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Teachers Retirement Association of Minnesota

**Actuarial Valuation Report
For Funding Purposes
As of July 1, 2014**





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Cavanaugh Macdonald

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December 5, 2014

Board of Trustees
Teachers Retirement Association of Minnesota
60 Empire Drive, Suite 400
St. Paul, MN 55103

Dear Board Members:

At your request, we have performed the annual actuarial valuation of the Teachers Retirement Association of Minnesota (TRA or System) as of July 1, 2014. The major findings of the actuarial valuation are contained in this report, which reflects the benefit provisions in place on July 1, 2014. There was no change to the actuarial methods or the plan provisions from the prior valuation. However, there was a change in one of the actuarial assumptions in this valuation. The 2014 Omnibus Pension Bill provided clarification regarding how the actuarial assumptions should reflect the increase in the postretirement adjustment rate when funding stability is attained. It also changed the definition of “funding stability” from attainment of a funded ratio of 90% for one year to a funded ratio of 90% for two consecutive years (measured on a market value basis). In addition, the legislation provided for the merger of the Duluth Teachers Retirement Fund Association into TRA. Since the merger will not occur until June 30, 2015, the provision had no impact on this valuation.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by TRA staff. This information includes, but is not limited to, statutory provisions, member data and financial information. We found this information to be reasonable and comparable to information used in prior valuations. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

The statutory benefits of the System are reflected in the actuarially calculated contribution rates which are developed using the Entry Age Normal (EAN) cost method. An asset smoothing method is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded actuarial accrued liability and are amortized as a level percent of payroll over a closed period set in state statutes. Actuarial assumptions, including discount rates, mortality tables and others identified in this report, are prescribed by Minnesota Statutes Section 356.215, the Legislative Commission on Pensions and Retirement (LCPR), and the Trustees. These parties are responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation method, and actuarial assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in Appendix C of this report.

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Board of Trustees
December 5, 2014
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Future actuarial results may differ significantly from the current results presented in this report due to factors such as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of potential results is not presented herein.

The actuarial computations presented in this report are for purposes of determining the required contribution rates for funding the System. Actuarial computations for purposes of fulfilling financial accounting requirements for the System under the Governmental Accounting Standards Board (GASB) Statement Number 67 will be presented in a separate 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 the plan provisions described in Appendix B of this report. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement System. In addition, to the best of our knowledge and belief the valuation was performed in accordance with the requirements of Minnesota Statutes, Section 356.215, and the requirements of the Standards for Actuarial Work established by the State of Minnesota Legislative Commission on Pensions and Retirement (LCPR). We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. Also, we meet the requirements of "approved actuary" under Minnesota Statutes, Section 356.215, Subdivision 1, Paragraph (c).

Respectfully submitted,

A handwritten signature in blue ink that reads "Patrice Beckham". The signature is written in a cursive style.

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

A handwritten signature in blue ink that reads "Brent A. Banister". The signature is written in a cursive style.

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



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SECTION 1 – EXECUTIVE SUMMARY

The Teachers Retirement Association of Minnesota (TRA or System) provides retirement, disability, and death benefits to Minnesota public school teachers, administrators, and college faculty. This report presents the results of the July 1, 2014 actuarial funding valuation of the System. The primary purposes of performing the actuarial funding valuation are to:

- determine the Required Contribution Rate as set forth in Chapter 356 of the Minnesota statutes;
- determine the sufficiency of the Statutory Contribution Rate as set forth in Chapter 354 of the Minnesota statutes;
- determine the experience of the System since the last valuation date;
- disclose asset and liability measures as of the valuation date; and
- analyze and report on trends in System contributions, assets, and liabilities over the past several years.

There were no changes to the plan provisions or the actuarial methods from the prior valuation, but there was one change to the actuarial assumptions. Previously, based on limited official guidance and the fact that the increase in the postretirement adjustment (cost of living adjustment or COLA) was not expected to occur for many years, the COLA increase to 2.5% as provided in law was not anticipated in the valuation results. The 2014 Omnibus Pension Bill provided clarification in the state statutes regarding how the actuarial assumptions should reflect the increase in the postretirement adjustment rate by requiring the COLA increase to be assumed when funding stability (the defined trigger point for the increases to occur) is expected to be attained. It also changed the criteria for the measurement of “funding stability” from a funded ratio of 90% for one year to a funded ratio of 90% for two consecutive years (on a market value basis). Using this new requirement for the current valuation and the present funded status of the System, we estimate the System will have been 90% funded for two consecutive years in the July 1, 2031 valuation, if all actuarial assumptions are met in future years, and thus the COLA is assumed to increase to 2.5% at that time.

In addition, the Omnibus Pension Bill provided for the merger of the Duluth Teachers Retirement Fund Association (DTRFA) into TRA and provided for additional ongoing state aid to TRA to ensure the long term funding of TRA will not be affected. Since the merger will not occur until June 30, 2015, the provision had no impact on this valuation.

The actuarial valuation results provide a “snapshot” view of the System’s financial condition on July 1, 2014. The results reflect net favorable experience for the past plan year as demonstrated by an unfunded actuarial accrued liability (UAAL) that was lower than expected. The UAAL on July 1, 2014 is \$6.347 billion as compared to an expected UAAL of \$7.425 billion (reflecting the assumption change). The favorable experience was the combination of an experience gain of just over \$1 billion on the actuarial value of assets offset by a minor net experience loss of about \$1 million on System liabilities. Due to the application of the asset smoothing method, there is a deferred investment gain of \$2.1 billion.

A summary of the key results from the July 1, 2014 actuarial valuation is shown below. Further detail on the valuation results can be found in the following sections of this Executive Summary.

	July 1, 2013 Valuation Results	July 1, 2014 Valuation Results
Total Required Contribution Rate (Chapter 356)	19.41%	19.15%
Statutory Contribution Rate (Chapter 354)	14.67%	15.68%
Sufficiency/(Deficiency)	(4.74%)	(3.47%)
Unfunded Actuarial Accrued Liability (\$M)	\$6,644	\$6,347
Funded Ratio (Actuarial Assets)	71.63%	74.13%



SECTION 1 – EXECUTIVE SUMMARY

The contribution deficiency decreased from 4.74% of payroll in last year’s valuation to 3.47% of payroll in the 2014 valuation. The most significant factors in the decline of the deficiency were the actual investment return of over 18% which served to decrease the Required Contribution Rate and the 0.50% scheduled increase in both the member and employer contribution rates, effective July 1, 2014. While these factors reduced the deficiency, the reduction was partially offset by the change in the COLA assumption which increased the liabilities and the Required Contribution Rate.

EXPERIENCE FOR THE LAST PLAN YEAR

Numerous factors contributed to the change in the Systems’ assets, liabilities and actuarial contribution rate between July 1, 2013 and July 1, 2014. The components are examined in the following discussion.

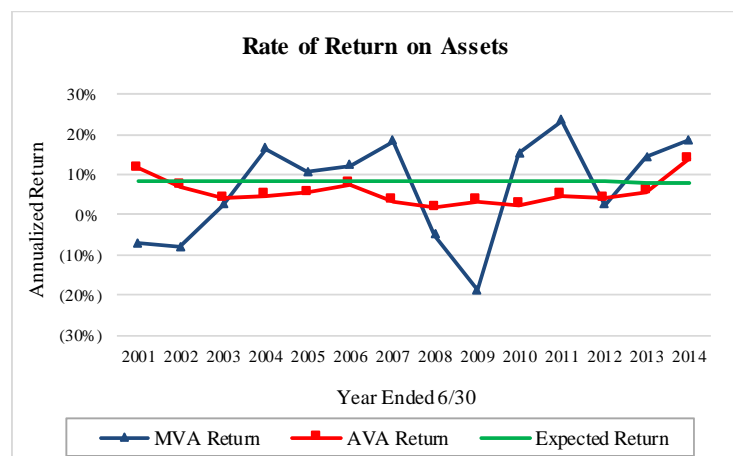
ASSETS

As of June 30, 2014, TRA had net assets of \$20.3 billion, when measured on a market value basis. This was an increase of approximately \$2.3 billion from the prior year.

The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability and the Required Contribution Rate (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. The resulting amount is called the “actuarial value of assets”. In this year’s valuation, the actuarial value of assets as of June 30, 2014 was \$18.2 billion, an increase of \$1.4 billion from the value in the prior year. The components of change in the asset values are shown in the following table:

	Actuarial Value (\$M)	Market Value (\$M)
Net Assets, June 30, 2013	\$ 16,775	\$ 18,015
- Employer and Member Contributions	+ 615	+ 615
- Benefit Payments and Administrative Expenses	- 1,602	- 1,602
- Investment Income	+ 2,394	+ 3,262
Net Assets, June 30, 2014	\$ 18,182	\$ 20,290

On a market value basis, the rate of return was 18.6% as reported by the State Board of Investment (SBI). Due to the strong return on the market value of assets and the unrecognized investment experience, the net rate of return, measured on the actuarial value of assets, was 13.9%. Because this rate of return was more than the assumed rate of 8.0%, there was an actuarial gain of \$1.080 billion. Please see Section II of this report for more detailed information on the market and actuarial value of assets.



Market value returns have been very volatile. An asset smoothing method is used to calculate the actuarial value of assets that recognizes investment gains and losses equally over a five year period. As can be seen in this graph, the return on actuarial assets is much smoother than the return on market value.



SECTION 1 – EXECUTIVE SUMMARY

LIABILITIES

The actuarial accrued liability is that portion of the present value of future benefits that will not be paid by future normal costs. The difference between this liability and the actuarial value of assets at the same date is called the unfunded actuarial accrued liability (UAAL). The dollar amount of unfunded actuarial accrued liability is reduced if the contributions to the System exceed the normal cost for the year plus interest on the prior year's UAAL.

The unfunded actuarial accrued liability is shown as of July 1, 2014 in the following table:

	Actuarial Value of Assets	Market Value of Assets
<i>(\$Millions)</i>		
Actuarial Accrued Liability	\$24,529	\$24,529
Value of Assets	18,182	20,290
Unfunded Actuarial Accrued Liability*	6,347	4,239
Funded Ratio	74.13%	82.72%

*Numbers may not add due to rounding

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

Changes in the UAAL occur for various reasons. The net reduction in the UAAL from July 1, 2013 to July 1, 2014 was \$297 million. The components of this net change are shown in the table below (in millions):

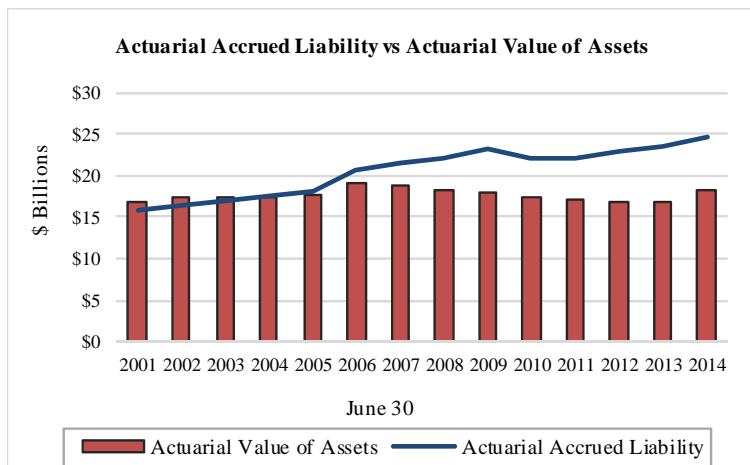
Unfunded Actuarial Accrued Liability, July 1, 2013 (\$M)	\$6,644
• Expected increase from amortization method	\$60
• Expected increase from contributions below Required Rate	207
• Investment experience	(1,080)
• Liability experience	1
• Other experience	2
• Change in methodology for COLA increase	513
• Total	(297)
Unfunded Actuarial Accrued Liability, July 1, 2014	\$6,347

As shown above, various components impacted the UAAL. Actuarial gains (losses), which result from actual experience that is more (less) favorable than anticipated based on the actuarial assumptions, are reflected in the UAAL and are measured as the difference between the expected unfunded actuarial accrued liability and the actual unfunded actuarial accrued liability, taking into account any changes due to actuarial assumptions and methods or benefit provision changes. Overall, the System experienced a net actuarial gain of \$1.079 billion. The net actuarial gain may be explained by considering the separate experience of assets and liabilities. As noted earlier, there was a \$1.080 billion gain, measured on the actuarial value of assets. There was a small net liability loss of \$1 million which arose from overall demographic experience in FY 2014 slightly less favorable than anticipated by the actuarial



SECTION 1 – EXECUTIVE SUMMARY

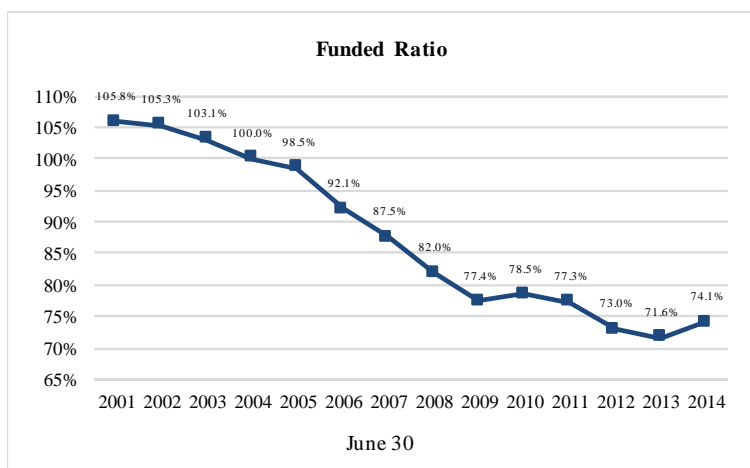
assumptions. The liability experience was the result of various components of actuarial gains and losses, the largest of which was a gain from salary increases that were lower than expected, offset by smaller losses from several sources.



The actuarial value of assets was slightly higher than the actuarial accrued liability in the early part of the period. Investment experience below the assumed rate of return of 8.5%, the merger of the Post Fund into TRA, and the merger of the Minneapolis Teachers Retirement Fund Association all served to increase the difference between the actuarial accrued liability and actuarial assets.

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

	7/1/10	7/1/11	7/1/12	7/1/13	7/1/14
Funded Ratio	78.5%	77.3%	73.0%	71.6%	74.1%
Unfunded Actuarial Accrued Liability (\$M)	\$4,758	\$5,039	\$6,219	\$6,644	\$6,347



The funded ratio has decreased over this period largely due to investment experience less than the 8.5% assumed rate of return and the dissolution of the Minnesota Post Retirement Investment Fund (MPRIF) with the associated transfer of assets and liabilities to TRA. The benefit reductions passed by the 2010 legislature, the final recognition of the 2008 and 2009 losses, and the strong investment returns since FY10 have resulted in the funded ratio beginning to rebound in this valuation.



SECTION 1 – EXECUTIVE SUMMARY

CONTRIBUTION RATE

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

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

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

Contribution Rates	July 1, 2014	July 1, 2013
1. Statutory Contribution Rate	15.68%	14.67%
2. Normal Cost Rate	8.70%	8.40%
3. UAAL Contribution Rate	10.23%	10.78%
4. Expenses	0.22%	0.23%
5. Total Required Contribution Rate (2) + (3) + (4)	19.15%	19.41%
6. Deficiency (1) - (5)	(3.47%)	(4.74%)

As discussed earlier, legislation passed in the 2014 session provided statutory guidance on how the assumption for the postretirement adjustment (COLA) should be set. Previously, based on limited official guidance and the fact that the increase in the COLA was not expected to occur for many years, the increase in the COLA to 2.5% was not anticipated; i.e., a 2.0% COLA assumption for all future years was used. The 2014 Omnibus Pension Bill provided clarification in the state statutes regarding how the actuarial assumptions should reflect the increase in the postretirement adjustment rate by requiring the COLA increase to be assumed when funding stability (the defined trigger point for the increases to occur) is expected to be attained. It also changed the criteria for the measurement of "funding stability" from a funded ratio of 90% for one year to a funded ratio of 90% for two consecutive years (on a market value basis).

In order to determine when the System's funded ratio would be 90% or more for two consecutive years we used the valuation model prepared in conjunction with the prior year's valuation, reflected the actual market value investment return for the fiscal year just ended, and then further assumed that all actuarial assumptions would be met in future years. In particular, this means the assumed rate of return is earned on the market value of assets. Therefore, the current deferred investment gains flow through the asset smoothing method over the next four years and are reflected in future valuation results, including the funded ratio. The projection for the current valuation showed that TRA will have been 90% funded for two consecutive years in the July 1, 2031 valuation. As a result, the 2014 valuation reflects a COLA assumption of 2.0% until the 2031 valuation at which time the COLA is assumed to increase to 2.5%. It is important to note that the assumption that the actuarial rate of return is earned in all future years on the market value of assets directly impacts the date at which funding stability is reached, which in turn leads to reflecting the COLA increasing to 2.5%. This anticipated date is then used in the valuation and it affects both the normal cost rate and the actuarial accrued liability. However, when the Required Contribution Rate is determined, the actuarial value of assets is used and deferred investment experience is ignored. This results in a mismatch in calculation methodology between the liabilities, which are partially determined using the market value of assets, and the actuarial assets, which are determined using the asset smoothing method. As a result, the key valuation metrics of the funded ratio, unfunded actuarial accrued liability, and the contribution rate deficiency may appear less favorable than they truly are because of the deferred gains.



SECTION 1 – EXECUTIVE SUMMARY

The impact of the change in the COLA assumption on the 2014 valuation results, using the actuarial value of assets, is summarized in the table below.

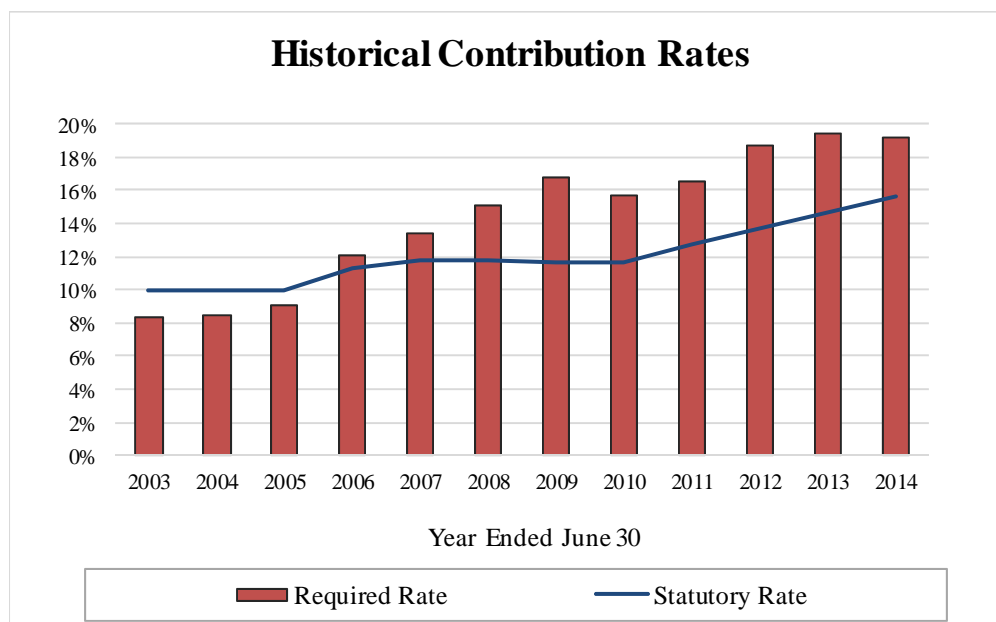
	<u>Before Changes¹</u>	<u>After Changes²</u>	<u>Impact of Changes</u>
Projected Benefit Funding Ratio	94.8%	92.3%	(2.5%)
Actuarial Accrued Liability Funding Ratio (AVA)	75.7%	74.1%	(1.6%)
Actuarial Value of Assets (AVA)	\$ 18.18B	\$ 18.18B	\$ 0.00B
Unfunded Actuarial Accrued Liability (UAAL)	\$ 5.83B	\$ 6.35B	\$ 0.51B
Normal Cost Rate (% of pay)	8.33%	8.70%	0.37%
Amortization of UAAL (% of pay)	9.40%	10.23%	0.83%
Expenses (% of pay)	0.22%	0.22%	0.00%
Total Required Contribution (% of pay)	<u>17.95%</u>	<u>19.15%</u>	<u>1.20%</u>
Contribution Deficiency (% of pay)	(2.27%)	(3.47%)	(1.20%)

¹ Assumes 2% COLA in all future years.

² Assumes 2% COLA paid until 2031 and then a 2.5% COLA is paid thereafter.

The increase in the Total Required Contribution Rate due to the change in the COLA assumption is 1.20% of pay.

A historical summary of the Statutory and Required Contribution Rates is shown in the graph below:



When the Statutory Contribution Rate is less than the Required Contribution Rate, the resulting contribution deficiency creates an increase in the unfunded actuarial accrued liability. For the plan year ending June 30, 2014, the contribution deficiency increased the UAAL by an estimated \$207 million.



SECTION 1 – EXECUTIVE SUMMARY

The actuarial contribution rate (Required Contribution Rate) is determined based on the snapshot of the System taken on the valuation date, July 1, 2014. The actuarial contribution rate in future years will change each year as the deferred actuarial investment experience is recognized and other experience (both investment and demographic) impacts the System. In addition, changes in the funded status of the System from year to year will impact the date at which the COLA is assumed to increase to 2.5%, which will impact the System liabilities and costs. Significant gains or losses may significantly move the expected date of the COLA increase.

Contribution rates have increased over the past few years, with the final scheduled increase taking effect July 1, 2014. At this point, a contribution deficiency still exists, although as pointed out earlier the liabilities reflect a 2.5% increase in the COLA in 2031 which is based on the market value of assets earning the assumed rate of return. On a market value basis, the deficiency is almost eliminated. Future investment returns, along with the use of the “stabilizer” provisions of the 2010 law will determine whether or not the System is fully funded by the end of the amortization period (June 30, 2037).

SUMMARY

The investment return on the market value of assets for FY 2014 was 18.6% as reported by SBI. Due to the deferred investment gains and losses from past years, the return on the actuarial value of assets was 13.9%. Since this return was above the assumed 8% return, the funded ratio increased from 71.63% in last year’s valuation to 74.13% this year.

As mentioned earlier, the System utilizes an asset smoothing method in the valuation process. While this is a common procedure for public retirement systems, it is important to identify the potential impact of the deferred investment experience. The asset smoothing method impacts only the timing of when the actual market experience is recognized in the valuation process. The deferred investment experience gain of \$2.1 billion represents about 10% of the market value of assets, providing some margin to absorb future investment experience that is less than the assumed rate of return.

The key valuation results from the July 1, 2014 actuarial valuation are shown below, using both actuarial and market value of assets.

	<u>Actuarial Value</u>	<u>Market Value</u>
Statutory Rate	15.68%	15.68%
Required Contribution		
Normal Cost	8.70%	8.70%
UAAL Contribution	10.23%	6.83%
Expenses	<u>0.22%</u>	<u>0.22%</u>
Total Required Contribution	19.15%	15.75%
(Deficiency)/Sufficiency	(3.47%)	(0.07%)
UAAL (\$M)	\$6,347	\$4,239
Funded Ratio	74.13%	82.72%



SECTION 1 – EXECUTIVE SUMMARY

The long-term financial health of this retirement System, like all retirement systems, is heavily dependent on two key items: (1) future investment returns and (2) contributions to the System. Changes were made by the 2010 Legislature to strengthen the funding of TRA and enhance its long term sustainability. Contributions were increased by a total of 4%, to be phased in over four years beginning July 1, 2011, and benefit reductions were implemented. These changes, along with strong investment performance in four of the last five fiscal years, have significantly improved the projected long term funding of the System. However, a contribution deficiency still exists, based on the results of the 2014 valuation. If the deferred investment gains are reflected, the deficiency is significantly reduced to 0.07%. This indicates that if the assumed returns are realized on a market value basis, allowing the current deferred gains to be recognized in future years, the System will be close to the target date for being 100% funded in June 30, 2037. Clearly, the actual market returns over the coming years will be a significant factor in whether or not the funding goal will be reached.

In addition to the market returns, the merger with the Duluth Teachers Retirement Fund Association will also change the dynamics of the funded status of the System. Prior to enactment of the legislation, a great deal of effort was spent to analyze the potential impact of the merger on TRA. We note that this analysis appropriately focused on the long term impact of the merger, reflecting the additional state aid payments that are to be scheduled to assure that TRA's funding is not negatively impacted by the merger. However, because the liabilities of the Duluth Teachers Retirement Fund Association will be included in the annual valuation of TRA in 2015, but the state aid payments intended to fund the unfunded actuarial accrued liability will be contributed over time, it is possible that certain measures of the financial health of TRA may be temporarily skewed in the short term.

We conclude this executive summary by presenting comparative statistics and actuarial information on both the July 1, 2014 and July 1, 2013 valuations.



SECTION I - EXECUTIVE SUMMARY

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows.

	Actuarial Valuation as of	
	July 1, 2014	July 1, 2013
1. PARTICIPANT DATA		
A. Active members		
1. Number	77,243	76,765
2. Projected annual earnings for fiscal year (000s)	4,353,988	4,205,399
3. Average projected annual earnings for fiscal year 2015	56,367	54,783
4. Average age	43.4	43.5
5. Average service	12.1	12.1
B. Service retirements	53,774	52,331
C. Survivors	4,472	4,269
D. Disability retirements	563	568
E. Deferred retirements	12,907	12,614
F. Terminated other non-vested	29,984	28,881
G. Total	178,943	175,428
2. LIABILITIES AND FUNDING RATIOS (dollars in thousands)		
A. Accrued Benefit Funding Ratio		
1. Current assets (AVA)	\$ 18,181,932	\$ 16,774,626
2. Current benefit obligations	23,427,654	22,390,700
3. Funding ratio	77.61%	74.92%
B. Actuarial Accrued Liability Funding Ratio		
1. Current assets (AVA)	\$ 18,181,932	\$ 16,774,626
2. Market value of assets (MVA)	20,289,594	18,015,194
3. Actuarial accrued liability	24,528,506	23,418,629
4. Unfunded actuarial accrued liability (B.3. - B.1.)	6,346,574	6,644,003
5. Funding ratio (AVA) (B.1. / B.3.)	74.13%	71.63%
6. Funding ratio (MVA) (B.2. / B.3.)	82.72%	76.93%
C. Projected Benefit Funding Ratio		
1. Current and expected future assets	\$ 25,773,148	\$ 24,199,106
2. Current and expected future benefit obligations	27,924,756	26,546,074
3. Funding ratio (AVA)	92.29%	91.16%
3. CONTRIBUTIONS (% of Payroll)		
A. Normal Cost Rate	8.70%	8.40%
B. UAAL Amortization Payment	10.23%	10.78%
C. Expenses	0.22%	0.23%
D. Total Required Contribution (Chapter 356)	19.15%	19.41%
E. Statutory Contribution (Chapter 354)	15.68%	14.67%
F. Contribution (Deficiency)/Sufficiency (3.E. - 3.D.)	(3.47%)	(4.74%)



SECTION I - EXECUTIVE SUMMARY

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SECTION II
PLAN ASSETS



SECTION II - PLAN ASSETS

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SECTION II - PLAN ASSETS

In this section, the values assigned to the assets held by the System are presented. These assets are valued on two different bases: the market value and the actuarial value.

Market Value of Net Assets

For certain accounting statement purposes, System assets are valued at current market prices. These values represent the "snapshot" of the fair value of System assets as of the valuation date.

Actuarial Value of Net Assets

The market value of assets may not necessarily 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 volatility in the market value while still indirectly recognizing market value. The methodology used to determine the actuarial value of assets is prescribed in Minnesota Statutes, Section 356.215, Subdivision 1, Paragraph (f). The assets are valued based on a five-year moving average of expected and market values (five-year average actuarial value) determined as follows:

- At the end of each plan year, an average asset value is calculated as the average of the market asset value at the beginning and end of the fiscal year net of investment income for the fiscal year;
- The investment gain or (loss) is determined as the excess of actual investment income over the expected investment income based on the average asset value as calculated above;
- The investment gain or (loss) so determined is recognized over five years at 20% per year;
- The asset value is the sum of the market value plus the scheduled recognition of investment gains or (losses) during the current and the preceding four fiscal years.



SECTION II - PLAN ASSETS

TABLE 1

STATEMENT OF FIDUCIARY NET POSITION

(Dollars in Thousands)

	June 30, 2014	June 30, 2013
	<u>Amount</u>	<u>Amount</u>
Cash and short-term investments		
Cash	\$ 3,391	\$ 8,475
Building account cash	34	67
Short term investments	536,124	469,717
Total cash and short term investments	\$ 539,549	\$ 478,259
Accounts Receivable	25,605	18,908
Investments (at fair value)		
Fixed income pool	\$ 4,732,983	\$ 4,134,002
Alternative investments pool	2,558,422	2,610,107
Indexed equity pool	3,149,569	2,600,723
Domestic equity pool	6,119,590	5,504,431
Global equity pool	3,170,211	2,676,467
Total investments	\$ 19,730,775	\$ 17,525,730
Securities lending collateral	\$ 2,194,122	\$ 1,755,793
Building		
Land	\$ 171	\$ 171
Building & equipment net of depreciation	7,283	7,563
Deferred bond charge net of amortization	0	84
Total building	\$ 7,454	\$ 7,818
Capital assets net of depreciation	8,863	6,026
Total Assets	\$ 22,506,368	\$ 19,792,534



SECTION II - PLAN ASSETS

TABLE 1 (continued)

STATEMENT OF FIDUCIARY NET POSITION

(Dollars in Thousands)

	June 30, 2014	June 30, 2013
Liabilities	<u>Amount</u>	<u>Amount</u>
Current		
Accounts payable	\$ 10,467	\$ 8,687
Accrued compensated absences	77	67
Accrued expenses - building	32	90
Bonds payable	591	576
Bonds interest payable	14	15
Securities lending collateral	2,194,122	1,755,793
Total current liabilities	\$ 2,205,303	\$ 1,765,228
Long term		
Accrued compensated absences	\$ 649	\$ 604
Bonds payable	6,732	7,383
Total long term liabilities	\$ 7,381	\$ 7,987
Total Liabilities	\$ 2,212,684	\$ 1,773,215
Net position restricted for pensions	\$ 20,293,684	\$ 18,019,319
Earnings Limitation Savings Account (ELSA) accounts payable	(4,090)	(4,125)
Net position restricted for pensions, after adjustment for ELSA accounts	\$ 20,289,594	\$ 18,015,194



SECTION II - PLAN ASSETS

TABLE 2

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION (Dollars in Thousands)

The following exhibit shows the revenue, expenses and resulting assets of the Fund as reported by the Teachers Retirement Association for the Plan's fiscal years ended June 30, 2014 and 2013.

	For Year Ended	
	June 30, 2014	June 30, 2013
Additions		
Contributions		
Member	\$ 294,632	\$ 265,809
Employer	299,300	270,708
Direct aid (state/city/district)	21,001	19,954
Earnings Limitation Savings Account (ELSA)	1,647	1,792
Total contributions	\$ 616,580	\$ 558,263
Investment Income		
Investment appreciation in fair value	\$ 3,277,719	\$ 2,326,918
Less investment expenses	(28,205)	(24,702)
Net Investment Income	\$ 3,249,514	\$ 2,302,216
Securities Lending activities		
Securities lending income	\$ 12,182	\$ 13,230
Securities lending expenses:		
Borrowing rebates	(107)	(757)
Management fees	(3,896)	(4,394)
Total securities lending expenses	(4,003)	(5,151)
Net income from securities lending	8,179	8,079
Total Net Investment Income	\$ 3,257,693	\$ 2,310,295
Other Income	3,855	3,683
Total Additions	\$ 3,878,128	\$ 2,872,241
Deductions		
Benefits Paid		
Retirement benefits	\$ (1,580,120)	\$ (1,521,477)
Refunds of contributions to members	(12,566)	(10,463)
Total benefits paid	\$ (1,592,686)	\$ (1,531,940)
Administrative Expenses	(9,430)	(9,131)
Total Deductions	\$ (1,602,116)	\$ (1,541,071)
Increase/(Decrease) in ELSA Account Value	(1,612)	(2,081)
Net Increase (Decrease)	2,274,400	1,329,089
Net Position Restricted for Pensions		
Beginning of Year	\$ 18,015,194	\$ 16,686,105
End of Year	\$ 20,289,594	\$ 18,015,194



SECTION II - PLAN ASSETS

TABLE 3

ACTUARIAL VALUE OF ASSETS AS OF JUNE 30, 2014

(Dollars in Thousands)

1. Market value of assets available for benefits				\$	20,289,594
2. Determination of average balance					
a. Assets available at July 1, 2013*				\$	18,019,319
b. Assets available at June 30, 2014*					20,293,684
c. Net investment income for fiscal year ending June 30, 2014					3,257,693
d. Average balance $(a. + b. - c.) / 2$				\$	17,527,655
3. Expected return $(8.0\% * 2.d.)$					1,402,212
4. Actual return					3,257,693
5. Current year unrecognized asset return					1,855,481
6. Unrecognized asset returns					
		Original	% Not		
		<u>Amount</u>	<u>Recognized</u>		
a. Year ended June 30, 2014	\$	1,855,481	80%	\$	1,484,385
b. Year ended June 30, 2013		1,014,336	60%		608,602
c. Year ended June 30, 2012		(1,045,252)	40%		(418,101)
d. Year ended June 30, 2011		2,163,878	20%		432,776
e. Total return not yet recognized				\$	<u>2,107,662</u>
7. Actuarial value of assets at June 30, 2014 (1. - 6.e.)				\$	18,181,932

* *Before recognition of ELSA accounts payable.*



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SECTION III - PLAN LIABILITIES

SECTION III
PLAN LIABILITIES



SECTION III - PLAN LIABILITIES

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SECTION III - PLAN LIABILITIES

In the previous section, an analysis was given of the assets of the System as of the valuation date, July 1, 2014. In this section, the discussion will focus on the commitments of the System, which are referred to as its liabilities.

Table 5 contains an analysis of the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries. The analysis is provided for each group.

The liabilities summarized in Table 5 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 measures of both benefits already earned and future benefits expected to be earned. For all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of the surviving beneficiaries.

The actuarial assumptions used to determine liabilities are based on the results of the 2004-2008 Quadrennial Experience Study. This set of assumptions is shown in Appendix C.

The liabilities reflect the benefit structure in place as of July 1, 2014.

Actuarial Liabilities

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. An actuarial cost method is a mathematical technique that allocates the present value of future benefits into annual costs. In order to perform 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 the unfunded actuarial accrued liability.



SECTION III - PLAN LIABILITIES

TABLE 4

ACTUARIAL VALUATION BALANCE SHEET AS OF JULY 1, 2014

(Dollars in Thousands)

The actuarial balance sheet is based on the fundamental equation that, at any given time, the present value of benefits to be paid in the future must be equal to the assets on hand plus the present value of future contributions to be received. The total contribution rate is determined as that amount which will make the total present and potential assets balance with the total present value of future benefits.

The contributions made in excess of amounts required for current benefit payments are accumulated as a reserve to help meet benefit payments in later years. This reserve system is designed to enable the establishment of a level rate of contribution each year.

A. Actuarial Value of Assets	\$ 18,181,932
B. Expected Future Assets	
1. Present value of expected future statutory supplemental contributions*	\$ 4,194,966
2. Present value of expected future normal cost contributions	3,396,250
3. Total expected future assets (1. + 2.)	\$ 7,591,216
C. Total Current and Expected Future Assets**	\$ 25,773,148

	<u>Non-Vested</u> <u>Benefits</u>	<u>Vested</u> <u>Benefits</u>	<u>Total</u>
D. Current Benefit Obligations			
1. Benefit recipients			
a. Service retirements	\$ 0	\$ 14,715,304	\$ 14,715,304
b. Disability	0	143,924	143,924
c. Survivors	0	939,382	939,382
2. Deferred retirements with augmentation to Normal Retirement Date	0	545,122	545,122
3. Former members without vested rights***	73,152	0	73,152
4. Active members	51,393	6,959,377	7,010,770
5. Total Current Benefit Obligations	\$ 124,545	\$ 23,303,109	\$ 23,427,654
E. Expected Future Benefit Obligations			4,497,102
F. Total Current and Expected Future Benefit Obligations			27,924,756
G. Unfunded Current Benefit Obligations (D.5. - A.)			5,245,722
H. Unfunded Current and Future Benefit Obligations (F. - C.)			2,151,608

* Under LCPR guidelines, this amount does not include supplemental payments which could occur after the expiration of the remaining 23 year amortization period.

** Does not reflect deferred investment experience in the asset smoothing method. Total expected future assets on a market value basis is \$ 27,880,810.

*** Former members with insufficient service to vest who have not collected a refund of member contributions as of the valuation date.



SECTION III - PLAN LIABILITIES

TABLE 5

DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY
AS OF JULY 1, 2014
(Dollars in Thousands)

	Actuarial Present Value of Projected <u>Benefits</u>	Actuarial Present Value of Future <u>Normal Costs</u>	Actuarial Accrued <u>Liability</u>
1. Active Members			
a. Retirement annuities	\$ 10,403,253	\$ (2,566,347)	\$ 7,836,906
b. Disability Benefits	208,488	(82,265)	126,223
c. Survivor benefits	94,292	(33,689)	60,603
d. Deferred retirements	792,488	(597,728)	194,760
e. Refunds	9,351	(116,221)	(106,870)
f. Total	\$ 11,507,872	\$ (3,396,250)	\$ 8,111,622
2. Deferred Retirements with Future Augmentation to Normal Retirement Date	545,122	0	545,122
3. Former Members Without Vested Rights	73,152	0	73,152
4. Benefit Recipients	<u>15,798,610</u>	<u>0</u>	<u>15,798,610</u>
5. Total Actuarial Accrued Liability	\$ 27,924,756	\$ (3,396,250)	\$ 24,528,506
6. Actuarial Value of Assets			\$ 18,181,932
7. Unfunded Actuarial Accrued Liability (UAAL)			\$ 6,346,574

* On a market value of assets basis, the unfunded actuarial accrued liability is \$4,238,912.



SECTION III - PLAN LIABILITIES

TABLE 6

CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)

(Dollars in Thousands)

A. Unfunded actuarial accrued liability at beginning of year	\$	6,644,003
B. Changes due to interest requirements and current rate of funding*		
1. Normal cost and actual administrative expenses	\$	362,765
2. Contributions		(616,580)
3. Interest on A., B.1., and B.2. at 8.0%		521,563
4. Total (B.1. + B.2. + B.3.)	\$	<u>267,748</u>
C. Expected unfunded actuarial accrued liability at end of year (A. + B.4.)	\$	6,911,751
D. Increase (decrease) due to actuarial losses (gains) because of experience deviations from expected		
1. Salary increases	\$	(116,563)
2. Investment return (actuarial assets)		(1,079,735)
3. Mortality of active members		(1,279)
4. Mortality of benefit recipients		10,082
5. Retirement from active service		51,258
6. Other items		57,640
7. Total	\$	<u>(1,078,597)</u>
E. Unfunded actuarial accrued liability at end of year before plan amendments and changes in actuarial assumptions (C. + D.7.)	\$	5,833,154
F. Change in unfunded actuarial accrued liability due to changes in assumptions**	\$	513,420
G. Unfunded actuarial accrued liability at end of year (E. + F.)	\$	6,346,574

* *The amortization of the unfunded actuarial accrued liability (UAAL) using the current amortization method results in initial payments less than the "interest only" payment on the UAAL. Payments less than the interest only amount will result in the UAAL increasing in the absence of actuarial gains.*

** *Assumption changed to assume COLA will increase at expected date of satisfying requirements to increase if all actuarial assumptions are met in the future.*



SECTION IV
SYSTEM CONTRIBUTIONS



SECTION IV – SYSTEM CONTRIBUTIONS

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SECTION IV - CONTRIBUTIONS

Sections II and III 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 actuarial present value of future projected benefits (total liability). This is expected in all but a fully 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 finance 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 and (2) the payment on the unfunded actuarial accrued liability.

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 and/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.

Description of Rate Components

The actuarial cost method for the System is the traditional Entry Age Normal (EAN) – level percent of pay cost method. Under the EAN cost method, the actuarial present value of each member’s projected benefits is allocated on a level basis over the member’s compensation between the entry age of the member and the assumed exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability (UAAL) represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses (actual experience versus experience expected based on the actuarial assumptions). The UAAL is amortized over a period set in state statute (by June 30, 2037). Contributions to fund the UAAL are determined as a level percentage of payroll assuming payroll increases 3.75% each year.



SECTION IV - CONTRIBUTIONS

TABLE 7

NORMAL COST AT JULY 1, 2014

(Dollars in Thousands)

	<u>Percent of Pay</u>	<u>Dollar Amount</u>
1. Normal Cost Rate		
a. Retirement benefits	6.74%	\$ 293,494
b. Disability benefits	0.20%	8,710
c. Survivor benefits	0.09%	3,921
d. Deferred retirement benefits*	1.37%	59,654
e. Refunds	0.30%	13,064
f. Total	<u>8.70%</u>	<u>\$ 378,843</u>

* For vested members, includes the greater of the refund amount or the present value of the deferred monthly benefit.



SECTION IV - CONTRIBUTIONS

TABLE 8

DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE

(Dollars in Thousands)

	<u>Amount</u>
A. Determination of Unfunded Actuarial Accrued Liability (UAAL)*	
1. Actuarial accrued liability	\$ 24,528,506
2. Actuarial value of assets	18,181,932
3. Unfunded actuarial accrued liability	\$ <u>6,346,574</u>
B. Determination of Supplemental Contribution Rate*	
1. Present value of future payrolls through the amortization date of June 30, 2037	\$ 62,055,712
2. Supplemental contribution rate (A.3. / B.1.)**	10.23%

* *On a market value of assets basis, the unfunded actuarial accrued liability is \$4,238,912 and the supplemental contribution rate is 6.83% of payroll.*

** *The amortization factor as of July 1, 2014 is 14.2526.*



SECTION IV - CONTRIBUTIONS

TABLE 9

DETERMINATION OF CONTRIBUTION SUFFICIENCY/(DEFICIENCY)

(Dollars in Thousands)

The annual required contribution (ARC) is the sum of normal cost, a supplemental contribution to amortize the UAAL, and an allowance for expenses. The statutory contribution rates do not reflect the scheduled increase for July 1, 2014.

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. Statutory contributions - Chapter 354		
1. Employee contributions	7.50%	\$ 326,573
2. Employer contributions*	7.70%	335,309
3. Supplemental contributions**		
a. 1993 Legislation	0.11%	5,000
b. 1996 Legislation	0.07%	3,047
c. 1997 Legislation	0.30%	12,954
4. Total	15.68%	\$ 682,883
B. Required contributions - Chapter 356		
1. Normal cost		
a. Retirement benefits	6.74%	\$ 293,494
b. Disability benefits	0.20%	8,710
c. Survivors	0.09%	3,921
d. Deferred retirement benefits	1.37%	59,654
e. Refunds	0.30%	13,064
f. Total	8.70%	\$ 378,843
2. Supplemental contribution for the amortization of the Unfunded Actuarial Accrued Liability by June 30, 2037	10.23%	445,413
3. Allowance for expenses	0.22%	\$ 9,579
4. Total annual contribution for fiscal year ending June 30, 2015***	19.15%	\$ 833,835
C. Contribution Sufficiency / (Deficiency) (A.4. - B.4.)***	(3.47%)	\$ (150,952)

Note: Projected annual payroll for fiscal year beginning on the valuation date: \$4,353,988

* Employer contribution rate is blended to reflect rates of 15.14% of pay for Basic members, 7.50% of pay for Coordinated members not employed by Special School District #1, and 11.14% of pay for Coordinated members who are employed by Special School District #1.

** Includes contributions from School District #1, the City of Minneapolis, and matching state contributions.

*** On a market value of assets basis, the total required contribution is 15.75% of payroll and the contribution deficiency is 0.07% of payroll.



SECTION IV - CONTRIBUTIONS

TABLE 10

STATUTORY AND REQUIRED CONTRIBUTION AMOUNTS

(Dollars in Thousands)

Basic Members

	Percent of Payroll		Dollar Amount
A. Statutory contributions - Chapter 354			
1. Employee contributions	11.00%	\$	76
2. Employer contributions*	15.14%		105
3. Supplemental contributions**			
a. 1993 Legislation	0.11%		1
b. 1996 Legislation	0.07%		0
c. 1997 Legislation	0.30%		2
	<hr/>		<hr/>
4. Total	26.62%	\$	184
B. Required contributions - Chapter 356			
1. Normal cost			
a. Retirement benefits	11.75%	\$	82
b. Disability benefits	0.46%		3
c. Survivors	0.43%		3
d. Deferred retirement benefits	2.02%		14
e. Refunds	0.54%		4
f. Total	<hr/>	<hr/>	<hr/>
	15.20%	\$	106

Note: Projected annual payroll for fiscal year beginning on the valuation date: \$695 for 8 members.

* All Basic active members are teachers employed by Special School District #1; employer contribution rate of 15.14% of payroll applies.

** Includes contributions from School District #1, the City of Minneapolis and matching state contributions.



SECTION IV - CONTRIBUTIONS

TABLE 11

STATUTORY AND REQUIRED CONTRIBUTION AMOUNTS
(Dollars in Thousands)

Coordinated Members

	Percent of Payroll		Dollar Amount
A. Statutory contributions - Chapter 354			
1. Employee contributions	7.50%	\$	326,497
2. Employer contributions*	7.70%		335,204
3. Supplemental contributions**			
a. 1993 Legislation	0.11%		4,999
b. 1996 Legislation	0.07%		3,047
c. 1997 Legislation	0.30%		12,952
			<hr/>
4. Total	15.68%	\$	682,699
B. Required contributions - Chapter 356			
1. Normal cost			
a. Retirement benefits	6.74%	\$	293,412
b. Disability benefits	0.20%		8,707
c. Survivors	0.09%		3,918
d. Deferred retirement benefits	1.37%		59,640
e. Refunds	0.30%		13,060
			<hr/>
f. Total	8.70%	\$	378,737

Note: Projected annual payroll for fiscal year beginning on the valuation date: \$4,353,293. This includes \$4,115,581 for 73,152 Coordinated members who are not employed by Special School District #1 and \$237,712 for 4,083 members who are employed by Special School District #1.

* Employer contribution rate is blended to reflect rates of 7.50% of pay for Coordinated members not employed by Special School District #1, and 11.14% of pay for Coordinated members who are employed by Special School District #1.

** Includes contributions from School District #1, the City of Minneapolis, and matching state contributions.



SECTION V
ADDITIONAL INFORMATION



SECTION V – ADDITIONAL INFORMATION

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SECTION V – ADDITIONAL INFORMATION

This section contains information that may be helpful in understanding the Systems' historical funding as well as current information regarding membership information and expected benefit payments. Some of the historical information was required under prior GASB accounting standards, but continues to provide useful information. Current financial reporting information required under Governmental Accounting Standards Board Statement No. 67 is provided in a separate report.



SECTION V – ADDITIONAL INFORMATION

TABLE 12
SUMMARY OF MEMBERSHIP DATA

	<u>July 1, 2014</u>	<u>July 1, 2013</u>
Active members:		
Vested	61,552	61,398
Non-vested	<u>15,691</u>	<u>15,367</u>
Total	77,243	76,765
Pensioners and Beneficiaries	58,809	57,168
Terminated vested members entitled to, but not yet receiving, benefits:	12,907	12,614
Other terminated, non-vested members entitled to a refund of contributions	<u>29,984</u>	<u>28,881</u>
Total	178,943	175,428



SECTION V – ADDITIONAL INFORMATION

TABLE 13

SCHEDULE OF FUNDING PROGRESS*

(Dollars in Thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Actual Covered Payroll (Previous FY) (c)	UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)
07/01/91	\$ 5,614,924	\$ 7,213,720	\$ 1,598,796	77.84%	\$ 1,943,375	82.27%
07/01/92	6,324,733	7,662,522	1,337,789	82.54%	1,989,624	67.24%
07/01/93	7,045,937	8,266,059	1,220,122	85.24%	2,065,881	59.06%
07/01/94	7,611,936	9,115,266	1,503,330	83.51%	2,150,300	69.91%
07/01/95	8,348,124	9,717,623	1,369,499	85.91%	2,204,693	62.12%
07/01/96	9,541,221	10,366,168	824,947	92.04%	2,268,390	36.37%
07/01/97	11,103,759	10,963,637	(140,122)	101.28%	2,359,011	(5.94%)
07/01/98	12,727,546	12,046,312	(681,234)	105.66%	2,422,957	(28.12%)
07/01/99	14,011,247	13,259,569	(751,678)	105.67%	2,625,254	(28.63%)
07/01/00	15,573,151	14,802,441	(770,710)	105.21%	2,704,575	(28.50%)
07/01/01	16,834,024	15,903,984	(930,040)	105.85%	2,812,000	(33.07%)
07/01/02	17,378,994	16,503,099	(875,895)	105.31%	2,873,771	(30.48%)
07/01/03	17,384,179	16,856,379	(527,800)	103.13%	2,952,887	(17.87%)
07/01/04	17,519,909	17,518,784	(1,125)	100.01%	3,032,483	(0.04%)
07/01/05	17,752,917	18,021,410	268,493	98.51%	3,121,571	8.60%
07/01/06	19,035,612	20,679,111	1,643,499	92.05%	3,430,645	47.91%
07/01/07	18,794,389	21,470,314	2,675,925	87.54%	3,532,159	75.76%
07/01/08	18,226,985	22,230,841	4,003,856	81.99%	3,645,230	109.84%
07/01/09	17,882,408	23,114,802	5,232,394	77.36%	3,761,484	139.10%
07/01/10	17,323,146	22,081,634	4,758,488	78.45%	3,787,757	125.63%
07/01/11	17,132,383	22,171,493	5,039,110	77.27%	3,838,111	131.29%
07/01/12	16,805,077	23,024,505	6,219,428	72.99%	3,871,809	160.63%
07/01/13	16,774,626	23,418,629	6,644,003	71.63%	3,917,310	169.61%
07/01/14	18,181,932	24,528,506	6,346,574	74.13%	4,056,482	156.46%

* Information prior to 2004 provided by Milliman; from 2004 to 2008 provided by The Segal Company; and 2009 to 2010 by Mercer.



SECTION V – ADDITIONAL INFORMATION

TABLE 14

SCHEDULE OF CONTRIBUTIONS FROM THE EMPLOYER AND OTHER CONTRIBUTING ENTITIES

(Dollars in Thousands)

Plan Year Ended June 30	Actuarially Required Contribution Rate (a)	Actual Covered Payroll (b)	Actual Member Contributions (c)	Annual Required Contributions [(a)*(b)] - (c)	Actual Employer Contributions¹	Percentage Contributed
2000	8.36%	\$ 2,704,575	\$ 138,696	\$ 87,406	\$ 134,419	153.79%
2001 ²	7.92%	2,812,000	145,075	77,635	139,799	180.07%
2002	7.85%	2,873,771	152,331	73,260	142,222	194.13%
2003 ³	7.57%	2,952,887	155,577	67,957	149,481	219.96%
2004	8.37%	3,032,483	159,140	94,679	151,029	159.52%
2005	8.46%	3,121,571	160,982	103,103	157,693	152.95%
2006 ⁴	9.05%	3,430,645	177,085	133,389	200,286	150.15%
2007 ⁵	12.16%	3,532,159	199,869	229,642	209,219	91.11%
2008 ⁶	13.44%	3,645,230	209,592	280,327	231,562	82.60%
2009 ⁷	15.08%	3,761,484	212,043	355,189	240,718	67.72%
2010 ⁸	16.81%	3,787,757	214,909	421,813	242,088	57.39%
2011 ⁹	15.71%	3,838,111	218,024	384,943	244,233	63.45%
2012 ¹⁰	16.57%	3,871,809	239,834	401,725	266,661	66.38%
2013 ¹¹	18.75%	3,917,310	270,708	463,788	290,662	62.67%
2014 ¹²	19.41%	4,056,482	294,632	492,731	320,301	65.01%
2015 ¹³	19.15%					

Note: Information prior to 2004 provided by Milliman USA; 2004 to 2008 information provided by The Segal Company; 2009 and 2010 information provided by Mercer.

- ¹ Includes contributions from other sources (if applicable)
- ² Actuarially Required Contribution Rate prior to change in Actuarial Assumptions and Asset Valuation Method is 7.31%.
- ³ Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 8.11%.
- ⁴ Actuarially Required Contribution Rate shown is the contribution rate stated in the TRA July 1, 2005 actuarial valuation.
- ⁵ Actuarially Required Contributions calculated according to parameters of GASB 25 (30-year amortization period), and post-merger of the Minneapolis Teachers' Retirement Fund Association.
- ⁶ Actuarially Required Contribution Rate prior to change in Asset Valuation Method is 11.58%.
- ⁷ Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 15.36%.
- ⁸ Actuarially Required Contribution Rate prior to change in Asset Valuation Method is 19.98%.
- ⁹ Actuarially Required Contribution Rate prior to change in Actuarial Assumptions and Plan Provisions is 18.91%.
- ¹⁰ Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 16.91%.
- ¹¹ Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 18.15%.
- ¹² Actuarially Required Contribution Rate prior to change in Plan Provisions is 19.66%.
- ¹³ Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 17.95%.



SECTION V – ADDITIONAL INFORMATION

TABLE 15

PROJECTED BENEFIT PAYMENTS

(Dollars in Thousands)

The table below shows estimated benefits expected to be paid over the next twenty-five years, based on the assumptions used in the valuation. The “Actives” column shows benefits expected to be paid to members currently active on July 1, 2014. The “Retirees” column shows benefits expected to be paid to all other members. This includes those who, as of July 1, 2014, are receiving benefit payments or who terminated employment and are entitled to a deferred benefit.

Year Ending	Actives	Retirees	Total
June 30			
2015	\$ 39,121	\$ 1,600,845	\$ 1,639,965
2016	102,023	1,578,122	1,680,145
2017	161,095	1,564,289	1,725,384
2018	221,184	1,552,507	1,773,691
2019	283,332	1,541,124	1,824,456
2020	347,250	1,529,747	1,876,996
2021	411,718	1,518,218	1,929,935
2022	475,872	1,504,331	1,980,204
2023	538,978	1,488,985	2,027,964
2024	599,709	1,471,263	2,070,972
2025	659,235	1,451,941	2,111,175
2026	720,422	1,429,816	2,150,238
2027	786,042	1,404,921	2,190,962
2028	857,325	1,376,931	2,234,255
2029	935,189	1,346,126	2,281,315
2030	1,020,283	1,312,379	2,332,662
2031	1,112,895	1,276,085	2,388,979
2032	1,213,398	1,236,784	2,450,182
2033	1,327,574	1,200,402	2,527,976
2034	1,449,160	1,161,202	2,610,362
2035	1,577,764	1,120,016	2,697,780
2036	1,713,020	1,075,781	2,788,801
2037	1,854,547	1,028,782	2,883,329
2038	1,998,663	978,701	2,977,364
2039	2,142,659	925,492	3,068,152

Note: Numbers may not add due to rounding

Cash flows are the expected future non-discounted payments to current members. These numbers exclude refund payouts to current nonvested inactive and assume future retirees and future terminated members make benefit elections according to valuation assumptions.



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APPENDIX A

**SUMMARY STATISTICS
ON MEMBERSHIP DATA**



APPENDIX A – MEMBERSHIP DATA

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APPENDIX A – MEMBERSHIP DATA

TABLE 16

RECONCILIATION OF MEMBERS*

	Active Members**	Former Members***	Benefit Recipients****			Total
			Service Retirements	Disability Retirements	Survivors	
Members on 7/1/2013	76,765	41,495	52,331	568	4,269	175,428
New hires	4,852	-	-	-	-	4,852
Return from inactive	1,724	(1,724)	-	-	-	0
Return from zero balance	457	-	-	-	-	457
Transfer to inactive	(4,225)	4,225	-	-	-	0
Refunded	(240)	(691)	-	-	-	(931)
Restored write-off	-	142	-	-	-	142
Repay refunds	-	39	-	-	-	39
Transfer from non-status	-	20	-	-	-	20
Retirements	(1,971)	(589)	2,551	(56)	-	(65)
Benefits began	-	-	-	72	406	478
Benefits ended	-	-	-	(4)	(57)	(61)
Deaths	(53)	(59)	(1,105)	(19)	(146)	(1,382)
Adjustments for Disabilitants	1	-	-	-	-	1
Adjustments (Other)	(67)	33	(3)	2	-	(35)
Net changes	478	1,396	1,443	(5)	203	3,515
Members on 7/1/2014	77,243	42,891	53,774	563	4,472	178,943

* All figures in this chart were provided by the Teachers Retirement Association. Recipient counts include all pensions in force, including double counting of multiple benefit types. Service Retirements include Supplemental and Variable optional joint annuitants. We have found these results to be reasonable.

** Active members include 8 Basic and 77,235 Coordinated members.

*** Former members include 28 Basic and 42,863 Coordinated members.

**** Benefit recipients include 4,467 Basic members and 54,342 Coordinated members.

Former Member Statistics	Vested	Non-vested	Total
Number	12,907	29,984	42,891
Average Age	47.7	49.0	48.6
Average Service (years)	7.6	1.0	2.9
Average annual benefits, with augmentation to Normal Retirement Date and 4% Combined Service Annuity load	\$10,100	N/A	N/A
Average refund value, with 4% Combined Service Annuity load	\$30,283	\$2,476	\$10,844



APPENDIX A – MEMBERSHIP DATA

TABLE 17

DISTRIBUTION OF ACTIVE MEMBERS*

Age	Years of Service as of July 1, 2014										Total	
	<3**	3-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 +		
<25	2,344	28										2,372
Avg. Earnings	25,142	39,498										25,311
25-29	4,526	2,566	1,504									8,596
Avg. Earnings	29,562	41,713	46,265									36,112
30-34	2,270	1,375	5,410	1,393								10,448
Avg. Earnings	28,364	40,447	49,514	59,468								45,053
35-39	1,507	739	2,549	4,481	1,355							10,631
Avg. Earnings	25,124	40,430	50,441	62,026	69,696							53,494
40-44	1,349	625	1,583	2,246	4,175	911						10,889
Avg. Earnings	23,135	40,411	48,245	60,289	69,298	73,617						57,363
45-49	1,133	505	1,221	1,462	2,292	3,135	571					10,319
Avg. Earnings	20,758	36,939	46,242	57,984	68,051	73,657	75,345					59,436
50-54	890	378	1,001	1,260	1,441	1,811	2,359	480				9,620
Avg. Earnings	18,969	33,109	44,167	57,921	65,847	71,033	74,922	74,182				60,547
55-59	679	294	724	927	1,171	1,264	1,417	1,470	362			8,308
Avg. Earnings	16,135	31,764	40,691	55,422	63,609	69,936	73,952	74,860	76,786			60,983
60-64	550	154	401	549	667	789	703	347	437	111		4,708
Avg. Earnings	10,634	22,594	36,936	53,553	61,084	67,356	73,425	76,716	78,976	77,688		57,094
65-69	304	64	103	111	119	124	101	59	36	67		1,088
Avg. Earnings	6,341	14,113	26,871	44,847	59,128	66,361	73,541	78,197	89,250	79,304		42,655
70 +	139	27	18	12	14	12	8	12	7	15		264
Avg. Earnings	4,334	7,286	20,968	42,702	62,263	84,099	71,571	71,731	72,144	82,665		25,561
Total	15,691	6,755	14,514	12,441	11,234	8,046	5,159	2,368	842	193		77,243
Avg. Earnings	24,595	39,079	47,574	59,498	67,452	71,763	74,466	75,062	78,417	78,636		52,547

* Active members include 8 Basic and 77,235 Coordinated members.

** This exhibit does not reflect service earned in Combined Service Annuity benefits. It should not be relied upon as an indicator of non-vested status.

In each cell, the top number is the count of active participants for the age/service combination and the bottom number is the amount of average annual earnings. Earnings shown in this exhibit are actual salaries earned during the fiscal year ending June 30, 2014 as reported by the Teachers Retirement Association of Minnesota.



APPENDIX A – MEMBERSHIP DATA

TABLE 18

DISTRIBUTION OF SERVICE RETIREMENTS

Age	Years Since Retirement as of July 1, 2014							Total
	<1	1-4	5-9	10-14	15-19	20-24	25 +	
<55	2	1						3
Avg. Benefit	34,945	41,292						37,061
55-59	591	1,168	10					1,769
Avg. Benefit	33,639	33,707	37,365					33,705
60-64	918	4,777	3,166	74			1*	8,936
Avg. Benefit	27,712	30,998	27,431	34,701			1,562	29,424
65-69	507	3,661	5,469	4,321	444		4*	14,406
Avg. Benefit	22,660	22,113	24,695	23,022	29,598		2,614	23,610
70-74	57	583	2,312	4,463	3,729	83	5	11,232
Avg. Benefit	17,935	18,709	20,950	23,215	26,466	29,813	9,765	23,610
75-79	5	62	299	1,488	3,833	1,917	80	7,684
Avg. Benefit	18,788	16,276	16,760	21,267	31,133	32,787	23,043	28,864
80-84	2	11	35	150	1,309	2,602	1,065	5,174
Avg. Benefit	5,140	15,207	12,137	20,545	31,258	37,869	28,370	33,504
85-89		3	9	22	118	958	1,828	2,938
Avg. Benefit		26,153	49,888	13,904	33,048	35,437	33,987	34,312
90 +			1	3	14	64	1,550	1,632
Avg. Benefit			2,020	29,884	17,623	33,323	30,720	30,690
Total	2,082	10,266	11,301	10,521	9,447	5,624	4,533	53,774
Avg. Benefit	27,860	27,334	24,476	22,885	29,240	35,552	31,295	27,411

* Pertaining to the accounts of former participants in the Minnesota Variable Annuity Fund, abolished by law in 1989.

In each cell, the top number is the count of retired participants for the age/years retired combination and the bottom number is the average annual benefit amount.



APPENDIX A – MEMBERSHIP DATA

TABLE 19
DISTRIBUTION OF SURVIVORS

Age	Years Since Death as of July 1, 2014							Total
	<1	1-4	5-9	10-14	15-19	20-24	25 +	
<45	10	61	39	16	6	1		133
Avg. Benefit	10,839	17,602	12,251	14,184	16,682	31,244		15,174
45-49	4	28	18	8	6		2	66
Avg. Benefit	7,424	14,495	19,129	13,186	22,519		23,424	16,171
50-54	8	37	14	10	3	2	2	76
Avg. Benefit	20,485	16,175	12,773	21,151	16,183	20,594	29,594	17,126
55-59	10	51	55	19	9	1	2	147
Avg. Benefit	18,392	18,697	14,441	18,140	16,396	3,658	7,930	16,622
60-64	26	105	68	38	12	7	1	257
Avg. Benefit	27,966	22,925	19,987	16,446	17,760	16,675	7,545	21,228
65-69	47	201	162	79	34	14	1	538
Avg. Benefit	23,491	20,180	20,020	18,486	18,042	17,792	10,225	19,957
70-74	49	235	176	115	66	28	17	686
Avg. Benefit	25,450	24,393	24,915	23,168	23,727	17,172	17,193	23,860
75-79	57	232	200	134	83	55	28	789
Avg. Benefit	33,042	30,066	28,780	28,157	28,822	30,768	26,146	29,410
80-84	57	234	185	137	93	65	70	841
Avg. Benefit	36,714	33,124	33,416	35,276	37,493	32,297	28,009	33,776
85-89	33	158	158	105	70	39	65	628
Avg. Benefit	41,685	34,242	33,644	30,331	30,262	44,338	31,739	33,753
90 +	13	60	78	47	40	32	41	311
Avg. Benefit	31,814	33,967	38,769	29,955	38,528	32,656	34,037	34,936
Total	314	1,402	1,153	708	422	244	229	4,472
Avg. Benefit	29,711	26,678	26,939	26,605	29,295	30,690	28,748	27,518

In each cell, the top number is the count of survivor participants for the age/years since death combination and the bottom number is the average annual benefit amount.



APPENDIX A – MEMBERSHIP DATA

TABLE 20

DISTRIBUTION OF DISABILITY RETIREMENTS

Age	Years Disabled as of July 1, 2014							Total
	<1	1-4	5-9	10-14	15-19	20-24	25 +	
<45	1	13	8	2				24
Avg. Benefit	12,825	9,827	5,083	4,432				7,921
45-49	2	14	10	5	3			34
Avg. Benefit	18,057	12,652	8,613	6,596	6,208			10,323
50-54	5	38	19	3	3	1		69
Avg. Benefit	23,706	18,228	14,026	13,013	6,003	2,735		16,485
55-59	9	59	33	17	6	5		129
Avg. Benefit	19,725	22,773	18,473	12,477	18,135	9,726		19,382
60-64	5	75	91	61	33	10	1	276
Avg. Benefit	26,046	25,256	22,845	17,120	19,527	19,856	5,242	21,724
65-69	1	20	7	2	1			31
Avg. Benefit	22,941	23,233	30,708	10,536	19,991			23,988
Total	23	219	168	90	46	16	1	563
Avg. Benefit	21,659	21,461	19,623	15,093	17,605	15,620	5,242	19,393

In each cell, the top number is the count of disabled participants for the age/years disabled combination and the bottom number is the average annual benefit amount.



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APPENDIX B

**SUMMARY OF
PLAN PROVISIONS**



APPENDIX B - SUMMARY OF PLAN PROVISIONS

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APPENDIX B - SUMMARY OF PLAN PROVISIONS

BASIC MEMBERS

This summary of provisions reflects our interpretation of applicable Statutes for purposes of preparing this valuation. This interpretation is not intended to provide a basis for administering the Plan.

Plan year July 1 through June 30

Eligibility Teachers first hired prior to July 1, 1978 employed by the Board of Education of Special School District No. 1, other than a charter school, and not covered by the Social Security Act. Certain part-time licensed employees of Special School District No. 1 are also covered. These members were transferred to TRA as part of the merger of the Minneapolis Teachers Retirement Fund Association (MTRFA) effective June 30, 2006.

Contributions Shown as a percent of Salary:

<u>Date of Increase</u>	<u>Member</u>	<u>Employer</u>
July 1, 2013	10.50%	14.64%
July 1, 2014	11.00%	15.14%

After June 30, 2015, the member and employer contribution rates may be adjusted as follows:

- if a contribution sufficiency of at least 1% has existed for two consecutive years, the member and employer contribution rates may be decreased to a level that is necessary to maintain a 1% sufficiency
- if a contribution deficiency of at least 0.25% has existed for two consecutive years, the member and employer contribution rates may each be increased as shown:

<u>Contribution Deficiency</u>	<u>Allowable Increase in Member and Employer Contribution Rates</u>
<2% of pay	0.25% of pay
2% to 4% of pay	0.50% of pay
>4% of pay	0.75% of pay

Potential contribution increases after June 30, 2015 are not reflected in this valuation report.

Employee contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).

Teaching service A year is earned during a calendar year if the member is employed in a covered position and employee contributions are deducted. Certain part-time service and military service is also included.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

BASIC MEMBERS

Salary Periodic compensation used for contribution purposes excluding lump sum annual or sick leave payments, severance payments, any payments made in lieu of employer paid fringe benefits or expenses, and employer contributions to a Section 457 deferred compensation plan.

Average salary Average of the five highest successive years of Salary.

Retirement

Normal retirement

Age/Service requirements Age 60, or any age with 30 years of Teaching Service

Amount 2.50% of Average Salary for each year of Teaching Service.

Early retirement

Age/Service requirements Age 55 with less than 30 years of Teaching Service.

Amount

The greater of (a) or (b):

- (a) 2.25% of Average Salary for each year of Teaching Service with reduction of 0.25% for each month before the Member would first be eligible for a normal retirement benefit.
- (b) 2.50% of Average Salary for each year of Teaching Service assuming augmentation to the age of first eligibility for a normal retirement benefit at 3.00% per year and actuarial reduction for each month before the member would be first eligible for a normal retirement benefit.

An alternative benefit is available to members who are at least age 50 and have seven years of Teaching Service. The benefit is based on the accumulation of the 6.50% "city deposits" to the Retirement Fund. Other benefits are also provided under this alternative depending on the member's age and Teaching Service.

Form of payment

Life annuity. Actuarially equivalent options are:

- (a) 10 or 15 year Certain and Life
- (b) 50%, 75% or 100% Joint and Survivor with bounce back feature (option is canceled if member is predeceased by beneficiary).

Benefit increases

Benefit recipients received no annual increases in 2011 and 2012. Beginning January 1, 2013 the annual increase is 2.0% per year. When the funding ratio reaches 90% (on a Market Value of Assets basis) for two consecutive years, the annual increase will be 2.5%. A benefit recipient who has been receiving a benefit for at least 18 full months as of December 31 will receive a full increase. Members receiving benefits for at least six full months but less than 18 full months will receive a pro-rata increase.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

BASIC MEMBERS

Disability

<i>Age/service requirement</i>	Total and permanent disability with three years of Teaching Service
<i>Amount</i>	An annuity actuarially equivalent to the continued accumulation of member and city contributions at the current rate for a period of 15 years (but not beyond age 65) plus an additional benefit equal to the smaller of 100% of the annuity provided by city contributions only or \$150 per month. A member with 20 years of Teaching Service also receives an additional \$7.50 per month. Payments stop earlier if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.
<i>Form of payment</i>	Same as for retirement.
<i>Benefit increases</i>	Same as for retirement.

Death

Benefit A

<i>Age/Service requirements</i>	Choice of Benefit A, Benefit B or Benefit C Death before retirement.
<i>Amount</i>	The accumulation of member and city contributions plus 6.00% interest. Paid as a life annuity, 15-year Certain and Life, or lump sum. If an annuity is chosen the beneficiary also receives additional benefits.

Benefit B

<i>Age/Service requirements</i>	An active member with seven years of Teaching Service. A former member age 60 with seven years of Teaching Service who dies before retirement or disability benefits begin.
<i>Amount</i>	The actuarial equivalent of any benefits the member could have received if resignation occurred on the date of death.

Benefit C

<i>Age/Service requirements</i>	As an active member who dies and leaves surviving children.
<i>Amount</i>	A monthly benefit of \$248.30 to the surviving widow while caring for a child and an additional \$248.30 per month for each surviving dependent child. The maximum family benefit is \$579.30 per month. Benefits to the widow cease upon death or when no longer caring for an eligible child. Benefits for dependent children cease upon marriage or age 18 (age 22 if a full time student).
<i>Benefit Increases</i>	Same as for retirement.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

BASIC MEMBERS

Withdrawal

Refund of contribution

Age/Service requirements

Termination of Teaching Service.

Amount

Member's contributions earn 4.00% interest compounded annually. For vested members, a deferred annuity may be elected in lieu of a refund.

Deferred annuity

Age/Service Requirements

Seven years of Teaching Service

Amount

The benefit is computed under law in effect at termination and increased by the following percentage compounded annually:

- (a) 3.00% therefore until the earlier of January 1 of the year following attainment of age 55 and June 30, 2012;
- (b) 5.00% thereafter until the earlier of June 30, 2012 and when the annuity begins; and
- (c) 2.00% beginning July 1, 2012.

In addition, the interest earned on the member and city contributions between termination and age 60 can be applied to provide an additional annuity.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

COORDINATED MEMBERS

This summary of provisions reflects our interpretation of applicable Statutes for purposes of preparing this valuation. This interpretation is not intended to provide a basis for administering the Plan.

Plan year July 1 through June 30

Eligibility A public school or MNSCU teacher who is covered by the Social Security Act, except for teachers employed by St. Paul or Duluth public schools or by the University of Minnesota. Charter school teachers employed by St. Paul or Duluth public schools are covered by TRA.

No MNSCU teacher will become a new Member unless that person elects coverage as defined by Minnesota Statutes under Chapter 354B.

Contributions

Shown as a percent of Salary:

<u>Date of Increase</u>	<u>Member</u>	<u>Employer</u>
July 1, 2013	7.00%	7.00%
July 1, 2014	7.50%	7.50%

Employer also contributes Supplemental amount equal to 3.64% of Salary (members employed by Special School District #1 only).

After June 30, 2015, the member and employer contribution rates may be adjusted as follows:

- if a contribution sufficiency of at least 1% has existed for two consecutive years, the member and employer contribution rates may be decreased to a level that is necessary to maintain a 1% sufficiency
- if a contribution deficiency of at least 0.25% has existed for two consecutive years, the member and employer contribution rates may each be increased as shown:

<u>Contribution Deficiency</u>	<u>Allowable Increase in Member and Employer Contribution Rates</u>
<2% of pay	0.25% of pay
2% to 4% of pay	0.50% of pay
>4% of pay	0.75% of pay

Potential contribution increases after June 30, 2015 are not reflected in this valuation report.

Employee contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).

Teaching service

A year is earned during a calendar year if the member is employed in a covered position and employee contributions are deducted. Certain part-time service and military service is also included.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

COORDINATED MEMBERS

Salary

Periodic compensation used for contribution purposes excluding lump sum annual or sick leave payments, severance payments, any payments made in lieu of employer paid fringe benefits or expenses, and employer contributions to a Section 457 deferred compensation plan.

Average salary

Average of the five highest successive years of Salary. Average salary is based on all Allowable Service if less than five years.

Retirement

Normal retirement

Age/Service requirements

First hired before July 1, 1989:

- (a) Age 65 and three years of Allowable Service; or
- (b) Age 62 and 30 years of Allowable Service.

Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.

First hired after June 30, 1989:

The age when first eligible for full Social Security retirement benefits (but not to exceed age 66) and three years of Allowable Service.

Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.

Early retirement

Age/Service requirements

First hired before July 1, 1989:

- (a) Age 55 and three years of Allowable Service; or
- (b) Any age and 30 years of Allowable Service; or
- (c) Rule of 90: Age plus Allowable Service totals 90.

First hired after June 30, 1989:

- (a) Age 55 with three years of Allowable Service.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

COORDINATED MEMBERS

Retirement(continued)

Amount

First hired before July 1, 1989:

The greater of (a), (b) or (c):

- (a) 1.20% of Average Salary for each of the first ten years of Allowable Service.
1.70% of Average Salary for each year of Allowable Service in excess of 10 prior to July 1, 2006, and
1.90% of Average Salary for years of Allowable Service after July 1, 2006.
No actuarial reduction if age plus years of service totals 90. Otherwise reduction of 0.25% for each month the member is under age 65 (or 62 if 30 years of Allowable Service) at time of retirement.
- (b) 1.70% of Average Salary for each year of Allowable Service prior to July 1, 2006 and 1.90% for each year of Allowable Service beginning July 1, 2006, assuming augmentation to normal retirement age at 3.00% per year (2.50% per year for members hired after June 30, 2006) and actuarial reduction for each month the member is under the full Social Security benefit retirement age (not to exceed age 66). Beginning July 1, 2015, new early retirement reduction factors will apply, including special factors for members retiring at age 62 or later with at least 30 years of service.
- (c) For eligible members: the monthly benefit that is actuarially equivalent to 2.2 times the members' accumulated deductions plus interest thereon.

First hired after June 30, 1989:

1.70% of Average Salary for each year of Allowable Service prior to July 1, 2006 and 1.90% for each year of Allowable Service beginning July 1, 2006, assuming augmentation to normal retirement age at 3.00% per year (2.50% per year for members hired after June 30, 2006) and actuarial reduction for each month the member is under the full Social Security benefit retirement age (not to exceed age 66). Beginning July 1, 2015, new early retirement reduction factors will apply, including special factors for members retiring at age 62 or later with at least 30 years of service.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

<i>Early Retirement Reduction Factors</i>	Age	Hired before 7/1/89	Hired from 7/1/89 to 6/30/06	Hired after 6/30/06
	55	43.56%	51.55%	54.08%
	58	33.59%	40.46%	42.74%
	60	24.65%	30.75%	32.74%
	62	13.68%	18.96%	20.53%
	65	0.00%	4.21%	4.68%
	66	0.00%	0.00%	0.00%

Members who are age 62 with 30 years of service are eligible for a special set of reduction factors:

Age	Hired before 7/1/89	Hired from 7/1/89 to 6/30/06	Hired after 6/30/06
62	10.40%	14.46%	16.11%
63	6.64%	10.40%	11.70%
64	3.18%	6.64%	7.55%
65	0.00%	3.18%	3.65%
66	0.00%	0.00%	0.00%

Form of Payment

Life annuity. Actuarially equivalent options are:

- (a) 50%, 75% or 100% Joint and Survivor with bounce back feature (option is canceled if member is predeceased by beneficiary).
- (b) 15 year Certain and Life
- (c) Guaranteed Refund.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

COORDINATED MEMBERS

Retirement(continued)

Benefit increases

Benefit recipients received no annual increase in 2011 and 2012. Beginning January 1, 2013 the annual increase is 2.0% per year. When the funding ratio reaches 90% (on a Market Value of Assets basis) for two consecutive years, the annual increase will revert to 2.5%. A benefit recipient who has been receiving a benefit for at least 18 full months as of December 31 will receive a full increase. Members receiving benefits for at least six full months but less than 18 full months will receive a pro-rata increase.

Disability

Age/service requirement

Total and permanent disability before Normal Retirement Age with three years of Allowable Service.

Amount

Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before Normal Retirement Age unless an optional annuity plan is selected.

Payments stop at Normal Retirement Age or the five year anniversary of the effective date of the disability benefit, whichever is later. Payments stop earlier if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.

Form of payment

Same as for retirement.

Benefit increases

Same as for retirement.

Retirement after disability

Age/service requirement

Normal Retirement Age or the five year anniversary of the effective date of the disability benefit, whichever is later.

Amount

Any optional annuity continues. Otherwise, the larger of the disability benefit paid before Normal Retirement Age or the normal retirement benefit available at Normal Retirement Age, or an actuarially equivalent optional annuity.

Benefit increases

Same as for retirement.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

COORDINATED MEMBERS

Death

Surviving spouse optional annuity

Age/Service requirements

Member or former member with three years of Allowable Service who dies before retirement or disability benefits commence.

Amount

Survivor's payment of the 100% Joint and Survivor benefit or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced for early retirement with half the applicable reduction factor used from age 55 to actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.

Benefit increase

Same as for retirement.

Withdrawal

Refund of contributions

Age/Service requirements

Thirty days following termination of teaching service.

Amount

Member's contributions earn 4.00% interest compounded annually. For vested members, a deferred annuity may be elected in lieu of a refund.

Deferred annuity

Age/Service requirements

Vested at date of termination. Current requirement is three years of Allowable Service.



APPENDIX B - SUMMARY OF PLAN PROVISIONS

COORDINATED MEMBERS

Withdrawal (continued)

Amount

For members first hired prior to July 1, 2006, the benefit is computed under law in effect at termination and increased by the following percentage compounded annually:

- (a) 3.00% therefore until the earlier of January 1 of the year following attainment of age 55 and June 30, 2012;
- (b) 5.00% thereafter until the earlier of June 30, 2012 and when the annuity begins; and
- (c) 2.00% from July 1, 2012 forward.

Amount is payable as a normal or early retirement.

A member who terminated service before July 1, 1997 whose benefit does not commence until after June 30, 1997 shall receive an actuarially equivalent increase to reflect the change from 5.00% to 6.00% in the post-retirement interest assumption; or

For eligible members; the monthly benefit that is actuarially equivalent to 2.2 times the members' accumulated deductions plus interest thereon.

For members first hired July 1, 2006 and after, the benefit computed under law in effect at termination is increased by 2.50% compounded annually until June 30, 2012 and increased by 2.00% from July 1, 2012 forward until the annuity begins.



APPENDIX C

**ACTUARIAL METHODS
AND ASSUMPTIONS**



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

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APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Cost Method

Liabilities and contributions in this report are computed using the Individual Entry Age Normal Cost Method. This method is prescribed by Minnesota Statutes.

The objective under this method is to fund each member's benefits under the Plan as payments which are level as a percentage of salary, starting at original participation date (or employment date), and continuing until the assumed date of retirement termination, disability or death. For valuation purposes, entry age for each member is determined as the age at valuation minus years of service as of the valuation date.

At any given date, a liability is calculated equal to the contributions which would have been accumulated if this method of funding had always been used, the current plan provisions had always been in place, and all assumptions had been met. The difference between this liability and the assets (if any) which are held in the fund is the unfunded actuarial accrued liability. The unfunded actuarial accrued liability is typically funded over a chosen period in accordance with the amortization schedule.

A detailed description of the calculation follows: The normal cost for each active member under the assumed retirement age is determined by applying to earnings the level percentage of salary which, if contributed each year from date of entry into the Plan until the assumed retirement (termination, disability or death) date, is sufficient to provide the full value of the benefits expected to be payable.

- The present value of future normal costs is the total of the discounted values of all active members' normal cost, assuming these to be paid in each case from the valuation date until retirement (termination, disability or death) date.
- The present value of projected benefits is calculated as the value of all benefit payments expected to be paid to the Plan's current members, including active and retired members, beneficiaries, and terminated members with vested rights.
- The actuarial accrued liability is the excess of the present value of projected benefits over the present value of future normal costs.
- The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the assets of the fund, and represents that part of the actuarial accrued liability which has not been funded by accumulated past contributions.

Amortization Method

The unfunded actuarial accrued liability is amortized as a level percentage of payroll each year to the statutory amortization date of June 30, 2037, assuming payroll increases of 3.75% per year (effective with the 2011 valuation). If the unfunded actuarial accrued liability is negative, the surplus amount is amortized over 30 years as a level percentage of payroll. If there is an increase in the unfunded actuarial accrued liability due to a change in the actuarial assumptions, plan provisions, or actuarial cost method, a new amortization period is determined. This new amortization period is determined by blending the period needed to amortize the prior unfunded actuarial accrued liability over the prior amortization period and the increase in unfunded actuarial accrued liability amortized over 30 years. If there is a decrease in the unfunded actuarial accrued liability, no change is made to the amortization period.



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Asset Valuation Method

As prescribed in the Minnesota Statutes Section 356.215, Subdivision 1, Paragraph (f), the assets are valued based on a five-year moving average of expected and market values (five-year average actuarial value) determined as follows:

- At the end of each plan year, an average asset value is calculated as the average of the market asset value at the beginning and end of the fiscal year net of investment income for the fiscal year;
- The investment gain or (loss) is taken as the excess of actual investment income over the expected investment income based on the average asset value as calculated above;
- The investment gain or (loss) so determined is recognized over five years at 20% per year;
- The asset value is the sum of the market value plus the scheduled recognition of investment gains or (losses) during the current and the preceding four fiscal years.

Supplemental Contributions

The City of Minneapolis, the Minneapolis School District, and the State of Minnesota are scheduled to make the following supplemental contributions to the Fund in FY15:

<i>1993 Legislation:</i>	Supplemental contributions of \$5,000,000 annually are assumed to be made until full actuarial funding is achieved. Amount is fixed in statute.
<i>1996 Legislation:</i>	Supplemental contributions of \$3,047,009 annually are assumed to be made until the amortization date of June 30, 2037 or full actuarial funding is achieved, whichever is earlier. Amount is variable as described in Minnesota Statutes, Chapter 423A.02. Assumed amount is based on actual amount received in most recent fiscal year, and information provided by the Teachers Retirement Association.
<i>1997 Legislation:</i>	Supplemental contributions of \$12,954,000 annually are assumed to be made until full actuarial funding is achieved or the stabilizer may be used to decrease contribution rates. Amount is fixed in statute.

The 1996 Legislation amount increased from \$2,000,000 to \$3,047,009 since the prior valuation.



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Entry Age Calculation

As required by the LCPR Standards for Actuarial Work, a member's Entry Age is calculated as the age at the valuation date less years of service. Age on the valuation date is calculated as age nearest birthday. The years of service for each member are provided by TRA.

Decrement Timing

All decrements are assumed to occur in the middle of the plan year. This is the preferred decrement timing in the LCPR Standards for Actuarial Work.

Funding Objective

The fundamental financing objective of the fund is to establish contribution rates which, when expressed as a percentage of active member payroll, will remain approximately level from generation to generation and meet the required deadline for full funding.

Benefits included or excluded

To the best of our knowledge, all material benefits have been included in the liability.

IRC Section 415(b): The limitations of Internal Revenue Code Section 415(b) have been incorporated into our calculations. Annual benefits may not exceed the limits in IRC Section 415. This limit is indexed annually. For 2014, the limit is \$210,000.

IRC Section 401(a)(17): The limitations of Internal Revenue Code Section 401(a)(17) have been incorporated into our calculations. Compensation for any 12-month period used to determine accrued benefits may not exceed the limits in IRC Section 401(a)(17) for the calendar year in which the 12-month period begins. This limit is indexed annually. For 2014, the limit is \$260,000. Certain members first hired before July 1, 1995 may have a higher limit.



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Summary of Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the plan. All assumptions are prescribed by Statutes, the LCPR, or the Board of Trustees. The assumptions prescribed are based on the last experience study, dated October 30, 2009.

The Allowance for Combined Service Annuity was based on the recommendation of a prior actuary. We are unable to judge the reasonableness of this assumption without performing a substantial amount of additional work beyond the scope of this assignment.

<i>Investment Return</i>	8.41% compounded annually to reflect an 8.0% assumption for three (3) years and 8.5% thereafter.
<i>Future post-retirement adjustments</i>	2% per year, increasing to 2.5% on July 1, 2031. Once the funded ratio reaches 90% on a market value basis for two consecutive years, the COLA is scheduled by statute to revert back from 2.0% to 2.5%. Future assets and liabilities were projected using the 2014 valuation results as a starting point and assuming all actuarial assumptions are met in future years. These assumptions include a rate of return on the market value of assets of 8.0% for the next three years and 8.5% thereafter. Further, there is an assumption that the stabilizer provisions will not be utilized by the Board. Based on this methodology, the increased COLA is expected to be implemented with the July 1, 2031 valuation, and coupled with legislation passed in 2014, the calculation in this valuation reflects the increased COLA at that date. For the July 1, 2013 valuation, the COLA was not expected to increase for at least 30 years. This fact, along with a lack of guidance or legislation as to how to reflect the COLA change, resulted in no reflection of an increase in the COLA in that valuation.
<i>Salary Increases</i>	Reported salary for prior fiscal year, with new hires annualized, is increased according to the salary increase table shown in the rate table for current fiscal year and annually for each future year. See table of sample rates.
<i>Payroll Growth</i>	3.75% per year
<i>Future Service</i>	Members are assumed to earn future service at a full-time rate.
<i>Mortality: Pre-retirement</i>	RP 2000 non-annuitant generational mortality, white collar adjustment, male rates set back 5 years and female rates set back 7 years.
<i>Post-retirement</i>	RP 2000 annuitant generational mortality, white collar adjustment, male rates set back 2 years and female rates set back 3 years.
<i>Post-disability</i>	RP 2000 disabled retiree mortality, without adjustment
<i>Disability</i>	Age-related rates based on experience; see table of sample rates.



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Summary of Actuarial Assumptions *(continued)*

<i>Withdrawal</i>	Select and ultimate rates based on actual plan experience. Ultimate rates after the third year are shown in the rate table. Select rates are as follows:												
	<table border="0"> <thead> <tr> <th></th> <th style="text-align: center;"><u>First Year</u></th> <th style="text-align: center;"><u>Second Year</u></th> <th style="text-align: center;"><u>Third Year</u></th> </tr> </thead> <tbody> <tr> <td>Male</td> <td style="text-align: center;">45%</td> <td style="text-align: center;">12%</td> <td style="text-align: center;">6%</td> </tr> <tr> <td>Female</td> <td style="text-align: center;">40%</td> <td style="text-align: center;">10%</td> <td style="text-align: center;">8%</td> </tr> </tbody> </table>		<u>First Year</u>	<u>Second Year</u>	<u>Third Year</u>	Male	45%	12%	6%	Female	40%	10%	8%
	<u>First Year</u>	<u>Second Year</u>	<u>Third Year</u>										
Male	45%	12%	6%										
Female	40%	10%	8%										
<i>Expenses</i>	Prior year administrative expenses expressed as percentage of prior year payroll.												
<i>Retirement Age</i>	Graded rates beginning at age 55 as shown in rate table. Members who have attained the highest assumed retirement age will retire in one year.												
<i>Percentage Married</i>	85% of male members and 65% of female members are assumed to be married. Members are assumed to have no children.												
<i>Age Difference</i>	Females two years younger than males.												
<i>Allowance for Combined Service Annuity</i>	Liabilities for active members are increased by 1.40% and liabilities for former members are increased by 4.00% to account for the effect of some Participants being eligible for a Combined Service Annuity.												
<i>Refund of Contributions</i>	All employees withdrawing after becoming eligible for a deferred benefit are assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit.												
<i>Interest on member contributions</i>	Members and former members who are eligible for the money purchase annuity are assumed to receive interest credits equal to the Pre-Retirement interest rate. All other members and former members receive the interest crediting rate as specified in statutes.												
<i>Commencement of deferred benefits</i>	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at unreduced retirement age.												
<i>Form of payment</i>	<p>Married members are assumed to elect subsidized joint and survivor form of annuity as follows:</p> <table border="0"> <tbody> <tr> <td style="padding-right: 20px;">Males:</td> <td>10% elect 50% J&S option 15% elect 75% J&S option 70% elect 100% J&S option</td> </tr> <tr> <td>Females:</td> <td>20% elect 50% J&S option 10% elect 75% J&S option 50% elect 100% J&S option</td> </tr> </tbody> </table> <p>Members eligible for deferred annuities (including current terminated deferred members) and future disability benefits are assumed to elect a life annuity.</p>	Males:	10% elect 50% J&S option 15% elect 75% J&S option 70% elect 100% J&S option	Females:	20% elect 50% J&S option 10% elect 75% J&S option 50% elect 100% J&S option								
Males:	10% elect 50% J&S option 15% elect 75% J&S option 70% elect 100% J&S option												
Females:	20% elect 50% J&S option 10% elect 75% J&S option 50% elect 100% J&S option												



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Summary of Actuarial Assumptions *(continued)*

Missing data for members

Membership data was supplied by TRA as of the valuation date. This information has not been audited by CMC. We have reviewed the information for internal consistency and we have no reason to doubt its substantial accuracy. In the small number of cases where submitted data was missing or incomplete and could not be recovered from prior years, the following assumptions were applied, if needed:

Data for active members:

Salary, Service, and Date of Birth	Based on current active demographics.
Gender	Female

Data for terminated members:

Date of birth	July 1, 1964
Average salary	\$29,000
Date of termination	Derived from date of birth, original entry age, and service

Data for in-pay members:

Beneficiary date of birth	Wife two years younger than husband
Gender	Based on first name
Form of payment	Life annuity for retirees and beneficiaries, 100% J&S option for disabled retirees.

Age	Rate (%)			
	Ultimate Withdrawal		Disability	
	Male	Female	Male	Female
20	3.70	4.50	0.00	0.00
25	3.20	4.50	0.00	0.00
30	2.70	4.50	0.00	0.00
35	2.50	3.90	0.01	0.01
40	2.35	2.75	0.03	0.03
45	2.10	2.10	0.05	0.05
50	1.85	1.85	0.10	0.10
55	0.00	0.00	0.16	0.16
60	0.00	0.00	0.25	0.25
65	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Summary of Actuarial Assumptions (*continued*)

<u>Age</u>	<u>Mortality Rates (%)</u>					
	<u>Pre-Retirement*</u>		<u>Post-Retirement**</u>		<u>Post-Disability</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
20	0.0269	0.0155	0.0316	0.0184	2.2571	0.7450
25	0.0345	0.0188	0.0373	0.0194	2.2571	0.7450
30	0.0376	0.0197	0.0393	0.0223	2.2571	0.7450
35	0.0353	0.0235	0.0481	0.0363	2.2571	0.7450
40	0.0591	0.0401	0.0766	0.0527	2.2571	0.7450
45	0.0890	0.0562	0.1124	0.0763	2.2571	0.7450
50	0.1342	0.0837	0.1711	0.1229	2.8975	1.1535
55	0.1978	0.1344	0.5716	0.2681	3.5442	1.6544
60	0.2747	0.2015	0.5688	0.4253	4.2042	2.1839
65	0.4263	0.3107	0.9232	0.6736	5.0174	2.8026
70	0.6725	0.4979	1.5834	1.1211	6.2583	3.7635
75	0.9823	0.7591	2.6710	1.8784	8.2067	5.2230

* Rates shown are RP 2000 employee mortality (base), white collar adjustment, set back 5 years for males and 7 years for females.

** Rates shown are RP 2000 annuitant mortality (base), white collar adjustment, set back 2 years for males and 3 years for females.



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Summary of Actuarial Assumptions (*continued*)

Salary Scale	
Service	Salary Increase
1	12.00%
2	9.00%
3	8.00%
4	7.50%
5	7.25%
6	7.00%
7	6.85%
8	6.70%
9	6.55%
10	6.40%
11	6.25%
12	6.00%
13	5.75%
14	5.50%
15	5.25%
16	5.00%
17	4.75%
18	4.50%
19	4.25%
20	4.00%
21	3.90%
22	3.80%
23	3.70%
24	3.60%
25 or more	3.50%



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Summary of Actuarial Assumptions *(continued)*

Retirement Rate (%)					
<u>Age</u>	Coordinated Members Eligible for Rule of 90	Coordinated Members Not Eligible for Rule of 90	<u>Age</u>	Basic Members Eligible for 30 and Out Provision	Basic Members Not Eligible for 30 and Out Provision
55 & Under	50	7	55 & Under	40	5
56	55	7	56	40	5
57	45	7	57	40	5
58	45	8	58	40	5
59	45	10	59	40	5
60	40	12	60	25	25
61	45	16	61	25	25
62	45	20	62	25	25
63	40	18	63	25	25
64	45	20	64	25	25
65	40	40	65	40	40
66	35	35	66	40	40
67	30	30	67	40	40
68	30	30	68	40	40
69	30	30	69	40	40
70	35	35	70-74	60	60
71 & Over	100	100	75-79	60	100
			80 & Over	100	100



APPENDIX C – ACTUARIAL METHODS AND ASSUMPTIONS

Future post-retirement adjustments

2% per year, increasing to 2.5% on July 1, 2031.

Once the funded ratio reaches 90% on a market value basis for two consecutive years, the COLA is scheduled by statute to revert back from 2.0% to 2.5%. Future assets and liabilities were projected using the 2014 valuation results as a starting point and assuming all actuarial assumptions are met in future years. These assumptions include a rate of return on the market value of assets of 8.0% for the next three years and 8.5% thereafter. Further, there is an assumption that the stabilizer provisions will not be utilized by the Board. Based on this methodology, the increased COLA is expected to be implemented with the July 1, 2031 valuation, and coupled with legislation passed in 2014, the calculation in this valuation reflects the increased COLA at that date. For the July 1, 2013 valuation, the COLA was not expected to increase for at least 30 years. This fact, along with a lack of guidance or legislation as to how to reflect the COLA change, resulted in no reflection of an increase in the COLA in that valuation.

Changes in actuarial assumptions and methods since the previous valuation

The assumption for future post-retirement adjustments was changed as discussed earlier.



GLOSSARY

Actuarial Asset Value. The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method. The goal of an asset valuation method is to produce a relatively stable asset value thereby reducing year-to-year volatility in contribution requirements.

Actuarial Accrued Liability. The portion of the present value of all benefits attributable to service already rendered.

Actuarial Cost Method. Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

ASA. Associate of the Society of Actuaries.

Current Benefit Obligations. The present value of benefits earned to the valuation date, based on current service and including future salary increases to retirement.

EA. Enrolled Actuary.

FSA. Fellow of the Society of Actuaries.

MAAA. Member of the American Academy of Actuaries.

Normal Cost. The annual cost assigned to the current year, under the actuarial cost method in use.

Present Value. Sometimes called "actuarial present value," the current worth (on the valuation date) of an amount or series of amounts payable or receivable in the future. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Statement No. 67 of the Governmental Accounting Standards Board (GASB 67). The accounting standard governing the financial reporting for defined benefit pension plans and note disclosures for defined benefit plans.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68). The accounting standard governing a state or local governmental employer's accounting for pensions.