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**The Public School Retirement System
of
The School District of Kansas City, Missouri**

Actuarial Valuation Report
as of January 1, 2014





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May 21, 2014

The Board of Trustees
Public School Retirement System of the School District of Kansas City, Missouri
4600 The Paseo
Kansas City, MO 64110

Dear Members of the Board:

In accordance with your request, we have completed an actuarial valuation of the Public School Retirement System of the School District of Kansas City, Missouri as of January 1, 2014. The major findings of the valuation are contained in this report, including the actuarial contribution rate for fiscal year 2014. The plan provisions and actuarial methods are the same as the prior valuation. The assumptions are unchanged with the exception of the mortality table which is tied to a table published by the Internal Revenue Service. The table is updated annually to reflect an additional year of mortality improvements. The 2014 tables are reflected in this valuation.

This is the first actuarial valuation report prepared by Cavanaugh Macdonald Consulting, LLC (CMC). As part of our transition work, we replicated the January 1, 2013 actuarial valuation. Results were within acceptable limits, but as is typical in a takeover situation, there were some differences in the key valuation results. Based on our experience, these differences are neither unusual nor significant. The details of the replication results were reported to the Board in our letter dated April 3, 2014.

In preparing this 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, plan provisions, member data, and financial information. We found this information to be reasonably consistent and comparable with information for the last valuation. The valuation results depend on the integrity of the data provided. If any of this information is inaccurate or incomplete, our valuation results may be different and 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: plan 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); 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.

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Actuarial computations presented in this report are for purposes of determining the actuarial contribution rates for funding the System. Actuarial computations presented in this report under GASB Statements No. 25, 27, and 50 are for purposes of fulfilling financial accounting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and of GASB Statements No. 25, 27, and 50. 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.

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 and have experience in performing valuations for public retirement plans, that the valuation was prepared in accordance with standards of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System. The Board of Trustees has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C.

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



SECTION I: EXECUTIVE SUMMARY

This report presents the results of the January 1, 2014 actuarial valuation of the Public School Retirement System of the School District of Kansas City, Missouri (System). The primary purposes of performing a valuation are to:

- estimate the liabilities for the benefits provided by the System;
- determine the actuarial contribution rate required to fund the System;
- disclose certain asset and liability measurements as of the valuation date;
- monitor any deviation between actual plan experience and experience projected by the actuarial assumptions, so that recommendations for assumption changes can be made when appropriate; and
- analyze and report on any significant trends in assets, liabilities, and contributions over the past several years.

This is the first actuarial valuation report prepared by Cavanaugh Macdonald Consulting, LLC (CMC). As part of our transition work, we replicated the January 1, 2013 actuarial valuation. Results were within acceptable limits, but as is typical in a takeover situation, there were some differences in the key valuation results. Both the present value of future benefits and the actuarial accrued liability were within 0.2% of the 2013 valuation numbers and the normal cost rate was within 3.3%. Based on our experience, these differences are neither unusual nor significant. The details of the replication results were reported to the Board in our letter dated April 3, 2014.

There have been no changes in the benefit provisions or actuarial methods from the last valuation. The mortality tables used in the valuation are tied to tables published by the Internal Revenue Service for use by corporate pension plans. The tables are updated annually to reflect an additional year of mortality improvements. The updated mortality tables for 2014 valuations are reflected in the liabilities in this report.

The actuarial valuation results provide a “snapshot” view of the System’s financial condition on January 1, 2014. The valuation results reflect net favorable experience for the past plan year as demonstrated by an unfunded actuarial accrued liability that was lower than expected based on the actuarial assumptions used in the January 1, 2013 actuarial valuation. Favorable experience on the actuarial value of assets resulted in an actuarial gain of \$13.1 million and experience on liabilities resulted in a gain of \$3.1 million for an overall actuarial gain of \$16.2 million. As a result, the System’s unfunded actuarial accrued liability decreased from \$171.6 million in the January 1, 2013 valuation to \$164.6 million in the January 1, 2014 valuation. A detailed analysis of the change in the unfunded actuarial accrued liability is shown on page 4.

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 market value. The rate of return on the market value of assets was 11.3%, but due to the asset smoothing process the return on the actuarial value of assets was 10.0%. Because the investment return on the actuarial value of assets was greater than the actuarial assumed rate of return (8.00%), an actuarial gain on assets occurred. Due to the strong return on the market value of assets and the fact the large loss from 2008 has been fully recognized, the System is experiencing asset gains. In addition, there is now a \$16 million deferred (unrecognized) investment gain. Actual returns over the next few years will determine if and when the \$16 million of deferred investment gain is recognized.



SECTION I: EXECUTIVE SUMMARY

In the following pages, changes in the assets, liabilities, and contributions of the System over the last year are discussed in more detail.

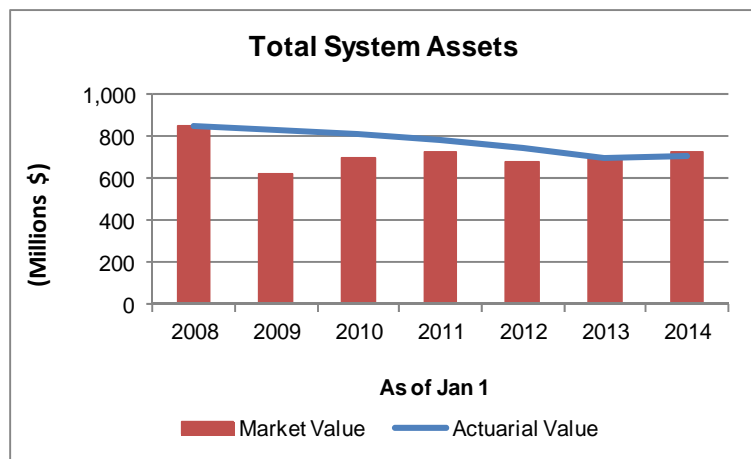
ASSETS

As of January 1, 2014, the System had total assets of \$726.6 million when measured on a market value basis. This was an increase of \$23.6 million from the January 1, 2013 figure of \$703.0 million. The market value of assets is not used directly in the calculation of the System's funded status and the actuarial 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, called the "actuarial value of assets". Gains and losses, determined as the difference between the actual and expected value of assets (calculated using the actuarial assumed rate of 8.00%), are recognized equally over a five year period. See Table 3 for a detailed development of the actuarial value of assets. The rate of return on the actuarial value of assets was 10.0%, above the assumed rate of return of 8%. As a result, the market value of assets now exceeds the actuarial value of assets and a deferred investment gain exists.

The components of the change in the market and actuarial value of assets for the System (in millions) are set forth below:

| | Market Value (\$M) | Actuarial Value (\$M) |
|--------------------------------------------------------|--------------------|-----------------------|
| Assets, January 1, 2013 | \$703.0 | \$697.0 |
| - Employers and Member Contributions | 24.4 | 24.4 |
| - Benefit Payments and Refunds | (77.4) | (77.4) |
| - Investment, Depreciation and Administrative Expenses | (6.5) | (6.5) |
| - Investment Income | 83.1 | 73.3 |
| Assets, January 1, 2014 | \$726.6 | \$710.8 |

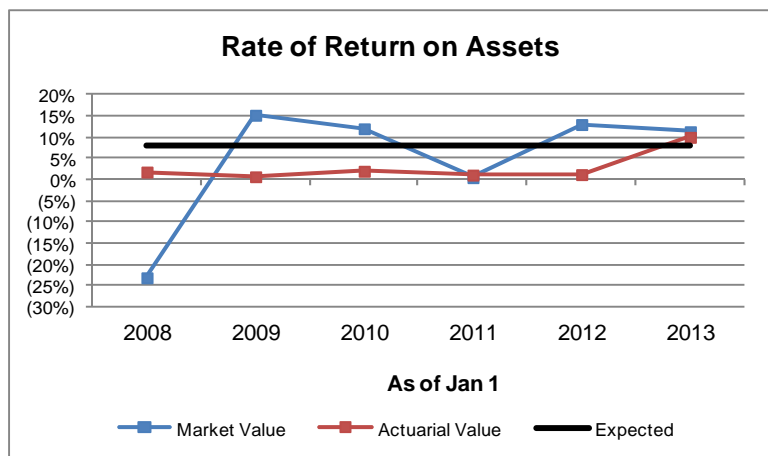
The unrecognized investment gain represents about 2% of the market value of assets. Unless offset by future investment losses or other unfavorable experience, the recognition of the \$16 million gain is expected to have a positive impact on the future funded ratio and actuarial contribution rate. If the deferred gain was recognized immediately in the actuarial value of assets, the funded percentage would increase from 81% to 83% and the actuarial contribution rate for the System would decrease from 11.7% to 10.8% of payroll.



The actuarial value of assets has both been greater than and less than the market value of assets during this period, which is expected when using a smoothing method.



SECTION I: EXECUTIVE SUMMARY



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

LIABILITIES

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

The Actuarial Accrued Liability and Unfunded Actuarial Accrued Liability for the System as of January 1, 2014 are:

| | |
|--------------------------------------|--------------------|
| Actuarial Accrued Liability | \$875,451,114 |
| Actuarial Value of Assets | <u>710,828,744</u> |
| Unfunded Actuarial Accrued Liability | \$164,622,370 |



SECTION I: EXECUTIVE SUMMARY

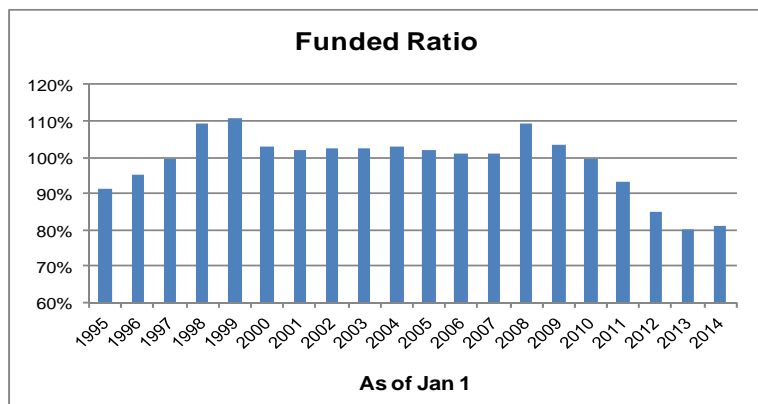
Between January 1, 2013 and January 1, 2014, the change in the unfunded actuarial accrued liability for the System was as follows (in millions):

| | (\$ Millions) |
|--------------------------------------------------------------|---------------|
| Unfunded Actuarial Accrued Liability, January 1, 2013 | \$ 171.6 |
| - Expected decrease from amortization method | (1.5) |
| - Actual versus actuarial contributions | 8.7 |
| - Investment experience | (13.1) |
| - Liability experience | (3.1) |
| - Other experience | 0.3 |
| - Changes identified in replication process | 1.7 |
| Unfunded Actuarial Accrued Liability, January 1, 2014 | \$ 164.6 |

The experience gain for the 2013 plan year of \$16.2 million reflects the combined impact of an actuarial gain of \$13.1 million on System assets (actuarial value), and an actuarial gain of \$3.1 million on System liabilities.

Analysis of the unfunded actuarial accrued liability strictly as a dollar amount can be misleading. Another way to evaluate the unfunded actuarial accrued liability and the progress made in its funding is to track the funded status, the ratio of the actuarial value of assets to the actuarial accrued liability. This information for recent years is shown below (in millions). Longer term historical information is shown in the graph following the chart:

| | 1/1/2010 | 1/1/2011 | 1/1/2012 | 1/1/2013 | 1/1/2014 |
|-----------------------------------|----------|----------|----------|----------|----------|
| Actuarial Accrued Liability (\$M) | \$819.5 | \$844.2 | \$874.3 | \$868.7 | \$875.5 |
| Actuarial Value of Assets (\$M) | \$814.5 | \$786.3 | \$742.3 | \$697.0 | \$710.8 |
| Funded Ratio (Actuarial Value) | 99.4% | 93.1% | 84.9% | 80.2% | 81.2% |
| Market Value of Assets (\$M) | \$693.9 | \$730.3 | \$681.9 | \$703.0 | \$726.6 |
| Funded Ratio (Market Value) | 84.7% | 86.5% | 78.0% | 80.9% | 83.0% |



The System's funded ratio has been very strong (near or above 100%) until the last few years when the final recognition of the market downturn of 2008 was reflected. Future investment experience will be the largest driver of the System's funded ratio in future years. However, contributions at the full actuarial contribution rate will also be important to the System's long term funding.



SECTION I: EXECUTIVE SUMMARY

As mentioned earlier in this report, due to the asset smoothing method there is currently about a \$16 million difference between the actuarial value and the market value of assets. To the extent there is not unfavorable investment experience to offset the deferred gain, the \$16 million deferred gain will be recognized in future years and the System's funded status will improve. The System's funded status will continue to be heavily dependent on future investment experience.

CONTRIBUTION RATES

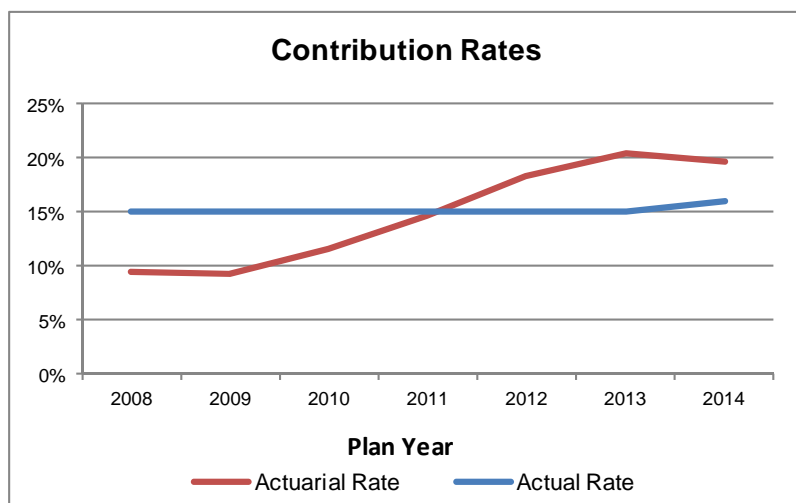
Generally, contributions to the System consist of:

- A "normal cost" for the portion of projected liabilities allocated to service of members during the year following the valuation date by the actuarial cost method, and
- An "unfunded actuarial accrued liability or (surplus) contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

Contribution rates are computed with the objective of developing costs that are level as a percentage of covered payroll.

As of January 1, 2014, the actuarial accrued liability exceeds the actuarial value of assets so an unfunded actuarial accrued liability (UAAL) exists. When amortized over a rolling 30-year period, as a level dollar amount, the resulting contribution is 9.31% of pay. The System's actuarial contribution rate is the sum of the normal cost and the UAAL amortization contribution. This valuation indicates the System's actuarial contribution rate is 19.68% of pay (10.37% normal cost plus 9.31% UAL contribution) compared to the actual contribution rate of 16.0% of pay (8% each for employee and employer). Given the amount of the contribution shortfall, we recommend the employer and employee contribution rates be increased to 8.50% effective January 1, 2015.

A summary of the System's recent contribution rates is shown below:



The actuarial contribution rate rose dramatically in recent years as the large asset loss from 2008 was reflected in the asset smoothing method. In 2014, there is a contribution shortfall of 3.68%. The System's funded ratio is expected to decline over the long term if these contribution shortfalls continue and are not offset by actuarial gains.



SECTION I: EXECUTIVE SUMMARY

COMMENTS

Under legislation passed in 2013, the Board may adjust the member and employer contribution rate each year by no more than 0.50% each. The Board increased the contribution rate for both to 8.0% of pay, effective January 1, 2014. The contribution rate can fluctuate between 7.5% and 9.0%. The higher contribution rate will begin to address the shortfall between the actuarial contribution rate and the statutory contribution rate. As a result of the higher employee and employer contribution rate and a return above the assumed rate of return on the actuarial value of assets, the System's funding shortfall decreased from 5.52% of pay in last year's valuation to 3.68% of pay in the 2014 valuation.

In addition, legislation in 2013 created a new set of plan provisions for members hired after December 31, 2013, referred to as Plan C. The key differences between Plan B and Plan C are a lower benefit multiplier (1.75% instead of 2.0%) and different requirements for unreduced benefits (age 62 or Rule of 80 rather than age 60 or Rule of 75). These changes are effective for those hired on or after January 1, 2014 so there are no Plan C members in the current valuation. The impact of the new benefit structure will evolve gradually over time as current members (who are covered by Plan B) leave covered employment and are replaced with new members who are covered by Plan C. The impact of Plan C on the long term funding of the System cannot be captured without performing complex actuarial projections, which is beyond the scope of this project. We would be happy to perform the additional work for the projections if the Board is interested in seeing the results.

The System does not use the actual market value of assets in developing the actuarial contribution rate, but utilizes an asset valuation method to smooth out the peaks and valleys in investment returns from year to year. Due to the strong return on market value of assets in 2013, the System experienced an actuarial gain on assets of \$13.1 million. This gain and the actuarial gain on liabilities of \$3.1 million combined for a total actuarial gain of \$16.2 million.

The actuarial gain resulting from experience in 2013 lowered the System's actuarial contribution rate from 20.52% in the January 1, 2013 valuation to 19.68% in this valuation. The actuarial contribution rate to be paid by the System has been, and will continue to be, heavily impacted by investment returns from year to year. Despite the use of an asset smoothing method, actual returns that are significantly different from the 8.00% assumption tend to create volatility in the System's actuarial contribution rate.

The deferred investment gain (market value less actuarial value of assets) is \$16 million. Absent investment losses in future years, the deferred investment gain of \$16 million will eventually be reflected in the actuarial value of assets in future years. While the use of an asset smoothing method is a common procedure for public retirement systems, it is important to identify the potential impact of the deferred investment experience. This is accomplished by comparing the key valuation results from the January 1, 2014 actuarial valuation using both the actuarial and market value of assets.



SECTION I: EXECUTIVE SUMMARY

| | Using Actuarial Value of Assets | Using Market Value of Assets |
|--------------------------------------|------------------------------------|---------------------------------|
| Actuarial Accrued Liability | \$875,451,114 | \$875,451,114 |
| Asset Value | \$710,828,744 | \$726,553,301 |
| Unfunded Actuarial Accrued Liability | \$164,622,370 | \$148,897,813 |
| Funded Ratio | 81.2% | 83.0% |
| Normal Cost Rate | 10.37% | 10.37% |
| UAAL Contribution Rate | <u>9.31%</u> | <u>8.42%</u> |
| Total Contribution Rate | 19.68% | 18.79% |
| Employee Contribution Rate | (8.00%) | (8.00%) |
| Employer Contribution Rate | <u>(8.00%)</u> | <u>(8.00%)</u> |
| Contribution Shortfall | 3.68% | 2.79% |

Given the funded ratio of the System and the contribution shortfall using both the actuarial and market value of assets, we recommend the Board exercise their authority to increase the employee and employer contribution rate, and set the rate at 8.50% effective January 1, 2015.



SECTION I: EXECUTIVE SUMMARY

Summary of Principal Valuation Results

| | 1/1/2014 Valuation | 1/1/2013 Valuation | % Change |
|------------------------------------------------------------------|-----------------------|-----------------------|----------|
| 1. PARTICIPANT DATA | | | |
| Number of: | | | |
| Active Members | 3,501 | 3,396 | 3.09% |
| Retired Members and Beneficiaries | 3,885 | 3,859 | 0.67% |
| Inactive Members* | <u>2,790</u> | <u>2,687</u> | 3.83% |
| Total Members | 10,176 | 9,942 | 2.35% |
| Projected Annual Salaries of Active Members | \$ 157,014,537 | \$ 157,303,005 | (0.18%) |
| Annual Retirement Payments for Retired Members and Beneficiaries | \$ 73,146,778 | \$ 72,333,096 | 1.12% |
| 2. ASSETS AND LIABILITIES | | | |
| a. Market Value of Assets | \$ 726,553,301 | \$ 702,966,521 | 3.36% |
| b. Actuarial Value of Assets | 710,828,744 | 697,028,072 | 1.98% |
| c. Total Actuarial Accrued Liability | 875,451,114 | 868,663,383 | 0.78% |
| d. Unfunded Actuarial Accrued Liability [c - b] | \$ 164,622,370 | \$ 171,635,311 | (4.09%) |
| e. Funded Ratio (Actuarial Value of Assets) [b / c] | 81.20% | 80.24% | 1.19% |
| f. Funded Ratio (Market Value of Assets) [a / c] | 82.99% | 80.93% | 2.55% |
| g. Projected Benefit Obligation | \$ 860,984,705 | \$ 862,900,498 | (0.22%) |
| 3. CONTRIBUTION RATES AS A PERCENT OF PAYROLL | | | |
| Normal Cost | 10.37% | 10.83% | (4.25%) |
| Amortization of Unfunded Actuarial Accrued Liability | <u>9.31%</u> | <u>9.69%</u> | (3.92%) |
| Actuarial Required Contribution Rate | 19.68% | 20.52% | (4.09%) |
| Member Contribution Rate | (8.00%) | (7.50%) | 6.67% |
| Employer Contribution Rate | <u>(8.00%)</u> | <u>(7.50%)</u> | 6.67% |
| Additional Required Contribution Rate | 3.68% | 5.52% | (33.33%) |
| Additional Required Contribution | \$ 5,778,135 | \$ 8,683,126 | (33.46%) |

*Includes former participants entitled to either a refund of contributions or a deferred annuity.

Note: Results for 1/1/2013 were prepared by the prior actuary.



SECTION II: SCOPE OF THE REPORT

This report presents the actuarial valuation of the Public School Retirement System of the School District of Kansas City, Missouri as of January 1, 2014. This valuation was prepared at the request of the System's Board of Trustees. The report is based on plan provisions and actuarial assumptions that are unchanged from last year, except for the update of the mortality table for one additional year of mortality improvement.

Please pay particular attention to our cover 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 resulting 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 the information required for the financial reporting standards established by the Governmental Accounting Standards Board (GASB).

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 the valuation date.
- 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 III: ASSETS

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 January 1, 2014. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the System. 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. On January 1, 2014, the market value of assets for the System was \$726.6 million. Table 1 summarizes the market value of assets by asset category. Table 2 is a comparison, at market values, of System assets as of January 1, 2014, and January 1, 2013, in total.

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 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. This methodology smoothes the difference between the actual return and the expected return (based on the actuarial assumption) on the market value of assets equally over a five year period. Table 3 shows the development of the actuarial value of assets (AVA) as of January 1, 2014.

**SECTION III: ASSETS**

TABLE 1**Net Assets at Market Value
as of January 1, 2014****INVESTMENTS, AT MARKET VALUE**

| | | |
|------------------------------------|----|--------------------|
| Cash and short term investments | \$ | 6,807,554 |
| Commingled domestic fixed income | | 64,581,469 |
| High yield fixed income | | 24,014,950 |
| Global fixed income | | 32,335,927 |
| Domestic equity | | 167,517,585 |
| International equity | | 192,731,885 |
| Pooled real estate funds | | 56,848,298 |
| Alternative equity fund | | 105,884,820 |
| Private equity | | 30,203,174 |
| Commodity | | 32,147,658 |
| Total Investments, at Market Value | \$ | <u>713,073,319</u> |

RECEIVABLES

| | | |
|--------------------------------|----|-------------------|
| Plan members contributions | \$ | 312,520 |
| Employers contributions | | 8,555,031 |
| Securities sold | | 3,585,037 |
| Accrued interest and dividends | | 451,865 |
| Total Receivables | \$ | <u>12,904,452</u> |

OTHER ASSETS

| | | |
|--------------------|----|------------------|
| Cash | \$ | 1,880,481 |
| Fixed assets | | 2,880,056 |
| Other assets | | 52,928 |
| Total Other Assets | \$ | <u>4,813,465</u> |

TOTAL ASSETS \$ 730,791,236**LIABILITIES**

| | | |
|----------------------------------------|----|------------------|
| Due to broker for securities purchased | \$ | 3,425,877 |
| Accounts payable | | 691,187 |
| Accrued payroll expenses | | 120,871 |
| Total Liabilities | \$ | <u>4,237,935</u> |

NET ASSETS AVAILABLE FOR BENEFITS \$ 726,553,301

Based on unaudited asset information. Some numbers do not add to totals due to rounding.



SECTION III: ASSETS

TABLE 2

Statement of Changes in Net Assets as of January 1, 2014

ADDITIONS TO NET ASSETS

| | |
|--------------------------------------------------------------|-----------------------|
| Investment Income | |
| Net appreciation (depreciation) in fair value of investments | \$ 76,101,475 |
| Interest | 6,922,284 |
| Dividends | 0 |
| Other income | 25,833 |
| Investment income before expenses | \$ 83,049,592 |
| Less: investment expenses | 4,450,809 |
| Total investment income | \$ 78,598,783 |
| Contributions | |
| Employers | \$ 12,093,945 |
| Employees | 12,310,320 |
| Total Contributions | \$ 24,404,265 |
| TOTAL ADDITIONS TO NET ASSETS | \$ 103,003,048 |

DEDUCTIONS FROM NET ASSETS

| | |
|----------------------------------------|----------------------|
| Benefits paid directly to participants | \$ 73,844,481 |
| Refunds of contributions | 3,567,693 |
| Depreciation expense | 524,163 |
| Administrative expenses | 1,479,931 |
| TOTAL DEDUCTION FROM ASSETS | \$ 79,416,268 |

NET INCREASE (DECREASE) \$ 23,586,780

NET ASSETS AVAILABLE FOR BENEFITS

| | |
|-------------------|----------------|
| Beginning of year | 702,966,521 |
| End of year | \$ 726,553,301 |

Based on unaudited asset information.



SECTION III: ASSETS

TABLE 3

**Development of Actuarial Value of Assets
as of January 1, 2014**

| | 2014 |
|-------------------------------------------------------------------------------------------------------|----------------|
| 1. Deferral of Investment Return for 2013 | |
| a. Market Value, January 1, 2013 | \$ 702,966,521 |
| b. Contributions for 2013 | 24,404,265 |
| c. Benefit Payments for 2013 | 77,412,174 |
| d. Actual Investment Return, Net of All Expenses | \$ 76,594,689 |
| e. Expected Return Rate | 8.00% |
| f. Expected Return - Weighted for Timing* (a. x e.) + [(b. - c.) x (((1 + e.) ⁵) - 1)] | \$ 54,157,796 |
| g. Investment Gain/(Loss) for the Year (d. - f.) | \$ 22,436,893 |
| h. Deferred Investment Return (g. x 80%) | \$ 17,949,514 |
| 2. Actuarial Value, January 1, 2014 | |
| a. Market Value, January 1, 2014 | \$ 726,553,301 |
| b. Total Deferred Investment Gain/(Loss) | 15,724,557 |
| c. Actuarial Value, January 1, 2014 (a. - b.) | \$ 710,828,744 |
| d. Ratio of Actuarial Value of Assets to Market Value of Assets | 97.8% |
| e. Approximate Actuarial Value Investment Return Rate During 2013, Net of All Expenses | 10.0% |

* Contributions and benefit payments are assumed to occur mid-year.

The table below shows the development of gain/(loss) to be recognized in the current year.

| Plan Year Ended | Asset Gain/(Loss) | Gain/(Loss) Recognized in Prior Years | Gain/(Loss) Recognized This Year | Gain/(Loss) Deferred to Future Years |
|------------------------|--------------------------|----------------------------------------------|-----------------------------------------|---------------------------------------------|
| 12/31/2009 | \$44,213,039 | \$35,370,432 | \$8,842,607 | \$ 0 |
| 12/31/2010 | 26,792,898 | 16,075,740 | 5,358,580 | 5,358,578 |
| 12/31/2011 | (52,649,069) | (21,059,628) | (10,529,814) | (21,059,627) |
| 12/31/2012 | 22,460,154 | 4,492,031 | 4,492,031 | 13,476,092 |
| 12/31/2013 | 22,436,893 | 0 | 4,487,379 | 17,949,514 |
| Total | \$63,253,915 | \$34,878,575 | \$12,650,783 | \$ 15,724,557 |



SECTION IV: 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 System as of the valuation date, January 1, 2014. In this section, the discussion will focus on the commitments 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 January 1, 2014.

ACTUARIAL ACCRUED LIABILITY

A fundamental principle in financing the liabilities of a prefunded 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 to the System. The Entry Age Normal actuarial cost method is used to develop the actuarial accrued liability (see Table 5).

Table 6 develops the experience gain/(loss) for the year ended December 31, 2013.

Table 7 shows the actuarial balance sheet.

PENSION BENEFIT OBLIGATION

Table 8 shows the System’s liability on a Pension Benefit Obligation (PBO) basis.



SECTION IV: SYSTEM LIABILITIES

TABLE 4

**Present Value of Future Benefits
as of January 1, 2014**

| | |
|----------------------------------------|-----------------------|
| 1. Active Members | |
| a. Retirement Benefits | \$ 265,247,033 |
| b. Disability Benefits | 8,232,590 |
| c. Death Benefits | 6,504,258 |
| d. Withdrawal Benefits | 29,033,504 |
| e. Subtotal | <u>\$ 309,017,385</u> |
| 2. Benefit Recipients | |
| a. Retiree Benefits | \$ 595,774,750 |
| b. Survivor Benefits | 16,516,715 |
| c. Disability Benefits | 8,958,060 |
| d. Subtotal | <u>\$ 621,249,525</u> |
| 3. Inactive Members | |
| a. Deferred Vested Retirement Benefits | \$ 31,168,551 |
| b. Nonvested Account Balance | 7,585,785 |
| c. Subtotal | <u>\$ 38,754,336</u> |
| 4. Total | \$ 969,021,246 |
| (1e. + 2d. + 3c.) | |



SECTION IV: SYSTEM LIABILITIES

TABLE 5

**Actuarial Accrued Liability
as of January 1, 2014**

| | |
|-------------------------------------------------------------|----------------------|
| 1. Present Value of Future Benefits (PVFB) | \$ 969,021,246 |
| 2. Present Value of Future Normal Costs (PVFNC) | |
| a. Retirement benefits | \$ 52,877,125 |
| b. Disability benefits | 3,051,945 |
| c. Death benefits | 2,553,665 |
| d. Withdrawal benefits | 35,087,397 |
| e. Total | \$ <u>93,570,132</u> |
| 3. Actuarial Accrued Liability (AAL) (1. - 2e.) | \$ 875,451,114 |
| 4. Actuarial Value of Assets (AVA) | \$ 710,828,744 |
| 5. Unfunded Actuarial Accrued Liability (UAAL) (3. - 4.) | \$ 164,622,370 |
| 6. Funded Ratio (3. / 4.) | 81.2% |



SECTION IV: SYSTEM LIABILITIES

TABLE 6

Actuarial Gain/(Loss) for 2013

Liabilities

| | |
|-------------------------------------------------------------------------------------------------------|----------------|
| 1. Actuarial accrued liability as of January 1, 2013 | \$ 868,663,383 |
| 2. Normal cost for 2013 | 16,650,419 |
| 3. Change Identified in Replication Process | 1,573,096 |
| 4. Interest at 8.00% on (1), (2) and (3) to December 31, 2013 | 70,950,952 |
| 5. Benefit payments during 2013 | 77,412,174 |
| 6. Interest on benefit payments | 3,036,917 |
| 7. Change in actuarial assumptions | 1,120,300 |
| 8. Expected actuarial accrued liability as of December 31, 2013 (1. + 2. + 3. + 4. - 5. - 6. + 7.) | \$ 878,509,059 |
| 9. Actuarial accrued liability as of December 31, 2013 | 875,451,114 |
| 10. Actuarial Gain / (Loss) on Actuarial Accrued Liability (8. - 9.) | \$ 3,057,945 |

Assets

| | |
|-------------------------------------------------------------------------------------------|----------------|
| 11. Actuarial value of assets as of January 1, 2013 | \$ 697,028,072 |
| 12. Contributions during 2013 | 24,404,265 |
| 13. Benefit payments during 2013 | 77,412,174 |
| 14. Interest on items (11), (12) and (13) | 53,682,720 |
| 15. Expected actuarial value of assets as of December 31, 2013 (11. + 12. - 13. + 14.) | \$ 697,702,883 |
| 16. Actuarial value of assets as of December 31, 2013 | 710,828,744 |
| 17. Actuarial Gain / (Loss) on Actuarial Assets (16. - 15.) | \$ 13,125,861 |
| 18. Actuarial Gain / (Loss) (10. + 17.) | \$ 16,183,806 |



SECTION IV: SYSTEM LIABILITIES

TABLE 7

Actuarial Balance Sheet

Assets

| | | |
|---------------------------------------------------------------------------------------|-----------|----------------------------------|
| Current assets (actuarial value) | \$ | 710,828,744 |
| Present value of future normal costs | | 93,570,132 |
| Present value of future contributions to fund unfunded actuarial accrued liability | | <u>164,622,370</u> |
| Total Assets | \$ | <u><u>969,021,246</u></u> |

Liabilities

Present value of future retirement benefits for:

| | | |
|---------------------------------------|----|----------------------------------|
| Active employees | \$ | 309,017,385 |
| Members currently receiving a benefit | | 621,249,525 |
| Deferred vested members | | 31,168,551 |
| Inactive employees due refunds | | <u>7,585,785</u> |
| Total | \$ | <u><u>969,021,246</u></u> |



SECTION IV: SYSTEM LIABILITIES

TABLE 8

Pension Benefit Obligation Funded Status

The Pension Benefit Obligation (PBO) is statutorily required to be used in the determination of whether a cost-of-living allowance can be granted to retirees. If the funded ratio, after reflecting the effect of the proposed increase, exceeds 100%, and other safeguards are met, a cost-of-living allowance may be provided. See Appendix B for additional details.

| Projected Benefit Obligation | <u>January 1, 2014</u> | <u>January 1, 2013</u> |
|---------------------------------------------------------------------------------------------------------------------|------------------------|------------------------|
| 1. Retired members and beneficiaries currently receiving benefits and terminated members not yet receiving benefits | \$ 652,418,077 | \$ 653,949,421 |
| 2. Current active participants | | |
| a. Accumulated member contributions, including interest | 98,272,633 | 100,767,726 |
| b. Employer-financed vested benefits | <u>110,293,995</u> | <u>108,183,351</u> |
| Total Projected Benefit Obligation | \$ 860,984,705 | \$ 862,900,498 |
| Projected Benefit Obligation funded status | | |
| 1. Actuarial Value of Assets | \$ 710,828,744 | \$ 697,028,072 |
| a. Unfunded Projected Benefit Obligation | 150,155,961 | 165,872,426 |
| b. Funding Ratio | 83% | 81% |
| 2. Market Value of Assets | \$ 726,553,301 | \$ 702,966,521 |
| a. Unfunded Projected Benefit Obligation | 134,431,404 | 159,933,977 |
| b. Funding Ratio | 84% | 81% |



SECTION V: EMPLOYER CONTRIBUTIONS

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, except for 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. 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 this 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/(losses).

The Board of Trustees may adjust both the employee and employer contribution rates, but not by more than 0.50% per year. The minimum contribution rate is 7.5% and the maximum is 9.0%. In general, contributions are computed in accordance with a level percent-of-payroll funding objective. 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.

As of January 1, 2014, the valuation assets were less than the actuarial accrued liability so an unfunded actuarial accrued liability exists. The System’s funding policy is to amortize the UAAL, as a level dollar amount, over a rolling 30-year period.

CONTRIBUTION RATE SUMMARY

Table 9 develops the normal cost rate for the System. In Table 10, the amortization payment related to the unfunded actuarial accrued liability, as of January 1, 2014, is developed, as well as the contribution rate for the System.

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



SECTION V: EMPLOYER CONTRIBUTIONS

TABLE 9

Derivation of Normal Cost Rate

| | | |
|-----------------------------------------------------|----|-------------------|
| 1. Normal Cost | | |
| a. Retirement Benefits | \$ | 8,469,121 |
| b. Disability Benefits | | 441,990 |
| c. Death Benefits | | 413,210 |
| d. Withdrawal Benefits | | 4,951,590 |
| e. Total | \$ | <u>14,275,911</u> |
| 2. Valuation Payroll | \$ | 138,908,831 |
| 3. Normal Cost as a Percentage of Pay (1e. / 2.) | | 10.28% |
| 4. Employee Contribution Rate for 2014 | | 8.00% |
| 5. Employer Normal Cost Rate (3. - 4.) | | 2.28% |



SECTION V: EMPLOYER CONTRIBUTIONS

TABLE 10

Development of
2014 Actuarial Required Contribution (ARC)

| | | |
|------------------------------------------------------------------------|----|-------------|
| 1. Unfunded Actuarial Accrued Liability (UAAL) | \$ | 164,622,370 |
| 2. 30-Year Amortization Factor, End of Year | | 11.25778 |
| 3. UAAL Contribution Amount (1. / 2.) | \$ | 14,622,987 |
| 4. Total Payroll | \$ | 157,014,537 |
| 5. UAAL Contribution as a Percent of Payroll (3. / 4.) | | 9.31% |
| 6. Employer Normal Cost Rate | | 2.28% |
| 7. Employer Normal Cost Rate, End of Year (6. * 1.08 ⁵) | | 2.37% |
| 8. Actuarial Required Employer Contribution Rate (5. + 7.) | | 11.68% |
| 9. Actuarial Required Employer Contribution Amount (8. * 4.) | \$ | 18,339,298 |
| 10. Employer Contribution Rate | | 8.00% |
| 11. Contribution Shortfall (8. - 10.) | | 3.68% |



SECTION VI: ACCOUNTING INFORMATION

The actuarial accrued liability is a measure intended to help the reader assess (i) a retirement system's funded status on a going 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 accrued liability was determined as part of an actuarial valuation of the plan as of January 1, 2014. The actuarial assumptions used in determining the actuarial accrued liability can be found in Appendix C.

The preceding methods comply with the financial reporting standards established by the Governmental Accounting Standards Board.

GASB Statement No. 25 establishes financial reporting standards for defined benefit pension plans. In addition to two required statements regarding plan assets, the statement requires two schedules and accompanying notes disclosing information relative to the funded status of the plan and historical contribution patterns.

- The Schedule of Funding Progress provides information about whether the financial strength of the Plan is improving or deteriorating over time.
- The Schedule of Employer Contributions provides historical information about the annual required contribution (ARC) and the percentage of the ARC that was actually contributed.

In 2012, GASB issued the final version of GASB Statements Number 67 and 68 which will supersede GASB Statements Number 25 and 27. GASB 67, which applies to the retirement system, will be effective for the plan year ending December 31, 2014. GASB 68, which applies to employer reporting, is first effective for fiscal years beginning after June 15, 2014.



SECTION VI: ACCOUNTING INFORMATION

TABLE 11

**Required Supplementary Information
Schedule of Funding Progress**

Analysis of the dollar amounts of actuarial value of assets, actuarial accrued liability, or unfunded actuarial accrued liability in isolation can be misleading. Expressing the actuarial value of assets as a percentage of the actuarial accrued liability provides one indication of the System's funded status on an on-going concern basis. Analysis of this percentage over time indicates whether the System is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the System's funding. The unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial accrued liability as a percentage of covered payroll approximately adjusts for the effects of inflation and aids analysis of the progress being made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the System's funding.

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liabilities (AAL) (b) | Unfunded AAL (UAAL) (b - a) | Funded Ratio (a / b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll [(b - a) / c] |
|--------------------------|-------------------------------|-----------------------------------------|-----------------------------|----------------------|---------------------|-------------------------------------------------------|
| 1/1/1995 | \$ 353,329,957 | \$ 386,874,780 | \$ 33,544,823 | 91.3% | \$ 185,374,096 | 18.1% |
| 1/1/1996 | 389,103,803 | 409,428,594 | 20,324,791 | 95.0% | 171,262,008 | 11.9% |
| 1/1/1997 | 428,419,710 | 429,517,108 | 1,097,398 | 99.7% | 161,802,480 | 0.7% |
| 1/1/1998 | 482,599,919 | 442,614,693 | (39,985,225) | 102.3% | 168,328,728 | (23.8%) |
| 1/1/1999 | 624,225,667 | 564,056,509 | (60,169,158) | 110.7% | 153,733,920 | (39.1%) |
| 1/1/2000 | 660,830,255 | 640,614,688 | (20,215,567) | 103.2% | 151,091,616 | (13.4%) |
| 1/1/2001 | 696,071,310 | 682,531,577 | (13,539,734) | 102.0% | 165,795,367 | (8.2%) |
| 1/1/2002 | 718,703,692 | 701,725,938 | (16,977,755) | 102.4% | 171,523,233 | (9.9%) |
| 1/1/2003 | 717,681,067 | 701,114,370 | (16,566,697) | 102.4% | 168,391,474 | (9.8%) |
| 1/1/2004 | 738,612,110 | 716,126,707 | (22,485,404) | 103.1% | 186,528,530 | (12.1%) |
| 1/1/2005 | 763,684,602 | 747,711,194 | (15,973,408) | 102.1% | 195,866,663 | (8.2%) |
| 1/1/2006 | 788,788,666 | 780,663,389 | (8,125,277) | 101.0% | 187,445,140 | (4.3%) |
| 1/1/2007 | 824,302,795 | 818,027,315 | (6,275,480) | 100.8% | 199,221,110 | (3.2%) |
| 1/1/2008 | 854,123,580 | 781,284,025 | (72,839,554) | 109.3% | 202,311,837 | (36.0%) |
| 1/1/2009 | 832,609,879 | 804,623,080 | (27,986,799) | 103.5% | 205,326,108 | (13.6%) |
| 1/1/2010 | 814,536,473 | 819,534,391 | 4,997,918 | 99.4% | 194,474,437 | 2.6% |
| 1/1/2011 | 786,297,998 | 844,232,490 | 57,934,492 | 93.1% | 162,417,257 | 35.7% |
| 1/1/2012 | 742,279,611 | 874,286,498 | 132,006,887 | 84.9% | 155,893,016 | 84.7% |
| 1/1/2013 | 697,028,072 | 868,663,383 | 171,635,311 | 80.2% | 157,303,005 | 109.1% |
| 1/1/2014 | 710,828,744 | 875,451,114 | 164,622,370 | 81.2% | 157,014,537 | 104.8% |



SECTION VI: ACCOUNTING INFORMATION

TABLE 12

**Required Supplementary Information
Schedule of Employer Contributions**

| Fiscal Year Ending December 31 | Annual Required Contribution (ARC) | Actual Contribution | Percentage of ARC Contributed |
|-------------------------------------------|-----------------------------------------------|----------------------------|------------------------------------------|
| 1995 | \$ 11,011,221 | \$ 3,489,812 | 31.69% |
| 1996 | 9,443,721 | 5,365,843 | 56.82% |
| 1997 | 7,055,431 | 8,538,810 | 121.02% |
| 1998 | 5,999,525 | 9,997,549 | 166.64% |
| 1999 | 5,249,589 | 9,951,876 | 189.57% |
| 2000 | 9,309,354 | 14,368,922 | 154.35% |
| 2001 | 10,996,382 | 12,176,329 | 110.73% |
| 2002 | 12,133,966 | 13,514,997 | 111.38% |
| 2003 | 10,984,595 | 13,429,802 | 122.26% |
| 2004 | 12,338,049 | 14,002,317 | 113.49% |
| 2005 | 12,769,634 | 14,691,137 | 115.05% |
| 2006 | 11,774,051 | 14,431,062 | 122.57% |
| 2007 | 11,523,380 | 15,365,235 | 133.34% |
| 2008 | 3,832,178 | 15,888,234 | 414.60% |
| 2009 | 3,797,954 | 27,656,639* | 728.20% |
| 2010 | 7,779,060 | 13,281,191 | 170.73% |
| 2011 | 11,590,759 | 11,972,752 | 103.30% |
| 2012 | 16,836,200 | 11,370,252 | 67.53% |
| 2013 | 20,486,834 | 12,093,945 | 59.03% |
| 2014 | 18,339,298 | ** | ** |

* Includes accrued employer contributions, which were previously not included.

** To be determined at the end of the year.

**Notes to Required Supplementary Information
Summary of Actuarial Methods and Assumptions**

| | |
|-------------------------------|---------------------------------|
| Valuation Date | January 1, 2014 |
| Actuarial Cost Method | Entry Age Normal |
| Amortization Method | Level Dollar, open |
| Remaining Amortization Period | 30 years |
| Asset Valuation Method | 5-Year Smoothed Market Value |
| Actuarial Assumptions: | |
| Investment Rate of Return*** | 8.00% |
| Projected Salary Increases*** | 5.00% |
| No future COLAs | |
| ***Includes Inflation at | 3.50% |



SECTION VI: ACCOUNTING INFORMATION

TABLE 13

Solvency Test

In a system that has been following the discipline of level percent of payroll financing, the liabilities for active participant accumulated contributions (liability 1) and the liabilities for future benefits to retirees, beneficiaries, and inactive participants (liability 2) will be fully covered by assets if all assumptions are met. In addition, the liabilities for service already rendered by active participants (liability 3) are normally partially covered by the remainder of the present assets. Generally, if the system has been using level cost financing, the funded portion of liability 3 will increase over time. Liability 3 being fully funded does not necessarily result from level percent of payroll funding methods. The schedule below illustrates the history of the liabilities of the system and is indicative of the system following the discipline of level percent of compensation funding.

| Valuation Date January 1, | Active Participants' Accumulated Contributions | Retirees, Beneficiaries and Inactive Participants | Active Participants (Employer Financed) | Valuation Assets | Percent Covered By Valuation Assets | | |
|---------------------------|------------------------------------------------|---------------------------------------------------|-----------------------------------------|------------------|-------------------------------------|------|------|
| | (1) | (2) | (3) | | (1) | (2) | (3) |
| 1987 | \$ 54,703,473 | \$ 60,096,766 | \$ 45,027,324 | \$ 157,538,001 | 100% | 100% | 95% |
| 1988 | 60,631,019 | 68,133,929 | 45,164,333 | 172,932,203 | 100% | 100% | 98% |
| 1989 | 68,032,000 | 72,476,675 | 50,436,314 | 192,074,767 | 100% | 100% | 102% |
| 1990 | 77,843,936 | 79,855,895 | 52,384,902 | 220,844,765 | 100% | 100% | 121% |
| 1991 | 86,392,672 | 77,212,948 | 62,859,420 | 241,369,537 | 100% | 100% | 124% |
| 1992 | 91,688,784 | 101,408,720 | 69,055,820 | 278,065,508 | 100% | 100% | 123% |
| 1993 | 98,482,791 | 102,336,338 | 61,479,865 | 307,050,085 | 100% | 100% | 173% |
| 1994 | 99,547,061 | 123,475,760 | 121,674,513 | 336,466,320 | 100% | 100% | 93% |
| 1995 | 110,658,079 | 144,027,489 | 124,562,502 | 353,451,344 | 100% | 100% | 79% |
| 1996 | 108,123,636 | 177,617,507 | 117,169,151 | 389,103,803 | 100% | 100% | 88% |
| 1997 | 104,554,877 | 231,762,583 | 91,329,968 | 428,419,710 | 100% | 100% | 101% |
| 1998 | 115,847,655 | 228,328,855 | 108,592,620 | 482,599,919 | 100% | 100% | 127% |
| 1999 | 117,478,379 | 274,442,924 | 172,607,724 | 624,225,667 | 100% | 100% | 135% |
| 2000 | 113,334,820 | 343,382,932 | 184,049,309 | 660,830,255 | 100% | 100% | 111% |
| 2001 | 115,781,706 | 389,055,603 | 184,779,937 | 696,071,310 | 100% | 100% | 103% |
| 2002 | 119,968,776 | 406,094,033 | 187,309,245 | 718,703,692 | 100% | 100% | 103% |
| 2003 | 112,468,027 | 435,548,298 | 165,766,206 | 717,681,067 | 100% | 100% | 102% |
| 2004 | 125,754,562 | 430,145,689 | 179,264,397 | 738,612,110 | 100% | 100% | 102% |
| 2005 | 127,221,118 | 431,366,177 | 201,836,083 | 763,684,602 | 100% | 100% | 102% |
| 2006 | 133,811,729 | 477,844,206 | 177,531,611 | 788,788,666 | 100% | 100% | 100% |
| 2007 | 136,978,872 | 498,841,373 | 187,966,845 | 824,302,795 | 100% | 100% | 100% |
| 2008 | 140,844,707 | 492,273,102 | 156,840,245 | 854,123,580 | 100% | 100% | 141% |
| 2009 | 140,096,771 | 503,450,518 | 161,075,791 | 832,609,879 | 100% | 100% | 117% |
| 2010 | 139,860,248 | 524,692,426 | 154,981,717 | 814,536,473 | 100% | 100% | 97% |
| 2011 | 110,538,745 | 611,806,997 | 121,886,748 | 786,297,998 | 100% | 100% | 52% |
| 2012 | 99,513,420 | 654,828,752 | 119,944,326 | 742,279,611 | 100% | 98% | 0% |
| 2013 | 100,767,726 | 653,949,421 | 113,946,236 | 697,028,072 | 100% | 91% | 0% |
| 2014 | 98,272,633 | 660,003,861 | 117,174,620 | 710,828,744 | 100% | 93% | 0% |

Note: Years prior to 1/1/2014 were provided by prior Actuary.



APPENDIX A: SUMMARY OF MEMBERSHIP DATA

MEMBER CENSUS INFORMATION

| A. ACTIVE MEMBERS | January 1, 2014 | January 1, 2013 | % Change |
|--------------------------------------------------|------------------------|------------------------|-----------------|
| 1. Number of Active Members | 3,501 | 3,396 | 3.1% |
| 2. Active Member Averages | | | |
| (a) Age | 44.5 | 44.9 | (1.0%) |
| (b) Service | 8.5 | 9.0 | (5.9%) |
| (c) Expected Annual Pay | \$ 44,848 | \$ 46,320 | (3.2%) |
| B. VESTED TERMINATED MEMBERS | | | |
| 1. Number of Vested Terminated Members | 560 | 526 | 6.5% |
| 2. Vested Terminated Members Averages | | | |
| (a) Age | 51.6 | 51.1 | 0.9% |
| (b) Account Balance | \$ 37,105 | \$ 33,027 | 12.3% |
| C. NON-VESTED TERMINATED MEMBERS | | | |
| 1. Number of Non-Vested Terminated Members | 2,230 | 2,161 | 3.2% |
| 2. Non-Vested Terminated Members Averages | | | |
| (a) Age | 45.6 | 44.0 | 3.7% |
| (b) Account Balance | \$ 3,402 | \$ 3,486 | (2.4%) |
| D. RETIREES, DISABLEDS, AND BENEFICIARIES | | | |
| 1. Number of Members | | | |
| (a) Retired | 3,594 | 3,563 | 0.9% |
| (b) Disabled | 96 | 98 | (2.0%) |
| (c) Beneficiaries | 195 | 198 | (1.5%) |
| (e) Total | <u>3,885</u> | <u>3,859</u> | 0.7% |
| 2. Average Age | | | |
| (a) Retired | 71.7 | 71.5 | 0.3% |
| (b) Disabled | 65.4 | 64.8 | 0.9% |
| (c) Beneficiaries | 74.3 | 75.2 | (1.2%) |
| (e) Total | <u>71.7</u> | <u>71.5</u> | 0.3% |
| 3. Average Monthly Benefit | | | |
| (a) Retired | \$ 1,613 | \$ 1,610 | 0.2% |
| (b) Disabled | 993 | 985 | 0.8% |
| (c) Beneficiaries | 1,050 | 1,000 | 5.0% |
| (e) Total | <u>\$ 1,569</u> | <u>\$ 1,562</u> | 0.4% |



APPENDIX A: SUMMARY OF MEMBERSHIP DATA

MEMBER DATA RECONCILIATION

January 1, 2013 to January 1, 2014

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 members as of the valuation date.

| | Active Members | Retirees | Beneficiaries | Disabled | Deferred Vested | Nonvested with Balance | Total |
|-----------------------------|---------------------------|-----------------|----------------------|-----------------|----------------------------|-----------------------------------|--------------|
| Total at January 1, 2013 | 3,396 | 3,563 | 198 | 98 | 526 | 2,161 | 9,942 |
| New Entrants | 682 | 0 | 13 | 0 | 4 | 55 | 754 |
| Rehires/Transfers | 64 | 0 | 0 | 0 | (20) | (34) | 10 |
| Retirements | (95) | 134 | 0 | 0 | (39) | 0 | 0 |
| Disabilities | 0 | 0 | 0 | 1 | (1) | 0 | 0 |
| Deaths | (3) | (103) | (12) | (3) | (1) | 0 | (122) |
| Vested Terminations | (121) | 0 | 0 | 0 | 124 | (3) | 0 |
| Nonvested Terminations | (207) | 0 | 0 | 0 | 0 | 207 | 0 |
| Refunds Paid | (215) | 0 | 0 | 0 | (33) | (153) | (401) |
| Payments Ended | 0 | 0 | (1) | 0 | 0 | 0 | (1) |
| Data Adjustments | 0 | 0 | (3) | 0 | 0 | (3) | (6) |
| Total as of January 1, 2014 | 3,501 | 3,594 | 195 | 96 | 560 | 2,230 | 10,176 |

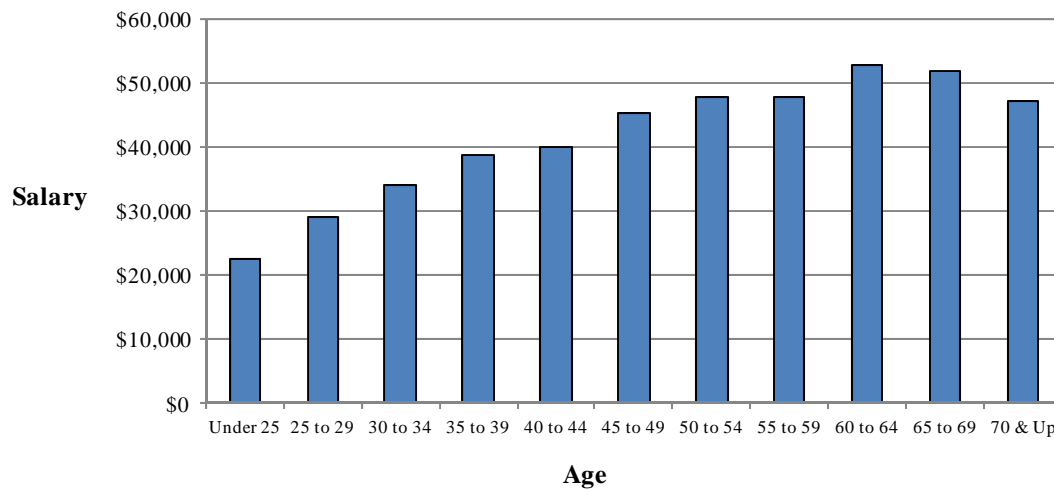


APPENDIX A: SUMMARY OF MEMBERSHIP DATA

**SUMMARY OF ACTIVE MEMBERS
as of January 1, 2014**

| Age | Number | | | 2013 Reported Compensation | | |
|--------------|------------|--------------|--------------|----------------------------|----------------------|----------------------|
| | Male | Female | Total | Male | Female | Total |
| | Total | | | | | |
| Under 25 | 55 | 200 | 255 | \$ 1,391,921 | \$ 4,389,235 | \$ 5,781,156 |
| 25 to 29 | 118 | 288 | 406 | 3,329,911 | 8,425,954 | 11,755,865 |
| 30 to 34 | 109 | 288 | 397 | 4,012,501 | 9,530,829 | 13,543,330 |
| 35 to 39 | 93 | 239 | 332 | 3,885,072 | 8,994,753 | 12,879,825 |
| 40 to 44 | 94 | 240 | 334 | 3,750,905 | 9,594,112 | 13,345,017 |
| 45 to 49 | 118 | 237 | 355 | 5,246,510 | 10,894,339 | 16,140,849 |
| 50 to 54 | 140 | 347 | 487 | 6,869,612 | 16,471,380 | 23,340,992 |
| 55 to 59 | 142 | 331 | 473 | 7,346,144 | 15,209,899 | 22,556,043 |
| 60 to 64 | 96 | 262 | 358 | 5,636,644 | 13,297,715 | 18,934,359 |
| 65 to 69 | 21 | 64 | 85 | 1,088,946 | 3,330,674 | 4,419,620 |
| 70 & Up | 5 | 14 | 19 | 227,680 | 666,758 | 894,438 |
| Total | 991 | 2,510 | 3,501 | \$42,785,846 | \$100,805,648 | \$143,591,494 |

Average Salary by Age





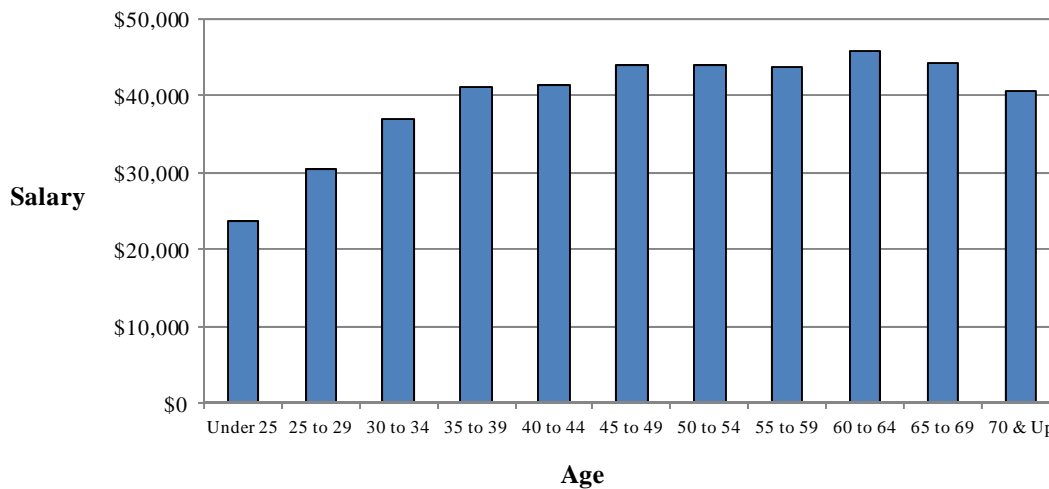
APPENDIX A: SUMMARY OF MEMBERSHIP DATA

**SUMMARY OF ACTIVE MEMBERS
as of January 1, 2014**

Charter Schools

| Age | Number | | | 2013 Reported Compensation | | |
|--------------|------------|------------|--------------|----------------------------|---------------------|---------------------|
| | Male | Female | Total | Male | Female | Total |
| Under 25 | 23 | 86 | 109 | \$ 608,672 | \$ 1,976,406 | \$ 2,585,078 |
| 25 to 29 | 69 | 172 | 241 | 2,060,990 | 5,308,592 | 7,369,582 |
| 30 to 34 | 51 | 145 | 196 | 1,896,527 | 5,351,788 | 7,248,315 |
| 35 to 39 | 45 | 100 | 145 | 1,988,422 | 3,970,204 | 5,958,626 |
| 40 to 44 | 37 | 84 | 121 | 1,444,126 | 3,566,382 | 5,010,508 |
| 45 to 49 | 29 | 64 | 93 | 1,287,820 | 2,794,947 | 4,082,767 |
| 50 to 54 | 32 | 49 | 81 | 1,382,426 | 2,178,235 | 3,560,661 |
| 55 to 59 | 29 | 51 | 80 | 1,546,432 | 1,955,577 | 3,502,009 |
| 60 to 64 | 21 | 46 | 67 | 901,979 | 2,166,323 | 3,068,302 |
| 65 to 69 | 3 | 10 | 13 | 154,857 | 422,189 | 577,046 |
| 70 & Up | 0 | 1 | 1 | 0 | 40,683 | 40,683 |
| Total | 339 | 808 | 1,147 | \$13,272,251 | \$29,731,326 | \$43,003,577 |

Average Salary by Age





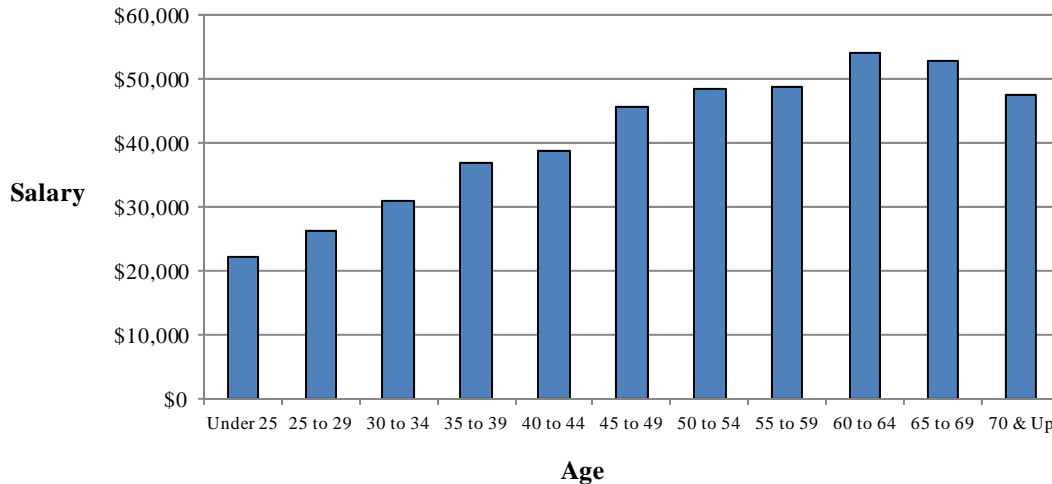
APPENDIX A: SUMMARY OF MEMBERSHIP DATA

**SUMMARY OF ACTIVE MEMBERS
as of January 1, 2014**

School District & Retirement System

| Age | Number | | | 2013 Reported Compensation | | |
|--------------|------------|--------------|--------------|----------------------------|---------------------|---------------------|
| | Male | Female | Total | Male | Female | Total |
| Under 25 | 31 | 112 | 143 | \$ 772,325 | \$ 2,402,921 | \$ 3,175,246 |
| 25 to 29 | 45 | 111 | 156 | 1,171,143 | 2,933,913 | 4,105,056 |
| 30 to 34 | 53 | 136 | 189 | 1,930,483 | 3,932,126 | 5,862,609 |
| 35 to 39 | 42 | 134 | 176 | 1,670,109 | 4,820,789 | 6,490,898 |
| 40 to 44 | 52 | 147 | 199 | 2,045,928 | 5,661,657 | 7,707,585 |
| 45 to 49 | 82 | 167 | 249 | 3,614,253 | 7,751,864 | 11,366,117 |
| 50 to 54 | 96 | 284 | 380 | 4,863,167 | 13,495,311 | 18,358,478 |
| 55 to 59 | 100 | 268 | 368 | 5,205,921 | 12,774,656 | 17,980,577 |
| 60 to 64 | 70 | 205 | 275 | 4,347,256 | 10,500,234 | 14,847,490 |
| 65 to 69 | 16 | 46 | 62 | 840,713 | 2,442,677 | 3,283,390 |
| 70 & Up | 5 | 13 | 18 | 227,680 | 626,075 | 853,755 |
| Total | 592 | 1,623 | 2,215 | \$26,688,978 | \$67,342,223 | \$94,031,201 |

Average Salary by Age





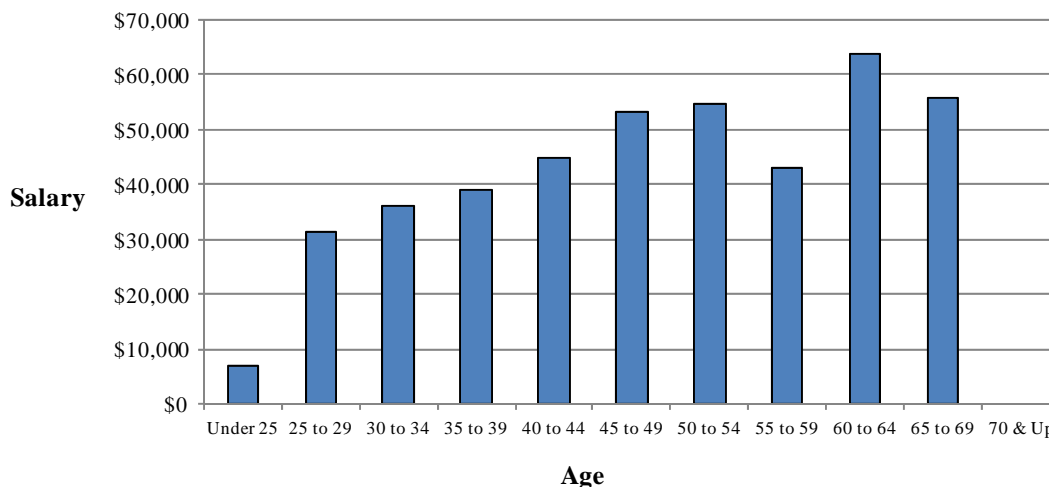
APPENDIX A: SUMMARY OF MEMBERSHIP DATA

**SUMMARY OF ACTIVE MEMBERS
as of January 1, 2014**

Library

| Age | Number | | | 2013 Reported Compensation | | |
|--------------|-----------|-----------|------------|----------------------------|--------------------|--------------------|
| | Male | Female | Total | Male | Female | Total |
| Under 25 | 1 | 2 | 3 | \$ 10,924 | \$ 9,908 | \$ 20,832 |
| 25 to 29 | 4 | 5 | 9 | 97,778 | 183,449 | 281,227 |
| 30 to 34 | 5 | 7 | 12 | 185,491 | 246,915 | 432,406 |
| 35 to 39 | 6 | 5 | 11 | 226,541 | 203,760 | 430,301 |
| 40 to 44 | 5 | 9 | 14 | 260,851 | 366,073 | 626,924 |
| 45 to 49 | 7 | 6 | 13 | 344,437 | 347,528 | 691,965 |
| 50 to 54 | 12 | 14 | 26 | 624,019 | 797,834 | 1,421,853 |
| 55 to 59 | 13 | 12 | 25 | 593,791 | 479,666 | 1,073,457 |
| 60 to 64 | 5 | 11 | 16 | 387,409 | 631,158 | 1,018,567 |
| 65 to 69 | 2 | 8 | 10 | 93,376 | 465,808 | 559,184 |
| 70 & Up | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 60 | 79 | 139 | \$2,824,617 | \$3,732,099 | \$6,556,716 |

Average Salary by Age





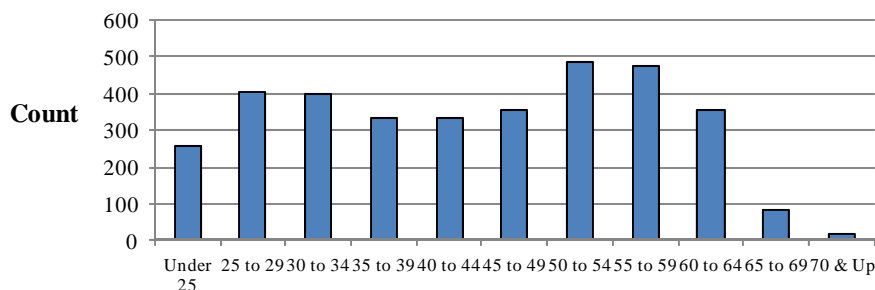
APPENDIX A: SUMMARY OF MEMBERSHIP DATA

**DISTRIBUTION OF ACTIVE MEMBERS
as of January 1, 2014**

Total

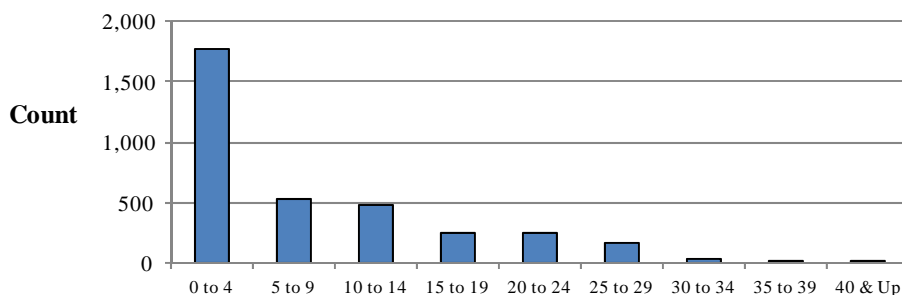
| Age | Years of Service | | | | | | | | | Total |
|--------------|------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|--------------|
| | 0 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & Up | |
| Under 25 | 254 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 255 |
| 25 to 29 | 383 | 22 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 406 |
| 30 to 34 | 284 | 94 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 397 |
| 35 to 39 | 192 | 69 | 68 | 3 | 0 | 0 | 0 | 0 | 0 | 332 |
| 40 to 44 | 171 | 62 | 53 | 39 | 9 | 0 | 0 | 0 | 0 | 334 |
| 45 to 49 | 131 | 54 | 67 | 40 | 45 | 18 | 0 | 0 | 0 | 355 |
| 50 to 54 | 135 | 68 | 78 | 56 | 80 | 55 | 15 | 0 | 0 | 487 |
| 55 to 59 | 125 | 84 | 85 | 58 | 50 | 51 | 12 | 7 | 1 | 473 |
| 60 to 64 | 77 | 56 | 84 | 33 | 49 | 38 | 6 | 10 | 5 | 358 |
| 65 to 69 | 15 | 18 | 20 | 9 | 9 | 4 | 4 | 0 | 6 | 85 |
| 70 & Up | 3 | 2 | 6 | 3 | 3 | 1 | 0 | 0 | 1 | 19 |
| Total | 1,770 | 530 | 481 | 241 | 245 | 167 | 37 | 17 | 13 | 3,501 |

Age Distribution



Age

Service Distribution



Service



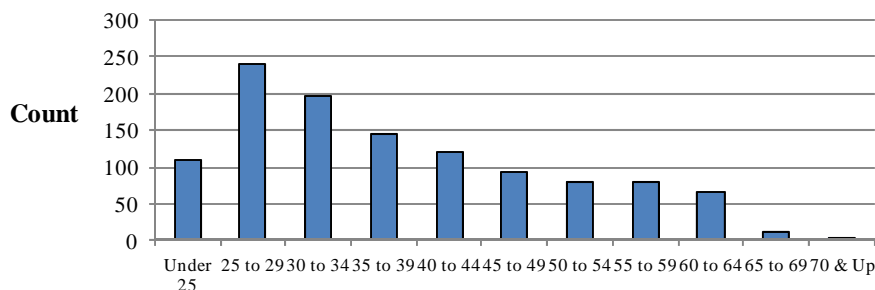
APPENDIX A: SUMMARY OF MEMBERSHIP DATA

**DISTRIBUTION OF ACTIVE MEMBERS
as of January 1, 2014**

Charter Schools

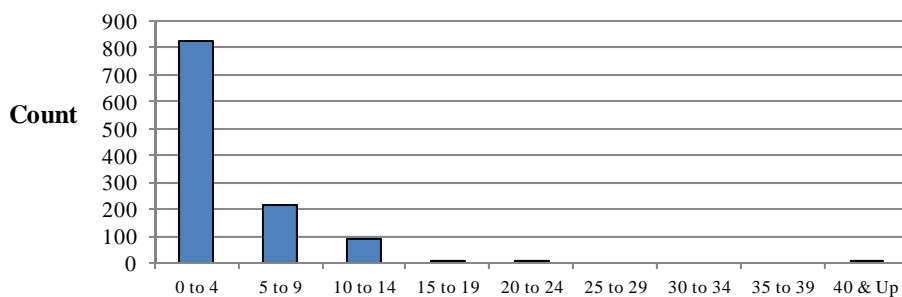
| Age | Years of Service | | | | | | | | | Total |
|--------------|------------------|------------|-----------|----------|-----------|----------|----------|----------|----------|--------------|
| | 0 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & Up | |
| Under 25 | 108 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 |
| 25 to 29 | 230 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 241 |
| 30 to 34 | 144 | 50 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 196 |
| 35 to 39 | 88 | 35 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 145 |
| 40 to 44 | 77 | 28 | 15 | 1 | 0 | 0 | 0 | 0 | 0 | 121 |
| 45 to 49 | 52 | 26 | 11 | 1 | 3 | 0 | 0 | 0 | 0 | 93 |
| 50 to 54 | 49 | 20 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 81 |
| 55 to 59 | 43 | 19 | 11 | 4 | 3 | 0 | 0 | 0 | 0 | 80 |
| 60 to 64 | 31 | 19 | 14 | 0 | 2 | 0 | 0 | 0 | 1 | 67 |
| 65 to 69 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 70 & Up | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 828 | 214 | 88 | 6 | 10 | 0 | 0 | 0 | 1 | 1,147 |

Age Distribution



Age

Service Distribution



Service



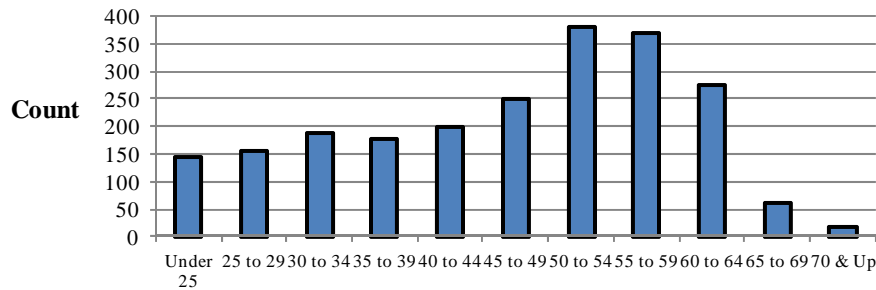
APPENDIX A: SUMMARY OF MEMBERSHIP DATA

DISTRIBUTION OF ACTIVE MEMBERS
as of January 1, 2014

School District & Retirement System

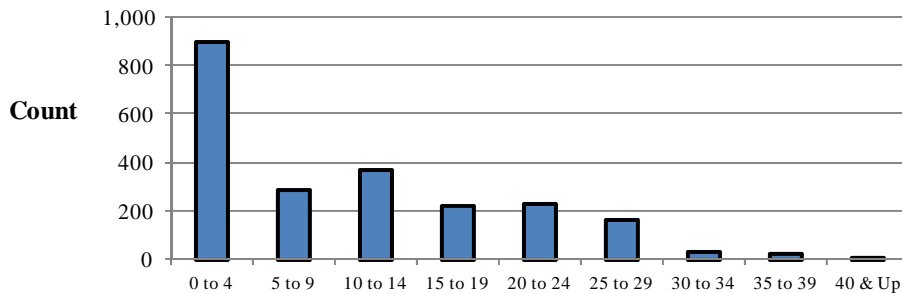
| Age | Years of Service | | | | | | | | | | Total |
|--------------|------------------|------------|------------|------------|------------|------------|-----------|-----------|----------|----------|--------------|
| | 0 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & Up | | |
| Under 25 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 143 |
| 25 to 29 | 145 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 156 |
| 30 to 34 | 131 | 42 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 189 |
| 35 to 39 | 100 | 29 | 44 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 176 |
| 40 to 44 | 89 | 29 | 35 | 37 | 9 | 0 | 0 | 0 | 0 | 0 | 199 |
| 45 to 49 | 76 | 26 | 54 | 35 | 41 | 17 | 0 | 0 | 0 | 0 | 249 |
| 50 to 54 | 80 | 40 | 66 | 51 | 77 | 55 | 11 | 0 | 0 | 0 | 380 |
| 55 to 59 | 78 | 58 | 71 | 51 | 42 | 50 | 11 | 7 | 0 | 0 | 368 |
| 60 to 64 | 45 | 34 | 63 | 32 | 46 | 38 | 5 | 10 | 2 | 0 | 275 |
| 65 to 69 | 9 | 12 | 15 | 9 | 8 | 4 | 2 | 0 | 3 | 0 | 62 |
| 70 & Up | 2 | 2 | 6 | 3 | 3 | 1 | 0 | 0 | 1 | 0 | 18 |
| Total | 898 | 282 | 371 | 221 | 226 | 165 | 29 | 17 | 6 | 0 | 2,215 |

Age Distribution



Age

Service Distribution



Service



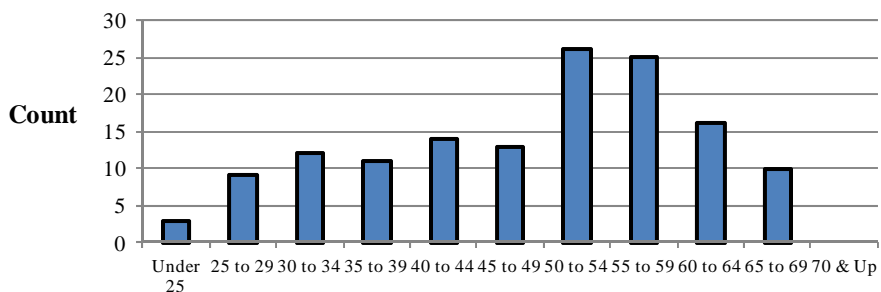
APPENDIX A: SUMMARY OF MEMBERSHIP DATA

**DISTRIBUTION OF ACTIVE MEMBERS
as of January 1, 2014**

Library

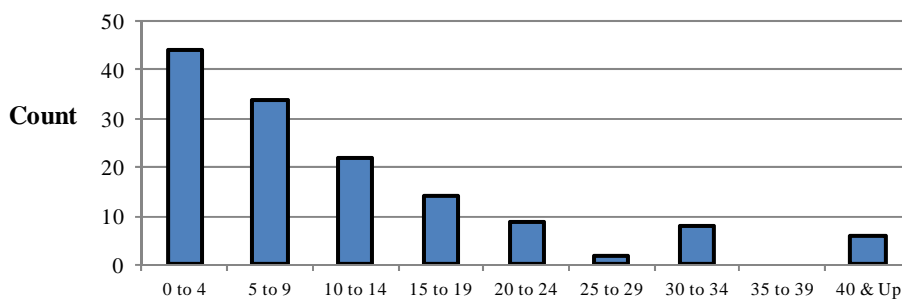
| Age | Years of Service | | | | | | | | | Total |
|--------------|------------------|-----------|-----------|-----------|----------|----------|----------|----------|----------|------------|
| | 0 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & Up | |
| Under 25 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 25 to 29 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 30 to 34 | 9 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 35 to 39 | 4 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 40 to 44 | 5 | 5 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 14 |
| 45 to 49 | 3 | 2 | 2 | 4 | 1 | 1 | 0 | 0 | 0 | 13 |
| 50 to 54 | 6 | 8 | 2 | 5 | 1 | 0 | 4 | 0 | 0 | 26 |
| 55 to 59 | 4 | 7 | 3 | 3 | 5 | 1 | 1 | 0 | 1 | 25 |
| 60 to 64 | 1 | 3 | 7 | 1 | 1 | 0 | 1 | 0 | 2 | 16 |
| 65 to 69 | 1 | 1 | 2 | 0 | 1 | 0 | 2 | 0 | 3 | 10 |
| 70 & Up | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 44 | 34 | 22 | 14 | 9 | 2 | 8 | 0 | 6 | 139 |

Age Distribution



Age

Service Distribution



Service

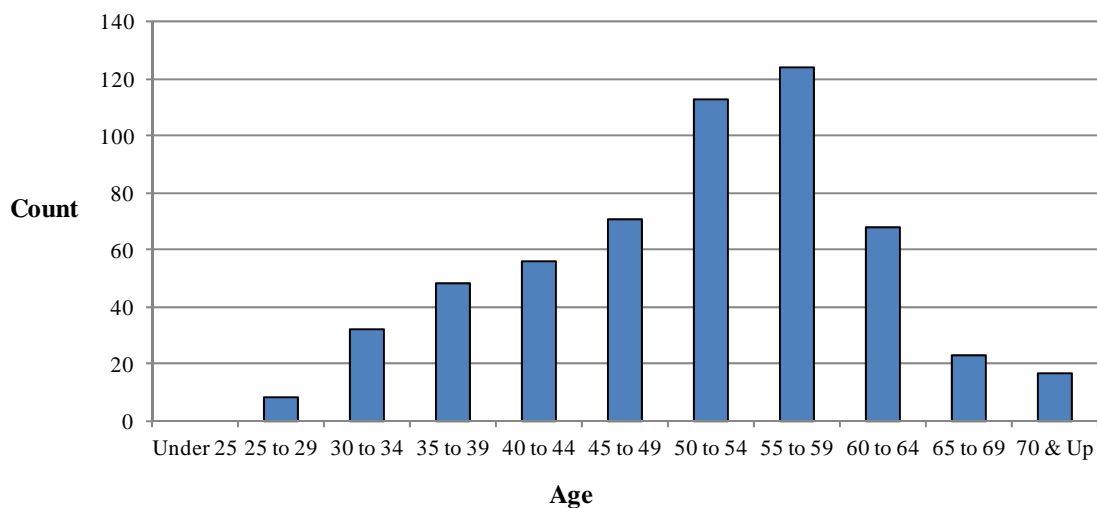


APPENDIX A: SUMMARY OF MEMBERSHIP DATA

**SUMMARY OF DEFERRED VESTED MEMBERS
as of January 1, 2014**

| Age | Number | | | Account Balances | | |
|--------------|------------|------------|------------|--------------------|---------------------|---------------------|
| | Male | Female | Total | Male | Female | Total |
| Under 25 | 0 | 0 | 0 | \$ 0 | \$ 0 | \$ 0 |
| 25 to 29 | 1 | 7 | 8 | 10,544 | 103,704 | 114,248 |
| 30 to 34 | 8 | 24 | 32 | 157,213 | 458,039 | 615,252 |
| 35 to 39 | 11 | 37 | 48 | 269,734 | 892,756 | 1,162,490 |
| 40 to 44 | 19 | 37 | 56 | 512,504 | 935,383 | 1,447,887 |
| 45 to 49 | 18 | 53 | 71 | 668,761 | 1,919,559 | 2,588,320 |
| 50 to 54 | 31 | 82 | 113 | 1,467,827 | 3,143,681 | 4,611,508 |
| 55 to 59 | 30 | 94 | 124 | 1,303,792 | 3,963,655 | 5,267,447 |
| 60 to 64 | 14 | 54 | 68 | 404,364 | 2,885,909 | 3,290,273 |
| 65 to 69 | 6 | 17 | 23 | 263,148 | 850,205 | 1,113,353 |
| 70 & Up | 6 | 11 | 17 | 392,414 | 175,841 | 568,255 |
| Total | 144 | 416 | 560 | \$5,450,301 | \$15,328,732 | \$20,779,033 |

Age Distribution



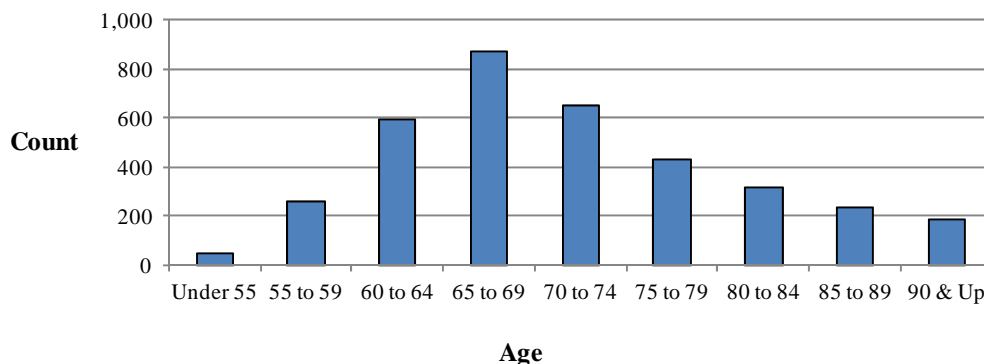


APPENDIX A: SUMMARY OF MEMBERSHIP DATA

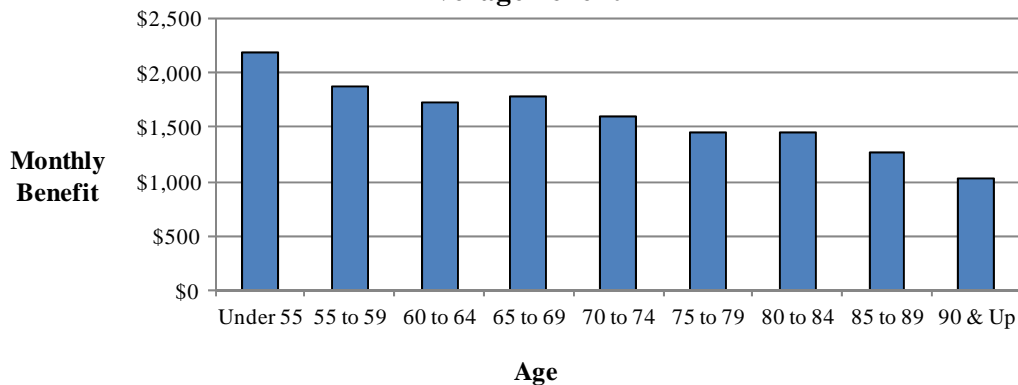
**SUMMARY OF RETIRED MEMBERS
as of January 1, 2014**

| Age | Number | | | Monthly Benefit | | |
|--------------|------------|--------------|--------------|---------------------|---------------------|---------------------|
| | Male | Female | Total | Male | Female | Total |
| Under 55 | 14 | 37 | 51 | \$ 30,192 | \$ 81,655 | \$ 111,847 |
| 55 to 59 | 70 | 187 | 257 | 111,651 | 372,153 | 483,804 |
| 60 to 64 | 145 | 451 | 596 | 222,046 | 812,287 | 1,034,333 |
| 65 to 69 | 236 | 636 | 872 | 365,158 | 1,185,602 | 1,550,760 |
| 70 to 74 | 147 | 505 | 652 | 216,143 | 825,380 | 1,041,523 |
| 75 to 79 | 80 | 353 | 433 | 122,013 | 504,980 | 626,993 |
| 80 to 84 | 19 | 298 | 317 | 28,336 | 432,287 | 460,623 |
| 85 to 89 | 19 | 214 | 233 | 31,143 | 266,086 | 297,229 |
| 90 & Up | 10 | 173 | 183 | 11,874 | 176,497 | 188,371 |
| Total | 740 | 2,854 | 3,594 | \$ 1,138,556 | \$ 4,656,927 | \$ 5,795,483 |

Age Distribution



Average Benefit



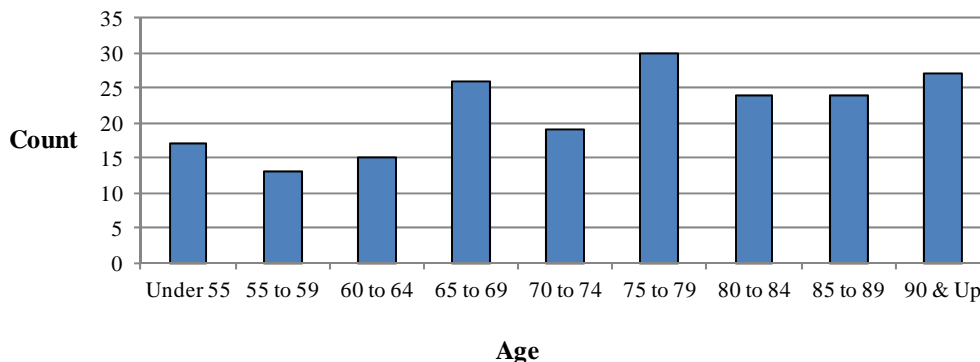


APPENDIX A: SUMMARY OF MEMBERSHIP DATA

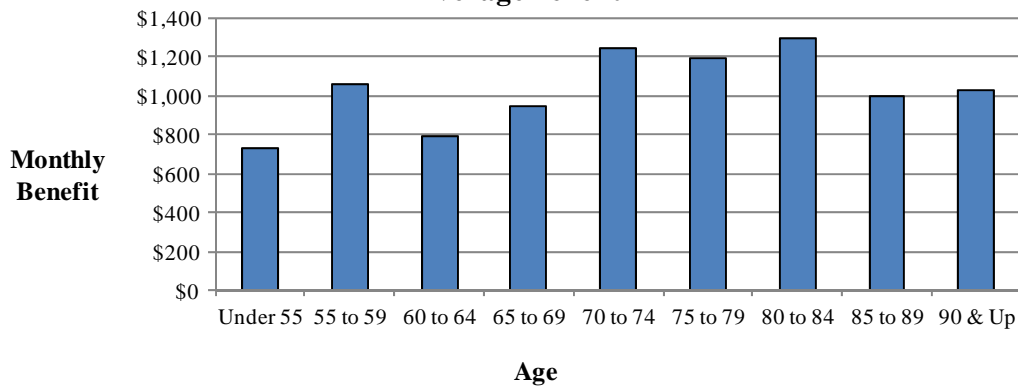
SUMMARY OF BENEFICIARIES
as of January 1, 2014

| Age | Number | | | Monthly Benefit | | |
|--------------|-----------|------------|------------|------------------|-------------------|-------------------|
| | Male | Female | Total | Male | Female | Total |
| Under 55 | 6 | 11 | 17 | \$ 5,777 | \$ 6,661 | \$ 12,438 |
| 55 to 59 | 11 | 2 | 13 | 11,567 | 2,202 | 13,769 |
| 60 to 64 | 10 | 5 | 15 | 8,144 | 3,689 | 11,833 |
| 65 to 69 | 11 | 15 | 26 | 9,910 | 14,660 | 24,570 |
| 70 to 74 | 9 | 10 | 19 | 9,170 | 14,488 | 23,658 |
| 75 to 79 | 9 | 21 | 30 | 12,722 | 23,175 | 35,897 |
| 80 to 84 | 5 | 19 | 24 | 5,105 | 25,899 | 31,004 |
| 85 to 89 | 4 | 20 | 24 | 3,843 | 20,064 | 23,907 |
| 90 & Up | 2 | 25 | 27 | 1,080 | 26,579 | 27,659 |
| Total | 67 | 128 | 195 | \$ 67,318 | \$ 137,417 | \$ 204,735 |

Age Distribution



Average Benefit



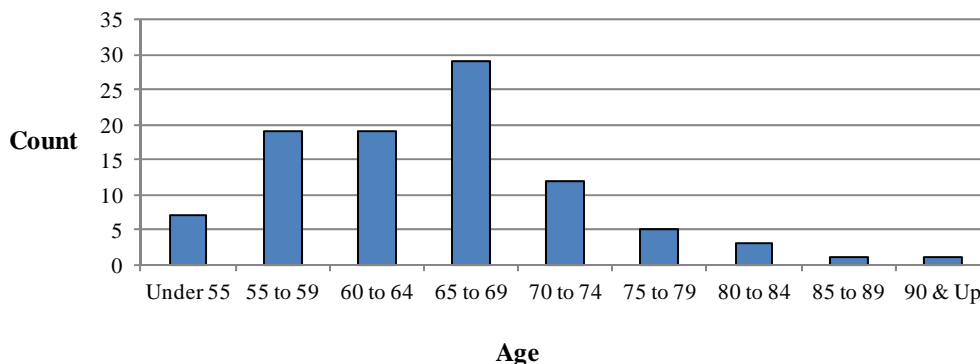


APPENDIX A: SUMMARY OF MEMBERSHIP DATA

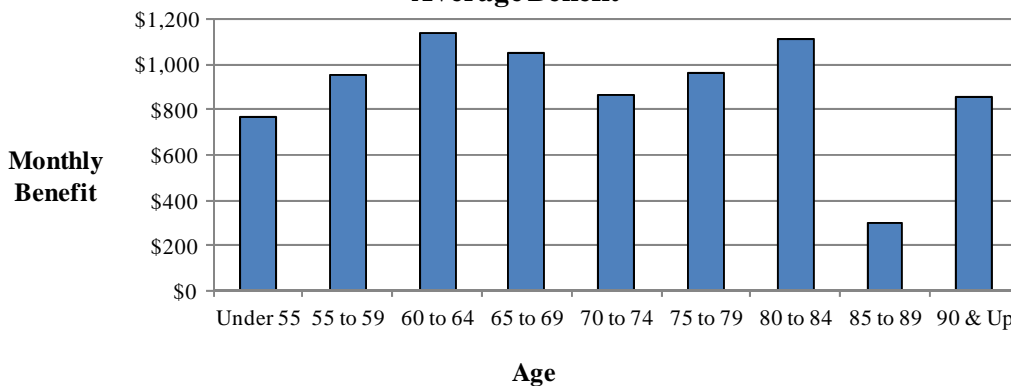
SUMMARY OF DISABLED MEMBERS
as of January 1, 2014

| Age | Number | | | Monthly Benefit | | |
|--------------|-----------|-----------|-----------|------------------|------------------|------------------|
| | Male | Female | Total | Male | Female | Total |
| Under 55 | 2 | 5 | 7 | \$ 2,023 | \$ 3,336 | \$ 5,359 |
| 55 to 59 | 4 | 15 | 19 | 3,420 | 14,758 | 18,178 |
| 60 to 64 | 3 | 16 | 19 | 3,781 | 17,909 | 21,690 |
| 65 to 69 | 8 | 21 | 29 | 7,754 | 22,650 | 30,404 |
| 70 to 74 | 1 | 11 | 12 | 485 | 9,940 | 10,425 |
| 75 to 79 | 0 | 5 | 5 | 0 | 4,802 | 4,802 |
| 80 to 84 | 0 | 3 | 3 | 0 | 3,339 | 3,339 |
| 85 to 89 | 0 | 1 | 1 | 0 | 297 | 297 |
| 90 & Up | 0 | 1 | 1 | 0 | 855 | 855 |
| Total | 18 | 78 | 96 | \$ 17,463 | \$ 77,886 | \$ 95,349 |

Age Distribution



Average Benefit





APPENDIX B: SUMMARY OF BENEFIT PROVISIONS

Summary of Plan Provisions

Effective Date

January 1, 1944, most recently amended in 2013.

Plan Type

Plan B applies to anyone who retires on or after June 30, 1999 and was hired prior to January 1, 2014. Plan C applies to members hired on or after January 1, 2014. All members with Plan A benefits have terminated or retired.

Eligibility for coverage

All regular, full-time employees of the School District of Kansas City, Missouri, the library district or the retirement system and employees of charter schools become participants as a condition of employment. Regular employment means working at least five hours per day, five days per week, nine months per year. Temporary and part-time employees are excluded.

Service

Creditable service is participant service, which is service for which required contributions have been made. There is no cap on creditable service. Prior to 1990, creditable service could not exceed 35 years. The maximum retirement benefit is 60% of Average final compensation, which will be reached upon attainment of 30 years of service.

Annual compensation

A participant's annual compensation level will be the regular compensation shown on the salary and wage schedules, excluding extra pay, overtime pay, or any pay not on the schedule.

Average final compensation

The average final compensation is the highest average annual compensation paid during any four consecutive years of service.

Normal retirement

Eligibility

Plan B: Participants may retire after (a) the completion of five years of creditable service and the attainment of age 60, or (b) having a total of at least 75 credits, with each year of creditable service and year of age, both prorated for fractional years, equal to one credit.



APPENDIX B: SUMMARY OF BENEFIT PROVISIONS

Plan C: Participants may retire after (a) the completion of five years of creditable service and the attainment of age 62, or (b) having a total of at least 80 credits, with each year of creditable service and year of age, both prorated for fractional years, equal to one credit.

Benefit

Plan B: The normal retirement benefit payable monthly equals one twelfth of 2.00% (1.75% for participants who retired prior to June 30, 1999) of the participant's average final compensation multiplied by years of creditable service, subject to a maximum of 60% of average final compensation. Any participant whose years of creditable service exceed 34.25 years on August 28, 1993 shall have a maximum greater than 60%, which shall be equal to 1.75% times the participant's years of creditable service on August 28, 1993.

Plan C: The normal retirement benefit payable monthly equals one twelfth of 1.75% of the participant's average final compensation multiplied by years of creditable service, subject to a maximum of 60% of average final compensation.

Minimum benefit

Effective January 1, 1996, any participant with at least 20 years of creditable service at retirement is entitled to a minimum benefit of \$300 per month, or the actuarial equivalent of \$300 if an option was elected. Any participant with at least 10 years of creditable service, but less than 20 years, is entitled to a minimum benefit of \$150 per month, plus \$15 for each full year of creditable service in excess of 10 years, or its actuarial equivalent if an option was elected. Beneficiaries of deceased participants who elected an option and who retired with at least 10 years of creditable service receive the actuarial equivalent of the minimum benefit. If a participant's accumulated contributions provide more than the participant's retirement benefit (under the actuarial assumptions adopted by the Board of Trustees), the participant's benefit will be increased by this excess.

Early retirement

Eligibility

Participants may retire at any time after the completion of five years of creditable service and the attainment of age 55.

Benefit

Plan B: A participant eligible for early retirement will receive a reduced benefit, with the reduction based on the number of months preceding eligibility for a normal retirement benefit. The reduction factors are as follows:

| Age | Reduction Factor |
|-----|------------------|
| 59 | 0.91662 |
| 58 | 0.84138 |
| 57 | 0.77334 |
| 56 | 0.71168 |
| 55 | 0.65572 |



APPENDIX B: SUMMARY OF BENEFIT PROVISIONS

Plan C: A participant eligible for early retirement will receive a reduced benefit. The reduction factors are approved by the Board and are based on actuarial tables reflecting life expectancy.

Disability retirement

Eligibility

A participant with at least five years of creditable service who is certified to be totally incapacitated for performance of duty by the Medical Board is eligible for a disability retirement.

Benefit

A disabled participant will receive an unreduced benefit, calculated as for normal retirement, based on service and average final compensation at actual retirement date. The minimum disability retirement benefit will be the lesser of (a) 25% of the participant's average final compensation, or (b) the participant's service retirement allowance calculated on the participant's average final compensation and the maximum number of years of creditable service the participant would have earned had the participant remained an employee until age 60. Disability benefits are payable immediately.

Vested termination benefits

Eligibility

A participant who has at least five years of creditable service earns a vested interest in his or her accrued benefit, provided the participant leaves his or her contributions in the System.

Benefit

The vested benefit is calculated as a normal retirement benefit based on service and average final compensation at date of termination and is payable at minimum normal retirement date.

Non-vested benefits

Benefit

If the participant's termination is for reasons other than death or retirement and if the participant has not met the vesting or retirement requirements, the participant's contributions with interest will be refunded.

Death Benefit

Prior to retirement

For a participant who dies before retirement, the participant's designated beneficiary is entitled to receive a monthly retirement benefit if (a) the participant was an active employee, or (b) the



APPENDIX B: SUMMARY OF BENEFIT PROVISIONS

participant was an inactive vested member who met the age requirements for either normal or early retirement. The participant's designated beneficiary has the option of selecting a monthly benefit under Option 1 with immediate commencement, or receiving a refund of contributions accumulated with interest.

For an inactive vested participant who dies before retirement and has not met the age requirements for retirement, the participant's accumulated contributions with interest will be paid to the participant's designated beneficiary.

The designated beneficiary is the participant's spouse, dependent child or dependent parent. If the deceased participant was an actively contributing member and the beneficiary elects Option 1, such benefit shall be calculated as if the deceased participant had at least ten years of creditable service at the time of death. If the beneficiary is a child, the benefit is only payable until age nineteen.

Postretirement

The optional form of benefit payment selected will determine what, if any, benefits are payable upon death after retirement. Participants are guaranteed to receive at least their accumulated contributions at retirement, if they die before electing an option.

Normal form of benefit payments

The normal form of benefit payment is the normal retirement benefit amount paid monthly for the life of the participant. If the participant should die before receiving payments totaling the amount of their contributions to the plan, the designated beneficiary shall receive a lump sum payment of the remaining amount.

Optional forms of benefit payments

Participants may elect from the following optional forms of benefit payment:

Option 1

Option 1 provides a reduced retirement benefit that will continue on to a designated beneficiary. Upon a retiree's death, the retiree's designated beneficiary will receive for life, the same level of monthly retirement benefit. In the event the retiree's designated beneficiary predeceases the retiree, the retiree's monthly retirement benefit will be adjusted to the amount that would have been paid in the normal form of payment.

Option 2

Option 2 provides a reduced retirement benefit that will continue on to a designated beneficiary. Upon a retiree's death, the retiree's designated beneficiary will receive for life, a monthly benefit equal to one-half of the retiree's monthly retirement benefit. In the event the retiree's designated beneficiary predeceases the retiree, the retiree's monthly retirement benefit will be adjusted to the amount that would have been paid in the normal form of payment.



APPENDIX B: SUMMARY OF BENEFIT PROVISIONS

Option 3

Option 3 provides that upon a retiree's death, no benefits are payable to the retiree's estate or any beneficiary. Retirement benefits payable under this option will be actuarially increased from the normal form.

Each of the above options produces benefits which are actuarially equivalent to the normal form of benefit which is a monthly annuity payable for the lifetime of the retiree.

Cost-of-living allowances

The Board of Trustees shall determine annually whether or not the system can provide an increase in benefits for those retirees who, as of the January 1 preceding the date of such increase, have been retired at least one year. Any such increase also applies to optional retirement allowances paid to a retiree's beneficiary. The Board makes its determination as follows:

1. The actuary recommends to the Board what portion of the investment return is available for increases and the amount available to be paid on the first day of the 14th month following the end of the valuation year. The actuary's recommendation is subject to the following safeguards:
 - a. The System's funded ratio as of the January 1st of the preceding year of the proposed increase must be at least 100% after adjusting for the effect of proposed increase. The funded ratio is the ratio of assets to the pension benefit obligation.
 - b. The actuarially required contribution rate, after adjusting for the effect of the proposed increase, may not exceed the statutory contribution rate.
 - c. The actuary must certify that the proposed increase will not impair the actuarial soundness of the System.
2. The Board reviews the actuary's recommendation and shall, in their discretion, determine if an increase may be granted. In accordance with Board policy, if an increase is permissible, the amount of the increase will be equal to the lesser of 3% or the percentage increase in the CPI for the preceding year, subject to a cumulative increase of 100% subsequent to December 31, 2000.
3. This provision does not guarantee an annual increase to any retired participant.

Administration of the retirement system

The Board of Trustees is responsible for the general administration and proper operation of the retirement system. The Board consists of 12 members – four member appointed by the Board of Education, one member appointed by the Board of Trustees of the library district, four members elected by and from the participants of the retirement system, two members elected by and from the retirees of the retirement system, and the Superintendent of Schools of the School District of Kansas City, Missouri. Administrative expenses are paid out of the general reserve fund.



APPENDIX B: SUMMARY OF BENEFIT PROVISIONS

Employee contributions

Effective January 1, 2014, participants contribute 8.0% of earnable annual compensation. Prior to January 1, 2014, participants contributed 7.50%. Prior to January 1, 1999, participants contributed 5.9%. Prior to 1990, participants contributed 5.0% of earnable annual compensation plus 2.0% of earnable annual compensation in excess of \$6,500, the contribution earnings base.

Employer contributions

The employers of participants contribute at the fixed rate of 1.99% of covered compensation effective July 1, 1993; 3.99% effective July 1, 1995; 5.99% effective July 1, 1996; 7.50% effective January 1, 1999; and 8.0% effective January 1, 2014. Prior to July 1, 1993, employer contributions were actuarially determined.

Changes from the Prior Valuation

Legislation passed in the 2013 session allows the Board to adjust the contribution rate annually in 0.50% increments to as much as 9% for both employers and members. The Board adopted a contribution rate of 8.0% each (employer and member) beginning January 1, 2014.

In addition, legislation in 2013 created a different benefit structure (Plan C) for members hired after December 31, 2013. The benefit multiplier is 1.75% and normal retirement is the earlier of age 62 or Rule of 80.



APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

ACTUARIAL COST METHOD

The actuarial cost method is a procedure for allocating the actuarial present value of pension benefits and expenses to time periods. The method used for the valuation is known as the Entry Age Normal actuarial cost method, and have the following characteristics:

- (i) The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at time of retirement.
- (ii) Each annual normal cost is a constant percentage of the member's year-by-year projected covered compensation.

The Entry Age Normal actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's assumed pensionable compensation rates between the entry age of the member and the assumed exit ages.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called actuarial accrued liability. Deducting actuarial assets from the actuarial accrued liability determines the unfunded actuarial accrued liability or (surplus). The unfunded actuarial accrued liability/(surplus) is financed as a level dollar amount over an open 30-year period.

ACTUARIAL ASSUMPTIONS

System contribution requirements and actuarial present values are calculated by applying assumptions to the benefit provisions and membership information of the System, using the actuarial cost method.

The principal areas of risk which require assumptions about future activities of the System are:

- (i) Long-term rates of investment return to be generated by the assets of the System
- (ii) Patterns of pay increases to members
- (iii) Rates of mortality among members, retirees and beneficiaries
- (iv) Rates of withdrawal of active members
- (v) Rates of disability among active members
- (vi) The age patterns of actual retirements



APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

In making a valuation, the monetary effect of each assumption is calculated for as long as a presently covered person survives – a period of time which can be as long as a century.

Actual experience of the System will not coincide exactly with assumed experience. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experiences. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time to time, one or more of the assumptions are modified to reflect experience trends (but not random or temporary year-to-year fluctuations).

Investment Rate of Return: (net of administrative expenses): 8.00% per year, compounded annually (3.50% long-term price inflation and a 4.50% real rate of return).

Participant Account Interest Crediting Rate: 5.00% per year.

Salary Increase Rates: 5.00% per year.

Mortality Table: This assumption is used to measure the probabilities of members dying and the probabilities of each pension payment being made after retirement.

Healthy Retirees

And Beneficiaries: IRS Prescribed Static Table: RP-2000 Healthy Annuitant Table projected 7 years from valuation date using Scale AA

Disabled Retirees: RP-2000 Disabled Table for Males and Females

Active Members: IRS Prescribed Static Table: RP-2000 Healthy Non-Annuitant Table projected 15 years from valuation date using Scale AA



APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

Rates of Retirement: These rates are used to measure the probability of eligible members retiring under the regular retirement provisions.

Retirements occur at rates based on the actual experience of the retirement system. The age-related rates used are shown in the below table. However, 20% of participants are assumed to retire in their first year of eligibility for normal retirement, which is the earlier of age 60 and 5 years of creditable service or 75 credits.

| Retirement | |
|------------|------|
| Age | Rate |
| 45-59 | 5% |
| 60 | 12 |
| 61 | 12 |
| 62 | 25 |
| 63 | 15 |
| 64 | 20 |
| 65 | 35 |
| 66-69 | 25 |
| 70 | 100 |

Rates of Separation from Active Membership: This assumption measures the probabilities of a member terminating employment. The rates do not apply to members who are eligible to retire.

| Sample Ages | Years of Service | Probability of Terminating During Year |
|-------------|------------------|----------------------------------------|
| ALL | 1 | 27.00% |
| | 2 | 24.00 |
| | 3 | 21.00 |
| | 4 | 18.00 |
| | 5 | 15.00 |
| | 6 | 13.00 |
| | 7 | 11.00 |
| | 8 | 9.00 |
| 25 | Over 8 | 12.20 |
| 30 | | 9.20 |
| 35 | | 7.10 |
| 40 | | 5.60 |
| 45 | | 4.70 |
| 50 | | 4.20 |
| 55 | | 3.80 |
| 60 | | 3.80 |

After 8 years of service, termination rates vary by age, however, not all ages are shown above.



APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

Forfeiture of Vested Benefits: Participants terminating in vested status are given the option of taking a refund of their accumulated participant contributions (and thereby forfeiting the employer-provided benefit) or deferring their vested benefit. Active members who terminate in the future with a vested benefit are assumed to take a deferred vested annuity, unless a refund of contributions and interest is greater than the actuarial present value of their vested deferred benefit.

Rates of Disability: This assumption measures the probabilities of a member becoming disabled.

| Sample Ages | % of Active Members Becoming Disabled During Next Year |
|-------------|--------------------------------------------------------|
| 25 | 0.05% |
| 30 | 0.10 |
| 35 | 0.10 |
| 40 | 0.10 |
| 45 | 0.15 |
| 50 | 0.25 |
| 55 | 0.40 |
| 60 | 0.50 |

Disability probabilities vary by age, however, not all ages are shown above.

Administrative Expenses: Assumed to be paid from investment earnings.

Active Member Group Size: Assumed to remain constant.

Vested Deferred Pensions: The value of deferred vested liabilities is 150% of the total value of individual participant account balances to reflect the fact that some members will take a deferred annuity.

Future Benefit Increases or Additional Benefits : When funding is adequate, the Board may authorize cost of living adjustments (COLAs), as noted in the summary of plan provisions. In the past, the Board has also sometimes granted an additional monthly payment to retirees (13th check.) This valuation assumes that no future COLAs and no future 13th checks will be awarded.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption: All participants are assumed to be married for purposes of death benefits. In each case, the male was assumed to be 4 years older than the female.

Decrement Timing: Decrements of all types are assumed to occur mid-year.

Other: The turnover decrement does not operate during retirement eligibility.



APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

CHANGES FROM THE PRIOR VALUATION

The mortality table for non-disabled members, the IRS Static Mortality Table mandated for use by private pension plans, was updated to the applicable table for 2014. This uses a separate table for pre-commencement and post-commencement.



APPENDIX D: GLOSSARY OF TERMS

| | |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Actuarial Accrued Liability | The difference between the actuarial present value of system benefits and the actuarial present value of future normal costs. Also referred to as “accrued liability” or “actuarial accrued liability”. |
| Actuarial Assumptions | Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation. |
| Accrued Service | Service credited under the system which was rendered before the date of the actuarial valuation. |
| Actuarial Equivalent | A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate assumptions. |
| Actuarial Cost Method | A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefit between future normal cost and actuarial accrued liability; sometimes referred to as the “actuarial funding method”. |
| Experience Gain (Loss) | The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates. |
| Actuarial Present Value | The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment. |
| Amortization | Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with a lump sum payment. |
| Normal Cost | The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method. |
| Unfunded Actuarial Accrued Liability | <p>The difference between actuarial accrued liability and the valuation assets.</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> <p>The existence of unfunded actuarial accrued liability is not in itself bad, anymore than a mortgage on a house is bad. Unfunded actuarial accrued liability does not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liability and the trend in its amount.</p> |