071	11,709,631	34,684,768	46,394,399
30-34	805	2,378	3,183	43,200,950	113,445,024	156,645,974
35-39	970	2,657	3,627	61,016,605	135,125,448	196,142,053
40-44	933	2,804	3,737	62,710,547	143,996,154	206,706,701
45-49	974	3,175	4,149	67,268,828	158,225,589	225,494,417
50-54	1,011	3,286	4,297	68,436,545	154,763,357	223,199,902
55-59	1,087	3,583	4,670	68,424,301	162,050,243	230,474,544
60-64	906	2,547	3,453	50,198,110	109,652,388	159,850,498
65 & Up	<u>645</u>	<u>1,286</u>	<u>1,931</u>	<u>24,143,949</u>	<u>44,569,286</u>	<u>68,713,235</u>
Total	7,585	22,540	30,125	\$ 457,112,787	\$ 1,056,645,953	\$ 1,513,758,740



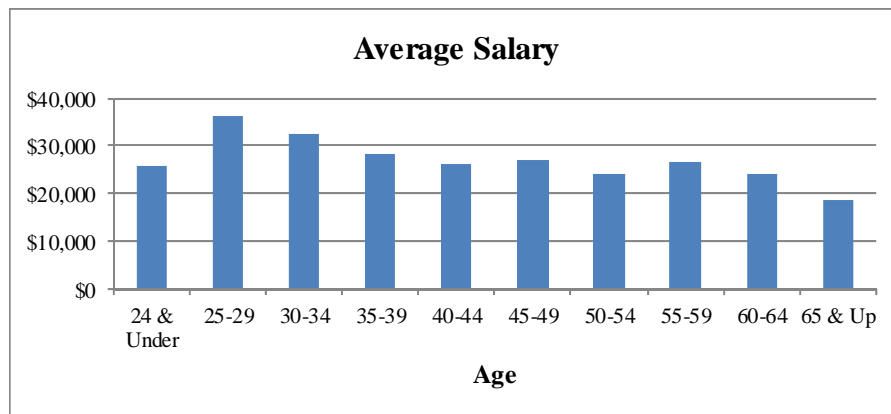
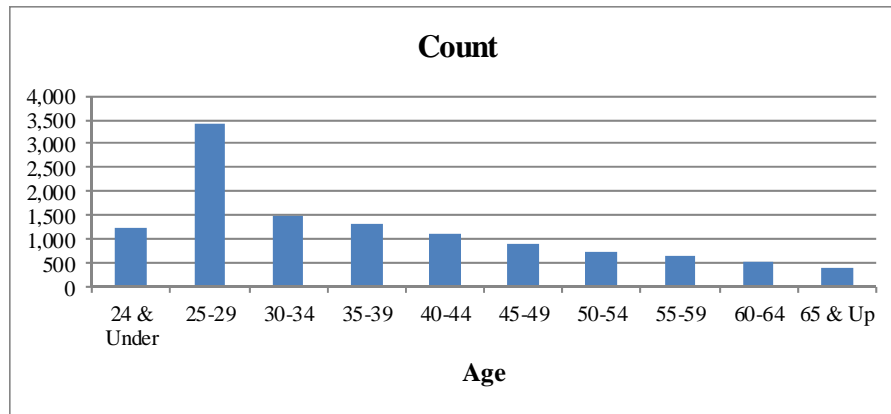


**APPENDIX A – MEMBERSHIP DATA**

**ACTIVE MEMBERS  
AS OF JULY 1, 2017**

**Tier 2 Members**

Age	Count			Reported FY 2017 Earnings		
	Male	Female	Total	Male	Female	Total
24 & Under	237	1,012	1,249	\$ 6,863,496	\$ 25,461,285	\$ 32,324,781
25-29	845	2,556	3,401	33,251,807	89,917,936	123,169,743
30-34	371	1,126	1,497	14,748,739	33,577,348	48,326,087
35-39	256	1,078	1,334	10,339,271	27,299,931	37,639,202
40-44	187	908	1,095	7,612,825	21,149,096	28,761,921
45-49	176	747	923	7,001,912	17,870,894	24,872,806
50-54	155	587	742	4,855,590	12,972,322	17,827,912
55-59	189	477	666	6,723,101	10,880,651	17,603,752
60-64	199	325	524	5,716,996	6,884,262	12,601,258
65 & Up	<u>168</u>	<u>219</u>	<u>387</u>	<u>3,741,519</u>	<u>3,490,976</u>	<u>7,232,495</u>
Total	2,783	9,035	11,818	\$ 100,855,256	\$ 249,504,701	\$ 350,359,957





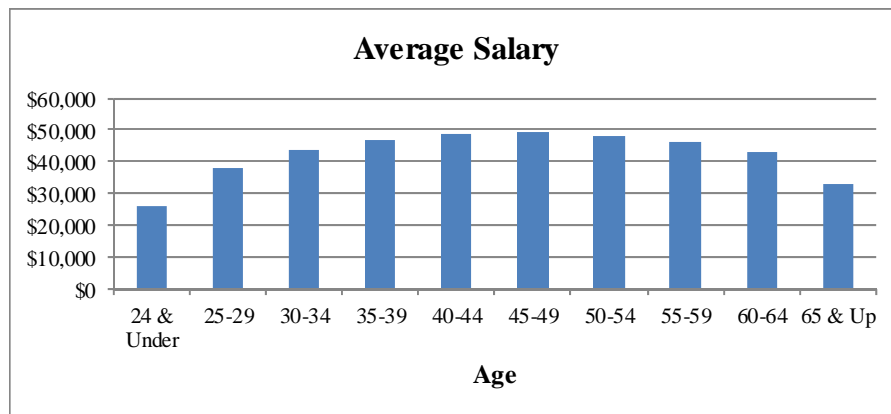
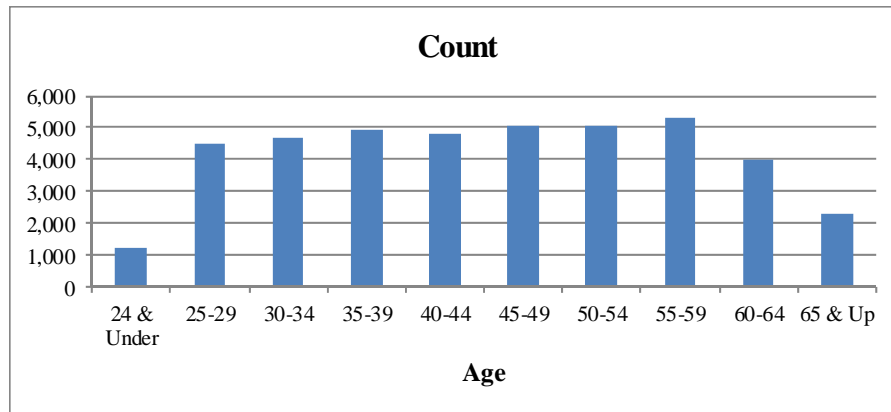


**APPENDIX A – MEMBERSHIP DATA**

**ACTIVE MEMBERS  
AS OF JULY 1, 2017**

**All Members**

Age	Count			Reported FY 2017 Earnings		
	Male	Female	Total	Male	Female	Total
24 & Under	238	1,018	1,256	\$ 6,866,817	\$ 25,594,981	\$ 32,461,798
25-29	1,098	3,374	4,472	44,961,438	124,602,704	169,564,142
30-34	1,176	3,504	4,680	57,949,689	147,022,372	204,972,061
35-39	1,226	3,735	4,961	71,355,876	162,425,379	233,781,255
40-44	1,120	3,712	4,832	70,323,372	165,145,250	235,468,622
45-49	1,150	3,922	5,072	74,270,740	176,096,483	250,367,223
50-54	1,166	3,873	5,039	73,292,135	167,735,679	241,027,814
55-59	1,276	4,060	5,336	75,147,402	172,930,894	248,078,296
60-64	1,105	2,872	3,977	55,915,106	116,536,650	172,451,756
65 & Up	<u>813</u>	<u>1,505</u>	<u>2,318</u>	<u>27,885,468</u>	<u>48,060,262</u>	<u>75,945,730</u>
Total	10,368	31,575	41,943	\$ 557,968,043	\$ 1,306,150,654	\$ 1,864,118,697





**APPENDIX A – MEMBERSHIP DATA**

**AGE AND SERVICE DISTRIBUTION  
AS OF JULY 1, 2017**

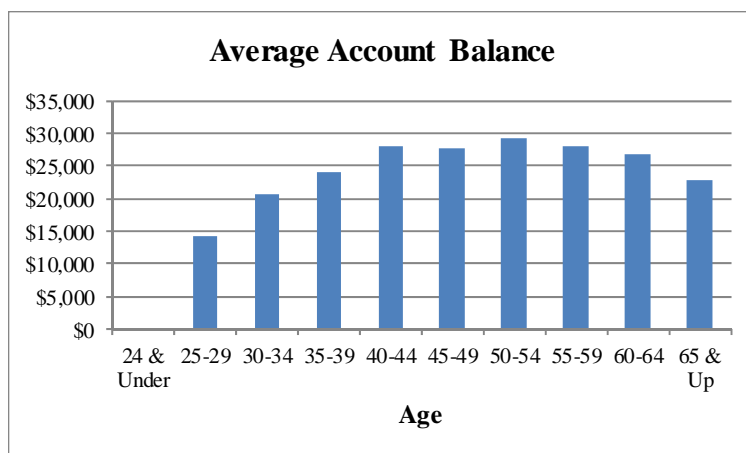
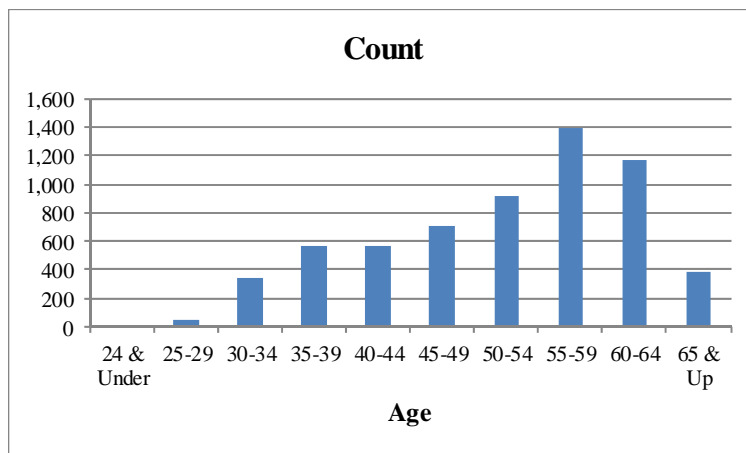
Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
<b>24 &amp; Under</b>	Number	1,255	1	0	0	0	0	0	0	1,256
	Total Salary	\$ 32,446,059	\$ 15,739	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 32,461,798
	Average Sal.	\$ 25,853	\$ 15,739	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 25,845
<b>25-29</b>	Number	3,642	827	3	0	0	0	0	0	4,472
	Total Salary	\$ 131,908,620	\$ 37,499,234	\$ 156,288	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 169,564,142
	Average Sal.	\$ 36,219	\$ 45,344	\$ 52,096	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 37,917
<b>30-34</b>	Number	1,761	2,312	607	0	0	0	0	0	4,680
	Total Salary	\$ 57,529,813	\$ 113,762,451	\$ 33,679,797	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 204,972,061
	Average Sal.	\$ 32,669	\$ 49,205	\$ 55,486	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 43,797
<b>35-39</b>	Number	1,580	1,183	1,827	370	1	0	0	0	4,961
	Total Salary	\$ 45,092,370	\$ 55,572,230	\$ 109,045,674	\$ 24,028,313	\$ 42,668	\$ 0	\$ 0	\$ 0	\$ 233,781,255
	Average Sal.	\$ 28,539	\$ 46,976	\$ 59,686	\$ 64,941	\$ 42,668	\$ 0	\$ 0	\$ 0	\$ 47,124
<b>40-44</b>	Number	1,323	918	827	1,486	278	0	0	0	4,832
	Total Salary	\$ 35,006,942	\$ 36,762,767	\$ 45,641,692	\$ 98,364,390	\$ 19,692,831	\$ 0	\$ 0	\$ 0	\$ 235,468,622
	Average Sal.	\$ 26,460	\$ 40,047	\$ 55,189	\$ 66,194	\$ 70,838	\$ 0	\$ 0	\$ 0	\$ 48,731
<b>45-49</b>	Number	1,157	935	765	815	1,147	252	1	0	5,072
	Total Salary	\$ 31,144,635	\$ 34,126,436	\$ 36,944,215	\$ 48,858,226	\$ 80,885,157	\$ 18,358,581	\$ 49,973	\$ 0	\$ 250,367,223
	Average Sal.	\$ 26,918	\$ 36,499	\$ 48,293	\$ 59,949	\$ 70,519	\$ 72,852	\$ 49,973	\$ 0	\$ 49,363
<b>50-54</b>	Number	962	793	799	685	606	929	265	0	5,039
	Total Salary	\$ 23,408,101	\$ 25,837,903	\$ 32,722,047	\$ 35,315,864	\$ 38,638,577	\$ 65,692,331	\$ 19,412,991	\$ 0	\$ 241,027,814
	Average Sal.	\$ 24,333	\$ 32,582	\$ 40,954	\$ 51,556	\$ 63,760	\$ 70,713	\$ 73,257	\$ 0	\$ 47,832
<b>55-59</b>	Number	852	669	820	875	612	596	696	216	5,336
	Total Salary	\$ 21,997,843	\$ 21,038,365	\$ 30,891,030	\$ 38,524,503	\$ 33,165,051	\$ 37,997,009	\$ 49,160,205	\$ 15,304,290	\$ 248,078,296
	Average Sal.	\$ 25,819	\$ 31,447	\$ 37,672	\$ 44,028	\$ 54,191	\$ 63,753	\$ 70,632	\$ 70,853	\$ 46,491
<b>60-64</b>	Number	706	532	461	609	499	410	283	477	3,977
	Total Salary	\$ 17,657,822	\$ 16,719,023	\$ 16,236,812	\$ 26,121,574	\$ 22,595,621	\$ 21,920,735	\$ 17,035,147	\$ 34,165,022	\$ 172,451,756
	Average Sal.	\$ 25,011	\$ 31,427	\$ 35,221	\$ 42,893	\$ 45,282	\$ 53,465	\$ 60,195	\$ 71,625	\$ 43,362
<b>65 &amp; Up</b>	Number	621	446	298	265	204	179	132	173	2,318
	Total Salary	\$ 11,100,458	\$ 10,732,779	\$ 9,353,161	\$ 9,193,470	\$ 8,813,083	\$ 8,293,389	\$ 7,085,813	\$ 11,373,577	\$ 75,945,730
	Average Sal.	\$ 17,875	\$ 24,065	\$ 31,386	\$ 34,692	\$ 43,201	\$ 46,332	\$ 53,680	\$ 65,743	\$ 32,763
<b>Total</b>	Number	13,859	8,616	6,407	5,105	3,347	2,366	1,377	866	41,943
	Total Salary	\$ 407,292,663	\$ 352,066,927	\$ 314,670,716	\$ 280,406,340	\$ 203,832,988	\$ 152,262,045	\$ 92,744,129	\$ 60,842,889	\$ 1,864,118,697
	Average Sal.	\$ 29,388	\$ 40,862	\$ 49,114	\$ 54,928	\$ 60,900	\$ 64,354	\$ 67,352	\$ 70,257	\$ 44,444



**APPENDIX A – MEMBERSHIP DATA**

**INACTIVE VESTED MEMBERS  
AS OF JULY 1, 2017**

Age	Count			Account Balances		
	Male	Female	Total	Male	Female	Total
24 & Under	0	0	0	\$ 0	\$ 0	\$ 0
25-29	12	34	46	156,824	496,147	652,971
30-34	62	281	343	1,357,462	5,764,010	7,121,472
35-39	104	461	565	3,031,327	10,528,262	13,559,589
40-44	119	449	568	4,446,368	11,492,975	15,939,343
45-49	138	563	701	5,193,846	14,234,326	19,428,172
50-54	169	754	923	7,889,406	18,953,513	26,842,919
55-59	212	1,182	1,394	8,624,128	30,293,899	38,918,027
60-64	159	1,006	1,165	6,974,725	24,137,919	31,112,644
65 & Up	<u>57</u>	<u>328</u>	<u>385</u>	<u>2,095,900</u>	<u>6,692,668</u>	<u>8,788,568</u>
Total	1,032	5,058	6,090	\$ 39,769,986	\$ 122,593,719	\$ 162,363,705

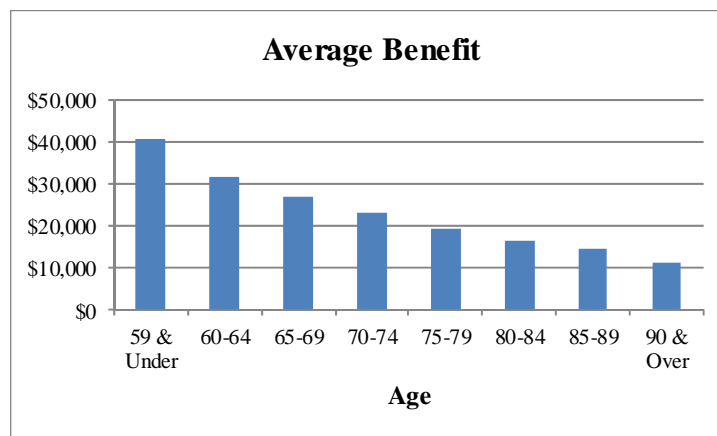
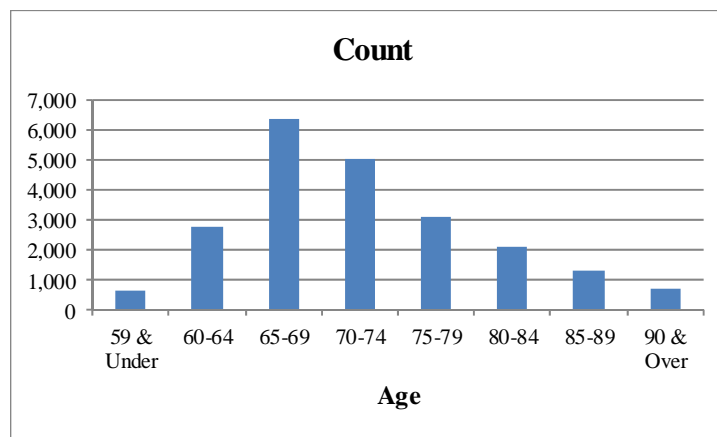




**APPENDIX A – MEMBERSHIP DATA**

**RETIRED MEMBERS  
AS OF JULY 1, 2017**

<u>Age</u>	<u>Count</u>			<u>Annual Benefits</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
59 & Under	200	446	646	\$ 8,755,824	\$ 17,324,458	\$ 26,080,282
60-64	701	2,097	2,798	26,499,778	61,370,021	87,869,799
65-69	1,714	4,627	6,341	56,864,844	112,663,033	169,527,877
70-74	1,718	3,293	5,011	49,483,794	65,019,637	114,503,431
75-79	1,049	2,074	3,123	27,492,781	32,277,797	59,770,578
80-84	626	1,461	2,087	14,290,300	20,381,752	34,672,052
85-89	346	940	1,286	6,721,484	12,036,636	18,758,120
90 & Over	<u>148</u>	<u>534</u>	<u>682</u>	<u>2,503,233</u>	<u>5,146,137</u>	<u>7,649,370</u>
Total	6,502	15,472	21,974	\$ 192,612,038	\$ 326,219,471	\$ 518,831,509

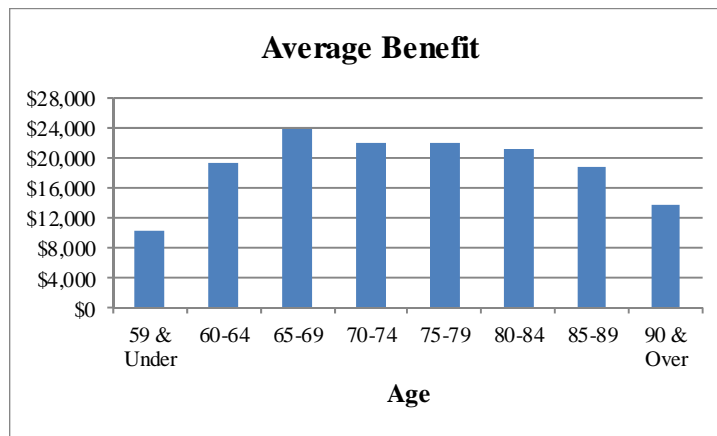
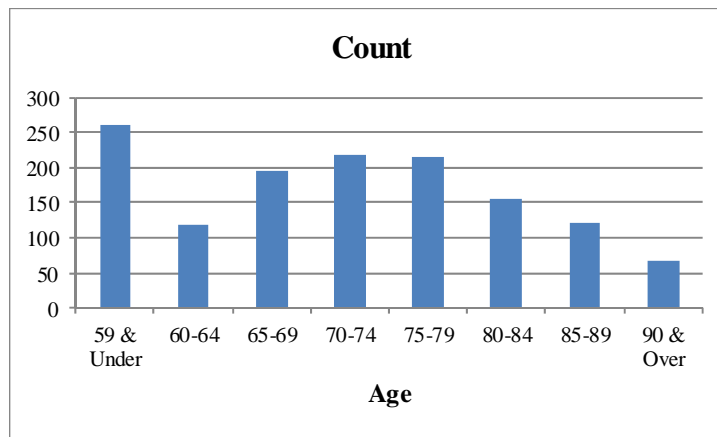




**APPENDIX A – MEMBERSHIP DATA**

**BENEFICIARIES RECEIVING BENEFITS  
AS OF JULY 1, 2017**

<u>Age</u>	<u>Count</u>			<u>Annual Benefits</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
59 & Under	120	140	260	\$ 1,083,917	\$ 1,608,555	\$ 2,692,472
60-64	49	69	118	823,285	1,464,990	2,288,275
65-69	77	119	196	1,565,458	3,121,351	4,686,809
70-74	88	129	217	1,683,105	3,069,414	4,752,519
75-79	62	152	214	925,094	3,740,446	4,665,540
80-84	33	123	156	559,111	2,743,046	3,302,157
85-89	28	94	122	468,994	1,818,157	2,287,151
90 & Over	<u>15</u>	<u>53</u>	<u>68</u>	<u>180,426</u>	<u>754,614</u>	<u>935,040</u>
Total	472	879	1,351	\$ 7,289,390	\$ 18,320,573	\$ 25,609,963

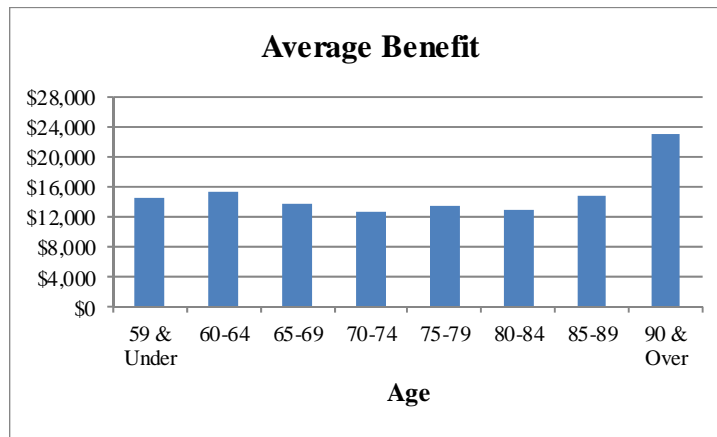
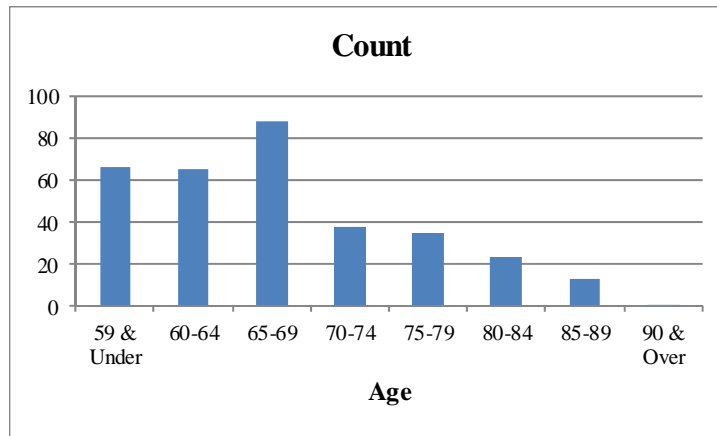




**APPENDIX A – MEMBERSHIP DATA**

**DISABLED MEMBERS  
AS OF JULY 1, 2017**

<u>Age</u>	<u>Count</u>			<u>Annual Benefits</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
59 & Under	20	46	66	\$ 275,920	\$ 682,317	\$ 958,237
60-64	19	46	65	290,889	703,382	994,271
65-69	26	62	88	346,279	866,244	1,212,523
70-74	11	27	38	158,910	326,569	485,479
75-79	15	20	35	199,012	267,621	466,633
80-84	7	16	23	109,027	186,939	295,966
85-89	7	6	13	97,235	95,655	192,890
90 & Over	<u>1</u>	<u>0</u>	<u>1</u>	<u>22,918</u>	<u>0</u>	<u>22,918</u>
Total	106	223	329	\$ 1,500,190	\$ 3,128,727	\$ 4,628,917





## APPENDIX B – SUMMARY OF PLAN PROVISIONS

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<b>Member</b>	Any person employed by a public school 20 or more hours per week shall be a member of the system. Employees at the date of establishment could have elected not to participate, and those covered under another system do not participate. The Tier Two benefit structure covers members joining the System on or after July 1, 2013.
<b>Participation Date</b>	Date of becoming a member.
<b>Definitions</b>	
Final average earnings	The average of the three highest twelve month periods of service during the period ending on the earlier of the participant's termination date or retirement date. For employees who become a member on or after July 1, 1996, earnings will be capped at the maximum earning defined in Code 401(a) (17). For Tier Two members, it is the average of the five highest twelve month periods of service.
Fiscal year	Twelve month period ending June 30.
Contributions	Members contribute 9.78% of pay. Such contributions are credited with interest based on the 1-year Treasury yield curve on July 1 of each year, as determined by State Statutes. The School Districts contribute at a rate equal to 101% of the members' rate. The State contributes 2% of pay, effective July 1, 2014 (previously 1%).
Monthly pension benefit	The greater of (1) or (2).  (1) Amount: A monthly benefit equal to the sum of:  (a) A savings annuity which is the actuarial equivalent of the member's accumulated contributions, and  (b) A service annuity equal to \$3.50 per year of service.  (2) Amount: Members employed by a class I, II, III, IV, VI School District may receive a formula annuity. The formula annuity is a monthly amount equal to the product of 2.00% of final average earnings times total years of service for those members who are employed on or after July 1, 2001.  To receive this benefit, retirement must occur after meeting the Rule of 85 requirements (minimum age 55) or attaining age 65.



## APPENDIX B – SUMMARY OF PLAN PROVISIONS

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An automatic annual cost-of-living adjustment (COLA) equal to the change in the CPI-W index, with a maximum increase of 2.5% in any one year is provided for current and future retirees. Also provided is a minimum floor benefit equal to 75% of the purchasing power of the original benefit. For Tier Two members, whom are hired on or after July 1, 2013, an automatic cost-of-living adjustment (COLA) equal to the change in the CPI-W index, not to exceed 1.0% in any one year. No purchasing power COLA applies.

Normal Retirement Date (NRD) First of month coinciding with or next following the attainment of age 65 and one-half year of service.

Service Length of service includes all service as a school employee for which contributions have been made. This service only includes years for which the member was employed on at least a half-time basis, and includes declared emergency service in the armed forces, provided certain conditions are met. Special provisions allow credit for service prior to 1945 and for up to ten years of service in another State upon payment of the actuarial cost of the additional benefit granted.

Pensionable pay Gross earnings subject to contributions.

### Eligibility for Benefits

Deferred vested Termination for reasons other than death or disability retirement after completing five years of service.

Disability retirement Retirement by reason of disability.

Early retirement Retirement before NRD and on or after both attaining age 60 and completing five years of service, or attaining 35 years of service regardless of age, or attaining age 55 and age plus service equals at least 85 (Rule of 85).

Normal retirement Retire on NRD.

Postponed retirement Retire after NRD.

Pre-retirement spouse benefit Death prior to retirement.

### Monthly Benefits Payable

Normal retirement Monthly pension benefit determined as of NRD.





## APPENDIX B – SUMMARY OF PLAN PROVISIONS

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Early retirement	Monthly pension benefit determined as of early retirement date, reduced by 3% for each year that commencement of payment precedes age 65 (members must be age 60 with five years of service). Unreduced benefits are available to members who have attained age 55 and whose age plus service is greater than or equal to 85. Benefits payable upon retirement prior to age 60 (based on the 35 year service rule) are actuarially reduced from age 65. The service annuity is a life annuity actuarially reduced before age 65 using 8% interest and the 1994 Group annuity Mortality Table, 25% male, 75% female.
Postponed retirement	Monthly pension benefit determined as of actual retirement date.
Termination with deferred vested benefit	Monthly pension benefit determined as of termination date, reduced by 3% for each year that commencement of payment precedes age 65 (Early Commencement requires attainment of age 60).
Disability retirement	Monthly pension benefit determined as of disability retirement date.
Death with pre-retirement benefits	<p>Survivor portion of 100% Joint and Survivor Annuity paid to spouse assuming retirement by member at death if the member is age 65 or has 20 years of service at death. If the member has met the 5-year vesting service requirement, has less than 20 years of service and is under age 65, the spouse may choose between the following two options:</p> <ol style="list-style-type: none"><li>(1) a lump sum equal to the member's contributions with interest plus 101% of the member's contributions with interest, and</li><li>(2) an annuity which equals the survivor portion of the 100% Joint and Survivor value of the member's accrued benefit, payable immediately, reduced for commencement before age 65 and the 100% joint and survivor form of payment.</li></ol>
Forms of payment	<p>Pre-retirement death benefits are payable only as described above.</p> <p>Monthly pension benefits are paid under the form of payment elected by the retiree at retirement. Payment forms include: life annuity, 5-year certain and life annuity, 100% joint and survivor annuity (spouse only), 10-year certain and life annuity, 15-year certain and life annuity, or a modified cash refund annuity. The normal form of payment for the formula annuity is a 5-year certain and life annuity.</p>



## APPENDIX B – SUMMARY OF PLAN PROVISIONS

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### Funding Arrangement

Legislation enacted in 2002 created the School Retirement Fund. Balances existing on June 30, 2002 in the School Employers Deposit Account, the School Employees Savings Account, the Service Annuity Account, the Annuity Reserve Account, and the School Employees Retirement System Reserve Fund (RSRF) shall be combined and transferred into the School Retirement Fund.

There are four funds established in the State Treasury, which receive monies and pay the expenses and benefits of the retirement system, as follows:

1. School Retirement Fund – receives required deposits of the employers, the State, and employees. Upon retirement, the fund pays all savings annuities, service annuities, and formula annuities.
2. Contingent Account – receives all interest, dividends, and miscellaneous income, pays all regular interest allocated to the other accounts or funds, and meets any deficiencies occurring in the other accounts or funds.
3. Expense Fund – pays all expenses connected with the operation and administration of the system, and receives annual contributions to cover anticipated expenses.
4. Omaha Service Annuity Fund – pays service annuity benefits to Omaha members.

### Benefits Reflected in Valuation

All benefits were valued, including future cost-of-living increases granted by statute.

### Plan Provisions Effective after July 1, 2017

No future changes in plan provisions were recognized in determining the funded status or in determining the sufficiency of statutory contribution levels.

### Changes in Plan Provisions Since the Prior Year

The 2017 Legislature passed LB 415, which affects the benefit provisions only for members hired on or after July 1, 2017 (with additional changes for those hired on or after July 1, 2018). For members hired on or after July 1, 2017, the Public Employees Retirement Board (PERB) has the authority to set the actuarial assumptions used to determine the benefit amounts payable under optional forms of payment. In addition, LB 415 changed the minimum age required to qualify for retirement under the Rule of 85 from 55 to 60 for members who are hired on or after July 1, 2018. Since these changes do not affect current members, they have no impact on the current valuation.



## APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS

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### A. ACTUARIAL METHODS

1. **Calculation of Normal Cost and Actuarial Accrued Liability:** The method used to determine the normal cost and actuarial accrued liability was the Entry Age Actuarial Cost Method described below.

#### **Entry Age Actuarial Cost Method**

Projected pension and preretirement spouse's death benefits were determined for all active members under age 80. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members under age 80 and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial assumptions shown on the following page were used in determining the projected benefits and cost factors. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, active members age 80 and over, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date. The initial unfunded actuarial accrued liability established July 1, 2004, is amortized with a level dollar payment amount over 25 years. At subsequent valuation dates, amortization bases equal to changes in the unfunded actuarial accrued liability are established and amortized with a level dollar payment over a 25-year period. Beginning July 1, 2006, the unfunded actuarial accrued liability was reinitialized as of July 1, 2006 and amortized over a 30-year period. At subsequent valuation dates, amortization bases equal to changes in the unfunded actuarial accrued liability are established and amortized over a level dollar payment over a 30-year period. If the unfunded actuarial accrued liability is \$0 or less on the valuation date, all previous amortization bases are considered fully amortized. Effective with the July 1, 2013 valuation, amortization payments were recalculated to amortize the remaining bases as a level percentage of expected payroll.

Under this Entry Age method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.



## APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS

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2. **Calculation of the Actuarial Value of Assets:** 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 on 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.

### **Changes in Methods and Procedures since the Prior Year**

There have been no changes to the methods and procedures since last year.

## **B. VALUATION PROCEDURES**

### **Data Procedures**

Salaries for first year members are annualized by using the client's Calculated Salary field. For continuing active members, the Accumulated Salary field is used.

Active members who are missing a date of birth on their record are assumed to have been hired at age 35.

Members who are missing a gender are assumed to be female.

### **Other Valuation Procedures**

The compensation amounts used in the projection of benefits and liabilities for active members were prior plan year compensations. Salary increases are assumed to apply to annual amounts.

Projected benefits were limited by the dollar limitation required by the Internal Revenue Code Section 415 as it applies to governmental plans and compensation limited by Section 401(a)(17).

Decrements are assumed to occur mid-year, except that immediate retirement is assumed for those who are at or above the age at which retirement rates are 100%. Standard adjustments are made for multiple decrements.

No actuarial accrued liability is included for participants who terminated without being vested prior to the valuation date, except those due a refund of contributions.

Future monthly benefit amounts are not calculated or available for deferred vested members. The benefit liability for deferred vested members was calculated by loading the accumulated member contribution balances for deferred vested members by 100% to estimate the value of deferred benefit payments.



**APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS**

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**ACTUARIAL ASSUMPTIONS**

**Economic Assumptions**

- 1. Investment Return 7.50% per annum, compounded annually, net of expenses.
- 2. Inflation 2.75% per annum, compounded annually
- 3. Salary Increases Rates vary by service. Sample rates are as follows:

<b>Rates by Service</b>	
<b>Years</b>	<b>Rate</b>
<1	8.50%
1	8.00
5	6.46
10	5.18
15	4.71
20	4.45
25	4.24
30	4.07
35	3.82
40+	3.50

- 4. Payroll Growth 3.50% per annum
- 5. Investment on Employee Contributions 3.00% per annum compounded annually.
- 6. Increase in Compensation And Benefit Limits 2.75% per annum on the 401(a)(17) compensation limit and 415 benefit limit

**Demographic Assumptions**

- 1. Mortality
  - a. Healthy lives - Active members RP-2014 White Collar Table for Employees (100% of male rates for males, 55% of female rates for females), projected generationally with MP-2015.
  - b. Healthy lives – Retired members and beneficiaries RP-2014 White Collar Table for Employees, set back two years, scaled (males: under 80, 1.008; over 80, 1.449; females: under 85, .924; over 85, 1.5855; geometrically blended), projected generationally from 2013 with a SOA projection scale tool using 0.5% ultimate 2035 rate in 2035.
  - c. Disabled lives RP-2014 Disabled Lives Table (static table)



**APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS**

d. Healthy mortality rates and life expectancies are shown below at sample ages:

<b>Pre-retirement Mortality</b>		
<b>Mortality Rate (Base Rates)</b>		
<b>Sample Age</b>	<b>Males</b>	<b>Females</b>
20	0.03%	0.01%
30	0.03	0.01
40	0.04	0.02
50	0.12	0.05
60	0.33	0.11

<b>Post-retirement Mortality</b>		
<b>Mortality Rate (Base Rates)</b>		
<b>Sample Age</b>	<b>Males</b>	<b>Females</b>
50	0.23%	0.17%
60	0.47	0.31
70	1.03	0.82
80	3.65	2.28
90	14.57	12.63

<b>Projection Scale – Post-retirement Mortality</b>						
<b>Sample Age</b>	<b>Scale (2020)</b>		<b>Scale (2030)</b>		<b>Scale (2040)</b>	
	<b>Males</b>	<b>Females</b>	<b>Males</b>	<b>Females</b>	<b>Males</b>	<b>Females</b>
50	0.0252	0.0144	0.0080	0.0052	0.0050	0.0050
60	0.0083	0.0051	0.0066	0.0059	0.0050	0.0050
70	0.0088	0.0121	0.0061	0.0057	0.0050	0.0050
80	0.0114	0.0104	0.0057	0.0058	0.0050	0.0050
90	0.0109	0.0104	0.0057	0.0057	0.0046	0.0046

e. Disabled mortality rates and life expectancies are shown below at sample ages:

<b>Sample Age</b>	<b>Males</b>	<b>Females</b>
30	0.79%	0.30%
40	1.10	0.55
50	2.04	1.19
60	2.66	1.70
70	4.03	2.82
80	7.66	6.10



**APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS**

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2. Retirement

Rates vary by age and eligibility for benefits.  
Rates are as follows:

<b>Retirement Rates When Eligible for Unreduced Benefits</b>	
<b>Age</b>	<b>Rate</b>
55	18%
56	15
57	15
58	15
59	15
60	25
61	25
62	30
63	25
64	25
65	30
66	30
67	30
68	25
69	25
70	25
71	25
72	25
73	25
74	25
75	25
76	25
77	25
78	35
79	35
80	100

<b>Retirement Rates When Eligible for Reduced Benefits</b>	
<b>Age</b>	<b>Rate</b>
60	10%
61	12
62	12
63	12
64	15



**APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS**

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- 3. Termination Rates vary by service.  
Sample rates are as follows:

Years	Rates by Service	
	Male	Female
<1	27.5%	31.7%
1	15.0	19.0
5	6.0	8.0
10	3.5	4.7
15	2.3	3.1
20	1.0	2.0
25+	1.0	1.0

- 4. Disability Rates vary by age.  
Sample rates are as follows:

Age	Male	Female
Under 35	.00%	.00%
35	.02	.01
40	.02	.01
45	.03	.03
50	.05	.04
55	.07	.06
60	.10	.08

**Other Assumptions**

- 1. Form of Payment Service annuity – Life annuity  
Formula annuity – Five year certain and life annuity.  
  
Members who terminated vested are assumed to take a refund of contributions if it is more valuable than their deferred benefit.
- 2. Marital Status 85% married  
Females assumed to be two years younger than males.
  - a. Percent married
  - b. Spouse’s age
- 3. Administrative Expense Investment return is assumed to be net of expenses.
- 4. Commencement age for deferred vested benefit Age 62







## APPENDIX D – GLOSSARY OF TERMS

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<b>Actuarial Accrued Liability</b>	The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. Also referred to as “accrued liability” or “actuarial liability”.
<b>Actuarial Assumptions</b>	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.
<b>Accrued Service</b>	Service credited under the system which was rendered before the date of the actuarial valuation.
<b>Actuarial Equivalent</b>	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.
<b>Actuarial Cost Method</b>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefit between future normal cost and actuarial accrued liability. Sometimes referred to as the “actuarial funding method”.
<b>Experience Gain (Loss)</b>	The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.
<b>Actuarial Present Value</b>	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.
<b>Amortization</b>	Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.
<b>Normal Cost</b>	The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.
<b>Unfunded Actuarial Accrued Liability</b>	<p>The difference between actuarial accrued liability and the valuation assets. Sometimes referred to as “unfunded actuarial liability” or “unfunded accrued liability”.</p> <p>Most retirement systems have unfunded actuarial accrued liability. They arise each time new benefits are added and each time an actuarial loss is realized.</p>