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**Teachers' Retirement System
State of Montana**

**Actuarial Valuation
As of July 1, 2014**

September 26, 2014

Teachers' Retirement Board
State of Montana
1500 Sixth Avenue
Helena, MT 59620-0139

Members of the Board:

In this report are submitted the results of the annual valuation of the assets and liabilities of the Teachers' Retirement System of Montana (TRS), prepared as of July 1, 2014.

The purpose of this report is to provide a summary of the funded status of the System as of July 1, 2014. While not verifying the data at source, the actuary performed tests for consistency and reasonability. The valuation indicates that the statutory contribution rate reflecting all anticipated contribution increases are sufficient to amortize the unfunded accrued liability within a 28 year period.

The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the Entry Age Normal cost method. Four-year market related value of assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded accrued liability that is being amortized by regular annual contributions as a level percentage of payroll, on the assumption that payroll will increase by 4.00% annually. The assumptions recommended by the actuary and adopted by the Board are in the aggregate reasonably related to the experience under the Fund and to reasonable expectations of anticipated experience under the Fund. The July 1, 2014 valuation reflects revised mortality rates and economic assumptions based on a five-year experience study ending July 1, 2013 adopted by the Board on May 16, 2014.

Prior to this valuation the funding period was 20 years. The passage of HB 377 in 2013 provided increased funding of the Retirement System along with a temporary reduction in the GABA until certain funding parameters are met. A temporary court ordered injunction has been issued that temporarily suspended the reduction in the GABA. This accounts for the increase in the amortization period.

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

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

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

Edward A. Macdonald, ASA, FCA, MAAA   Todd B. Green, ASA, FCA, MAAA
President   Principal and Consulting Actuary

EAM:TBG/kc

Teachers' Retirement System
State of Montana

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Section I

Summary of Findings

For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below:

(Dollar amounts in thousands)

VALUATION DATE	July 1, 2014	July 1, 2013
Active members		
Number		
Full-Time Members	12,286	12,229
Part-Time Members	5,986	6,020
Annual valuation compensation	$ 750,604	$ 742,609
Retired members and beneficiaries		
Number	14,349	13,868
Annual allowances	$ 303,519	$ 284,333
Inactive Members		
Vested Terminated Members	1,654	1,566
Non-Vested Terminated Members	12,308	11,710
Assets		
Actuarial value	$ 3,397,436	$ 3,067,878
Market value	3,652,100	3,185,064
Actuarial Accrued Liability (AAL)	$ 5,191,069	$ 4,592,658
Unfunded Actuarial Accrued Liability	$ 1,793,633	$ 1,524,780
Funded Ratio	65.45%	66.80%
Market Value Rate of Return	17.09%	12.94%
Annual Cost		
Total Normal Rate	9.13%	9.20%
Employee Contribution Rate	8.15%	8.15%
Employer Normal Rate	0.98%	1.05%
Employer Statutory Contribution Rate		
Normal Rate	0.98%	1.05%
Administrative Expense Load	0.31%	N/A
UAAL Rate	9.77%	9.91%
Total Rate	11.06%	10.96%
Amortization Period*	28 Years	20 Years

* Reflects anticipated increases in employer contribution rates.

Pending litigation, a temporary court ordered injunction has been issue which prohibits the reduction of the GABA pursuant to MCA 19-20-719. Therefore, the results as of July 1, 2014 reflect a 1.50% GABA provision while the July 1, 2013 reflect a 0.50% GABA provision.

As a result of this actuarial valuation of the benefits in effect under the Montana Teachers' Retirement System as of July 1, 2014, the statutory employer contributions are sufficient to amortize the Unfunded Actuarial Accrued Liability (UAAL) of the Retirement System within 28 years. The Funded Ratio is 65.45%.

The table below shows a history of the legislated contribution rates as a percent of pay. In addition to these contributions the State will contribute $25 million annually to the System payable July 1st of each year.

Finally, MCA 19-20-605 requires each employer to contribute 9.85% of total compensation paid to all re-employed TRS retirees employed in a TRS reportable position. Pursuant to MCA 19-20-609, this amount shall increase by 1.00% for fiscal year 2014 and increase by 0.10% each fiscal year through 2024 until the total employer contribution is equal to 11.85% of re-employed retiree compensation.

History of Legislated Contributions
(as a Percent of Pay)

School District and Other Employers

	Members	Employers	General fund	Total employee & employer
Prior to July 1, 2007	7.15%	7.47%	0.11%	14.73%
July 1, 2007 to June 30, 2009	7.15%	7.47%	2.11%	16.73%
July 1, 2009 to June 30, 2013	7.15%	7.47%	2.49%	17.11%
July 1, 2013 to June 30, 2014	8.15%	8.47%	2.49%	19.11%
July 1, 2014 to June 30, 2015	8.15%	8.57%	2.49%	19.21%
July 1, 2015 to June 30, 2016	8.15%	8.67%	2.49%	19.31%
July 1, 2016 to June 30, 2017	8.15%	8.77%	2.49%	19.41%
July 1, 2017 to June 30, 2018	8.15%	8.87%	2.49%	19.51%
July 1, 2018 to June 30, 2019	8.15%	8.97%	2.49%	19.61%
July 1, 2019 to June 30, 2020	8.15%	9.07%	2.49%	19.71%
July 1, 2020 to June 30, 2021	8.15%	9.17%	2.49%	19.81%
July 1, 2021 to June 30, 2022	8.15%	9.27%	2.49%	19.91%
July 1, 2022 to June 30, 2023	8.15%	9.37%	2.49%	20.01%
July 1, 2023 to June 30, 2024	8.15%	9.47%	2.49%	20.11%

State and University Employers

	Members	Employers	General fund	Total employee & employer
Prior to July 1, 2007	7.15%	7.47%	0.11%	14.73%
July 1, 2007 to June 30, 2009	7.15%	9.47%	0.11%	16.73%
July 1, 2009 to June 30, 2013	7.15%	9.85%	0.11%	17.11%
July 1, 2013 to June 30, 2014	8.15%	10.85%	0.11%	19.11%
July 1, 2014 to June 30, 2015	8.15%	10.95%	0.11%	19.21%
July 1, 2015 to June 30, 2016	8.15%	11.05%	0.11%	19.31%
July 1, 2016 to June 30, 2017	8.15%	11.15%	0.11%	19.41%
July 1, 2017 to June 30, 2018	8.15%	11.25%	0.11%	19.51%
July 1, 2018 to June 30, 2019	8.15%	11.35%	0.11%	19.61%
July 1, 2019 to June 30, 2020	8.15%	11.45%	0.11%	19.71%
July 1, 2020 to June 30, 2021	8.15%	11.55%	0.11%	19.81%
July 1, 2021 to June 30, 2022	8.15%	11.65%	0.11%	19.91%
July 1, 2022 to June 30, 2023	8.15%	11.75%	0.11%	20.01%
July 1, 2023 to June 30, 2024	8.15%	11.85%	0.11%	20.11%

Calculations based on the Market Value of Assets

MCA 19-20-201 requires this report to show how market performance is affecting the actuarial funding of the Retirement System. The July 1, 2014 market value of assets is $254.7 million more than the actuarial value of assets. This is due to the smoothing of investment gains and losses over a four year period. If the market value of assets was used, the amortization period would be 21 years, and the Funded Ratio would be 70.35%.

Additional Details

MCA 19-20-604 states that the contribution from the State General Fund will be reduced by 0.11% when the amortization period of the System's UAAL is 10 years or less according to the System's latest actuarial valuation.

The actuarial costs are calculated using the entry age actuarial cost method. This is the method used by most public plans. It is designed to provide a stable contribution rate as a percent of member pay. This actuarial valuation measures the adequacy of the contribution rates set in Montana State Law.

Investment Experience

The market assets earned 17.09% net of investment and operating expenses. As a result of prior years unrecognized gains, the actuarial assets earned 13.21% which is 5.46% greater than the actuarial assumption of 7.75%. The return on the actuarial assets differs from the return on market assets because the actuarial value of assets spreads gains and losses over four years. The chart below shows the annual returns for the past ten years.

Year	Market Return	Actuarial Return	Market Return over Assumption*	Actuarial Return over Assumption*
7/1/2003 to 6/30/2004	13.31%	2.12%	5.31%	(5.88)%
7/1/2004 to 6/30/2005	8.04%	2.71%	0.29%	(5.04)%
7/1/2005 to 6/30/2006	8.91%	8.46%	1.16%	0.71%
7/1/2006 to 6/30/2007	17.64%	10.22%	9.89%	2.47%
7/1/2007 to 6/30/2008	(4.88)%	7.18%	(12.63)%	(0.57)%
7/1/2008 to 6/30/2009	(20.80)%	(10.26)%	(28.55)%	(18.01)%
7/1/2009 to 6/30/2010	12.87%	9.78%	5.12%	2.03%
7/1/2010 to 6/30/2011	21.67%	(0.13)%	13.92%	(7.88)%
7/1/2011 to 6/30/2012	2.21%	3.21%	(5.54)%	(4.54)%
7/1/2012 to 6/30/2013	12.94%	11.99%	5.19%	4.24%
7/1/2013 to 6/30/2014	17.09%	13.21%	9.34%	5.46%

The actuarial assumption was 8.0% through 6/30/2004 and 7.75% thereafter.

Asset gains or losses result when the return on the actuarial value of assets differs from the actuarial investment return assumption of 7.75% (8.0% before July 1, 2004).

On a market value basis the System earned $149.1 million more than anticipated by the 7.75% assumption in the year ended June 30, 2013 and $294.1 million more than anticipated by the 7.75% assumption in the year ended June 30, 2014. The net result as of July 1, 2014 is that the market value of assets is $254.7 million more than the actuarial value of assets. This $254.7 million in unrecognized asset gains will either offset any future investment losses or if there are none, reduce the amortization period of the UAAL in future valuations.

Recent Contribution Increases

As shown in the "History of Legislated Contributions" at the beginning of this section, the employer contributions from the General Fund have increased to 2.49% of pay as of July 1, 2009.   The supplemental contribution to ensure university member benefits are funded by university employers was increased from 4.04% to 4.72% of Optional Retirement Plan (ORP) member pay at July 1, 2007. The valuation that determined the 4.72% contribution rate of ORP member pay was based on the valuation completed as of July 1, 2006. The most recent ORP valuation completed as of July 1, 2012 indicated an increase is needed in the supplemental contribution rate from 4.72% to 9.04% of ORP member compensation rate.

MCA 19-20-608 and MCA 19-20-609 dictate that employers and members are required to make supplemental contributions if the funded ratio of the System is less than 90%. Since the funded ratio is currently 65.45%, Tier One Members are required to contribute an additional 1% of compensation. The individual employers are required to contribute an additional 1% of compensation. The employer contribution shall increase by 0.1% each year following July 1, 2013 until the total employer supplemental contribution is equal to 2% of compensation.

MCA 19-20-607 requires the State to contribute $25 million annually each July 1st to the System.

In addition to the increases mention above, the System received a one-time contribution of approximately $22 million from the trustees of school districts maintaining a retirement fund. The one-time contribution to the Retirement System was the amount earmarked as an operating reserve in excess of 20% of the adopted retirement fund budget for the fiscal year 2013.

MCA 19-20-605 requires each employer to contribute 9.85% of total compensation paid to all re-employed TRS retirees employed in a TRS reportable position. Pursuant to MCA 19-20-609, this amount shall increase by 1.00% for fiscal year 2014 and increase by 0.10% each fiscal year through 2024 until the total employer contribution is equal to 11.85% of re-employed retiree compensation.

Amortization Period Changes

The July 1, 2013 actuarial valuation calculated a 20 year amortization period for the UAAL. The resulting amortization period at July 1, 2014 is 28 years.

During the 2013 Legislative Session, HB 377 was passed which reduced the GABA provisions of TRS from 1.50% to 0.50% if the funded ratio of the System is less than 90%. A temporary court ordered injunction has been issued against this reduction. Therefore, the increase in the amortization period due to disregarding the reduction in the GABA for the July 1, 2014 valuation results.

Funding and Benefits Policy

The Teachers' Retirement System has adopted a Funding and Benefits Policy to provide general guidelines to help ensure decisions are made based on sound, consistent, and thoroughly examined criteria. The Funding and Benefits Policy includes guidance on the following topics:

1) Additional Funding

    a) The Funding and Benefits Policy states:

        "1.   If the amortization period is greater than 30 years, the actuary will recommend the single contribution rate increase that can reasonably expect to fully amortize the

UAAL over a closed 30-year period effective July 1, following the next regular legislative session.

2. If the amortization period is less than 30 years, but greater than 0, and it is projected to continue to decline over the remainder of the closed period, the actuary will not recommend a change in the statutory contribution rates.

3. IF the amortization period is less than 30 years, but has increased over prior valuations and is projected to continue to grow, the actuary will recommend a contribution rate increase that is reasonably expected to reverse the recent trend and reestablish a closed amortization period equal to that of the last valuation."

2) Analysis: The amortization period as of July 1, 2014 is 28 years based on actuarial assets and 21 years based on market assets. Assuming experience follows the actuarial assumptions, the amortization period is projected to decline. Therefore additional funding is not necessary at this time.

3) Ultimate Goal

a) The Funding and Benefits Policy states: "It is the desire of the Board to fully fund the System. However, until the System becomes fully funded, any unfunded liabilities will be amortized over a closed period of no more than 30 years and funded as a level percent of pay. At such time as the System becomes fully funded and has as stabilization reserve of at least 10% of the actuarial accrued liability, the allowed amortization period for any subsequent unfunded liabilities will be reduced to a closed period of not greater than 20 years."

b) Analysis: The amortization period on an actuarial value of asset basis is 28 years and is anticipated to decline. This is within the parameters of the ultimate goal of the Retirement System.

4) Benefit Enhancements

a) The Funding and Benefits Policy states: "Any recommendation for a benefit enhancement must include recommendations for necessary additional funding or other benefit reduction to cover any increase in normal cost arising from the recommended enhancement and to amortize any increase in the unfunded actuarial accrued liabilities arising from the recommended enhancement over a period not to exceed 25 years.

The Board will determine its position with respect to supporting or opposing legislation, on a case-by-case basis, and will apply this policy, actuarial funding standards, and other industry-standard information and resources it finds persuasive, as decision guides. The Board may not support legislation to enhance benefits if the funded ratio is less than 85%, and the amortization period is greater than 20 years."

b) Analysis: Since the funded ratio at July 1, 2014 of 65.45% is below 80% the Board's Funding and Benefits policy does not currently support enhanced benefits.

Sensitivity to Future Experience

The valuation results are projections based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing the ultimate cost. The following illustrations provide simple analyses on how the costs are sensitive to changes in the assumed rate of return and changes to the GABA.

Investment Return – The investment return generally has the largest impact on the funding of the System.

Impact of Assuming 0.5% Lower Investment Return	
	Funded Ratio
Current Assumption 7.75%	65.45%
Lower Assumption 7.25%	62.04%
Change	(3.41)%
	Amortization Period Increase / (Decrease)
Current Assumption 7.75%	28 Years
Lower Assumption 7.25%	39 Years
Increase	11 Years
Impact of Assuming 1.0% Lower Investment Return	
	Funded Ratio
Current Assumption 7.75%	65.45%
Lower Assumption 6.75%	58.68%
Change	(6.77)%
	Amortization Period Increase / (Decrease)
Current Assumption 7.75%	28 Years
Lower Assumption 6.75%	59 Years
Increase	31 Years
Impact of Assuming 1.5% Lower Investment Return	
	Funded Ratio
Current Assumption 7.75%	65.45%
Lower Assumption 6.25%	55.39%
Change	(10.06)%
	Amortization Period Increase / (Decrease)
Current Assumption 7.75%	28 Years
Lower Assumption 6.25%	106 Years
Increase	78 Years

Invalidation of GABA

During the 2013 Legislative session, HB 377 was passed which changed the GABA provision of TRS. The previous GABA provision provided an annual 1.50% increase on January 1st of each year to retirees and beneficiaries in receipt of pension benefits once the retiree had been retired for at least 36 months. The new GABA provision limits the annual increase to 0.5% if the funded ratio of the System is less than 90%. A temporary court ordered injunction has been issued prohibiting the reduction of the GABA. The table below compares the results of the July 1, 2014 annual valuation under the reduced GABA provision of HB 377 to the unreduced GABA.

Dollar amounts in thousands		
	1.50% GABA Provision	0.50% GABA Provision
VALUATION DATE	**July 1, 2014**	**July 1, 2014**
Actuarial Accrued Liability (AAL)	$ 5,191,069	$ 4,785,866
Actuarial value of Assets	$ 3,397,436	$ 3,397,436
Unfunded Actuarial Accrued Liability	$ 1,793,633	$ 1,388,430
Funded Ratio	65.45%	70.99%
Annual Cost		
Total Normal Rate	9.13%	8.38%
Employee Contribution Rate	8.15%	8.15%
Employer Normal Rate	0.98%	0.23%
Employer Statutory Contribution Rate		
Normal Rate	0.98%	0.23%
Administrative Expense Load	0.31%	0.31%
UAAL Rate	9.77%	10.52%
Total Rate	11.06%	11.06%
Amortization Period	28 Years	17 Years

The future funding status of the System will be determined by the System's experience. The System's actual asset returns and retirement rates, as well as member longevity, salary increases, withdrawal rates, disability rates and future legislation will all impact the funding status of the System. The entry age normal cost method and four year smoothing of asset gains and losses will help to provide a more orderly funding of the System's liabilities, but will not change the actual experience. The amortization period of the UAAL is not likely to decrease by the expected 1.0 year with each passing actuarial valuation. Instead, the amortization period is expected to decrease more or less than 1.0 years each year, reflecting gains and losses due to experience different than the actuarial assumptions.

Assumption Changes

Since the previous valuation, the Board has adopted an experience study on May 16, 2014 performed for the five year period ending July 1, 2013. As a result, the assumed rates of mortality have been updated, the assumed rate of price inflation and the assumed real wage growth have both been reduced.

Benefit Changes

The GABA has been increased from 0.50% to 1.50% due to a temporary court ordered injunction preventing the reduction of the GABA as required under HB 377.

Contribution Changes

An employer supplemental contribution of 1% of compensation is required beginning in fiscal year 2014 which will increase by 0.10% each subsequent fiscal year through 2024. For fiscal years beginning after June 30, 2024, the supplemental employer contribution will equal 2.00% of compensation.

Method Changes

Since the previous valuation, the investment return assumption has been changed from net of investment and administrative expenses to net of investment expenses only. Therefore the normal cost rate now must contain a load for administrative expenses expected to occur throughout the year.

Impact of Changes

The following table summarizes how experience has changed the UAAL since the July 1, 2013 Actuarial Valuation. Further detail can be found in Table 11.

Changes in the Unfunded Actuarial Accrued Liability (UAAL)

(In millions)

July 1, 2013 Valuation UAAL	$ 1,524.8
Expected Increase	(35.4)
Expected July 1, 2014 UAAL	$ 1,489.4
Experience Loss on Actuarial Liabilities	$ 18.1
Experience Gain on Actuarial Assets	(165.6)
Assumption Changes (Experience Study)	46.5
Plan Changes (1.5% GABA)	405.2
Total Gain	$ 304.2
July 1, 2014 Valuation UAAL	$ 1,793.6

Summary

* The System's actuarial value investment return of 13.21% for the year ended June 30, 2014 is 5.46% more than the actuarial assumption of 7.75%. This represents an asset gain of $165.6 million due to investment return greater than anticipated. The actuarial value of assets is not allowed to be greater than 120% or less than 80% of the market value of assets. As of July 1, 2014, the market value of assets was $3,652.1 million. As of July 1, 2014 the preliminary actuarial value of assets was $3,397.4 million. Since the preliminary actuarial value is within the corridor no adjustment is required to the preliminary actuarial value of assets. The July 1, 2014 market value of assets is $254.7 million more than the actuarial value of assets. This $254.7 million gain will be recognized in future actuarial valuations unless it is offset by returns less than the 7.75% assumption.

* As of July 1, 2014 the amortization period of the UAAL is 28 years. Prior to this valuation the funding period was 20 years. The passage of HB 377 in 2013 provided increased funding of the Retirement System along with a temporary reduction in the GABA until certain funding parameters are met. Pending litigation, a temporary court ordered injunction has been issued that temporarily suspended the reduction in the GABA. This accounts for the increase in the amortization period. This action complied with the Board's current Funding and Benefits Policy. The Policy's ultimate goal is to increase the current net funded ratio of 65.45% above 110% to encourage stable contribution rates.

* The funding of the retirement system will be impacted by future experience which will sometimes be more favorable than the actuarial assumptions and sometimes less favorable. In particular, investment returns larger and smaller than the 7.75% assumption are expected to have significant impacts on the System's funding progress. In the long term, the favorable experience is needed to offset the less favorable experience This is the reason for using an actuarial value of assets that smoothes gains and losses over four years.

Projected Progress toward 100% Funding

The table below shows the projected progress toward reaching 100%. When the System is 100% funded the Unfunded Actuarial Accrued Liability will be fully amortized. This is scheduled to occur within 28 years. The ultimate goal of the TRS System is to become at least 100% funded and to establish a reserve equal to 10% of the Systems Actuarial Accrued Liability.
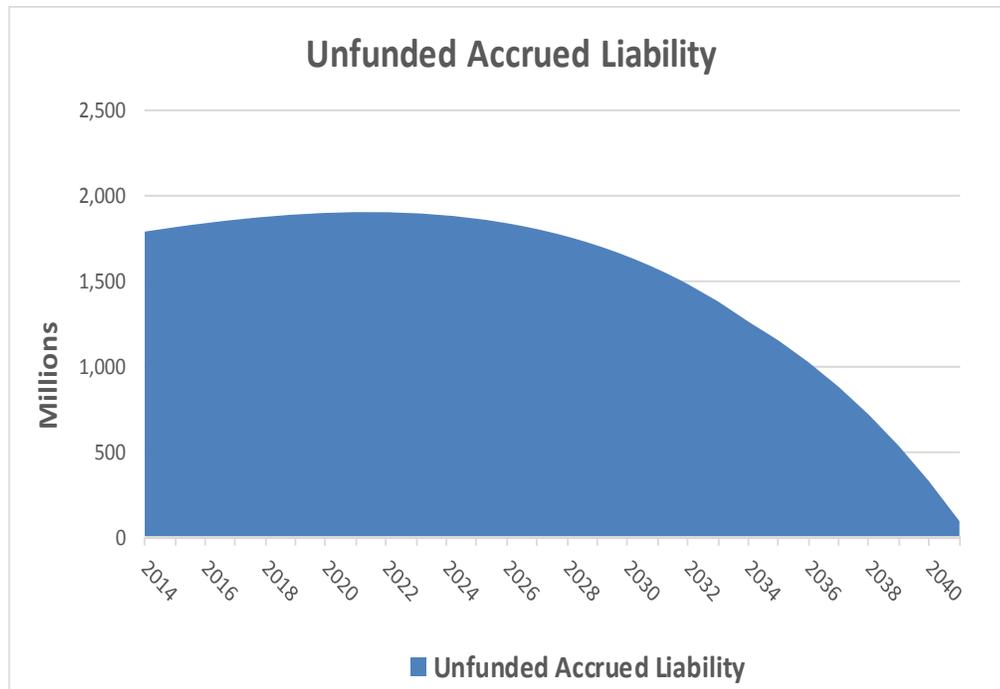
Section 2

Assets

In many respects, an actuarial valuation can be regarded as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is July 1, 2014. On that date, the assets available for the payment of benefits are appraised. These assets are compared with the actuarial liabilities. The actuarial process thus leads to a method of determining what contributions by members and their employers are needed to strike a balance.

The asset valuation method being used is a four-year smoothing method. The expected return is determined each year based on the beginning of year market value and actual cash flows during the year. Any difference between the expected market value return and the actual market value return is recognized evenly over a period of four years. The actuarial value of assets is not allowed to be greater than 120% or less than 80% of the market value of assets.

Table 1 lists the assets held and their market value for the past two years. Table 2 summarizes the fund's activity during the past two years. Table 3 summarizes the determination of the actuarial value of assets. Table 4 summarizes historical asset returns for the last 15 years including the amount recognized by the actuarial asset valuation method which was greater or lesser than the actuarial investment return assumption.

Teachers' Retirement System
State of Montana

Table 1

Statement of Fiduciary Net Assets

	TOTAL TRS 2014		TOTAL TRS 2013	
ASSETS				
Cash/Cash Equivalents-Short Term				
Investment Pool	$	86,666,771	$ $	49,311,573
Receivables:				
Accounts Receivable		23,220,600		19,291,577
Interest Receivable		3,938,077		3,590,714
Total Receivables	$	27,158,677	$	22,882,291
Investments, at fair value:				
Investment Pools		3,538,421,770		3,112,815,628
Other Investments		-		527,645
Securities Lending Collateral		152,071,669		141,343,948
Total Investments	$	3,690,493,438	$	3,254,687,221
Assets Used in Plan Operations:				
Land and Buildings	$	193,844	$	193,844
Less: Accumulated Depreciation		(150,545)		(150,545)
Equipment		206,696		142,697
Less: Accumulated Depreciation		(132,925)		(110,110)
Prepaid Expenses		-		1,200
Intangible Assets, net of amortization		499,184		-
Total Other Assets	$	616,255	$	77,086
TOTAL ASSETS	$	3,804,935,140	$	3,326,958,172
LIABILITIES				
Accounts Payable	$	249,081	$	59,617
Securities Lending Liability		152,071,669		141,343,948
Compensated Absences		153,797		202,791
OPEB Implicit Rate Subsidy		360,357		287,409
TOTAL LIABILITIES	$	152,834,903	$	141,893,765
NET ASSETS HELD IN TRUST FOR PENSION BENEFITS	$	3,652,100,237	$	3,185,064,406

Teachers' Retirement System
State of Montana

Table 2

Statement of Changes in Fiduciary Net Assets

	TOTAL TRS 2014	TOTAL TRS 2013
ADDITIONS		
Contributions:		
Employer	$ 83,439,612	$ 74,113,191
Plan Member	70,468,354	62,849,685
Other	64,923,320	17,521,347
Total Contributions	$ 218,831,287	$ 154,484,223
Misc Income	$ 6,000	$ 7,956
Investment Income:		
Net Appreciation/(Depreciation) in Fair Value of Investments	$ 404,310,911	$ 251,267,246
Investment Earnings	155,346,249	136,721,675
Security Lending Income	750,702	881,395
Investment Income/(Loss)	$ 560,407,862	$ 388,870,317
Less: Investment Expense	20,013,455	14,930,082
Less: Security Lending Expense	117,044	218,700
Net Investment Income/(Loss)	$ 540,277,362	$ 373,721,534
Total Additions	$ 759,114,649	$ 528,213,713
DEDUCTIONS		
Benefit Payments	$ 285,182,358	$ 268,250,231
Withdrawals	4,788,688	5,119,358
Administrative Expense	2,061,717	1,934,182
OPEB Expenses	46,055	48,012
Total Deductions	$ 292,078,818	$ 275,351,783
NET INCREASE (DECREASE) IN PLAN NET ASSETS	$ 467,035,831	$ 252,861,930
NET ASSETS HELD IN TRUST FOR PENSION BENEFITS BEGINNING OF YEAR	$ 3,185,064,406	$ 2,932,202,476
ADJUSTMENT		
END OF YEAR	$ 3,652,100,237	$ 3,185,064,406

Teachers' Retirement System
State of Montana
Table 3 Determination of Actuarial Value of Assets

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Valuation Date July 1:	2013	2014	2015	2016	2017
A. Actuarial Value Beginning of Year	$ 2,852,006,805	$ 3,067,877,972			
B. Market Value End of Year	3,185,064,406	3,652,100,237			
C. Market Value of Beginning of Year	2,932,202,476	3,185,064,406			
D. Cash Flow					
D1. Contributions	154,484,223	218,831,287			
D2. Benefit Payments	(273,369,589)	(289,971,046)			
D3. Net	$ (118,885,366)	$ (71,139,759)			
E. Investment Income					
E1. Market Total: B. - C. - D3.	$ 371,747,296	$ 538,175,591			
E2. Assumed Rate	7.75%	7.75%			
E3. Amount for Immediate Recognition	222,638,884	244,085,826			
E4. Amount for Phased-in Recognition	149,108,412	294,089,765			
F. Phased-In Recognition of Investment Income					
F1. Current Year: 0.25 * E4.	$ 37,277,103	$ 73,522,441	$ -	$ -	$ -
F2. First Prior Year	(40,457,163)	37,277,103	73,522,441	-	-
F3. Second Prior Year	86,269,457	(40,457,163)	37,277,103	73,522,441	-
F4. Third Prior Year	29,028,252	86,269,457	(40,457,163)	37,277,103	73,522,441
F5. Total Recognized Investment Gain	$ 112,117,649	$ 156,611,838	$ 70,342,381	$ 110,799,544	$ 73,522,441
G. Preliminary Actuarial Value End of Year A. + D3. + E3. + F5.	$ 3,067,877,972	$ 3,397,435,877			
H. Corridor					
H1. 80% of Market Value	$ 2,548,051,525	$ 2,921,680,190			
H2. 120% of Market Value	3,822,077,287	4,382,520,284			
I. Actuarial Value End of Year G. Not Less than H1. or Not Greater than H2.	$ 3,067,877,972	$ 3,397,435,877			
J. Difference Between Market & Actuarial Values	$ 117,186,434	$ 254,664,360			

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Table 4

Historical Investment Returns*

Fiscal Year Ending	Market Returns	Actuarial Returns	Actuarial Return Over 8.00% Assumption
June 30, 2000	7.8%	12.8%	4.8%
June 30, 2001	(5.1)%	9.2%	1.2%
June 30, 2002	(7.3)%	3.8%	(4.2)%
June 30, 2003	6.2%	1.6%	(6.4)%
June 30, 2004	13.3%	2.1%	(5.9)%

Fiscal Year Ending	Market Returns	Actuarial Returns	Actuarial Return Over 7.75% Assumption
June 30, 2005	8.0%	2.7%	(5.0)%
June 30, 2006	8.9%	8.5%	0.7%
June 30, 2007	17.6%	10.2%	2.5%
June 30, 2008	(4.9)%	7.2%	(0.6)%
June 30, 2009	(20.8)%	(10.3)%	(18.0)%
June 30, 2010	12.9%	9.8%	2.0%
June 30, 2011	21.7%	(0.1)%	(7.9)%
June 30, 2012	2.2%	3.2%	(4.6)%
June 30, 2013	12.9%	12.0%	4.3%
June 30, 2014	17.1%	13.2%	5.5%
15 Year Average	5.4%	5.5%	(2.3)%

* Returns reflect all investment returns, including investment income and realized and unrealized investment gains and losses, and are net of investment expenses and administrative expenses paid by the System.

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Table 5

Market Value of Assets vs. Actuarial Value of Assets
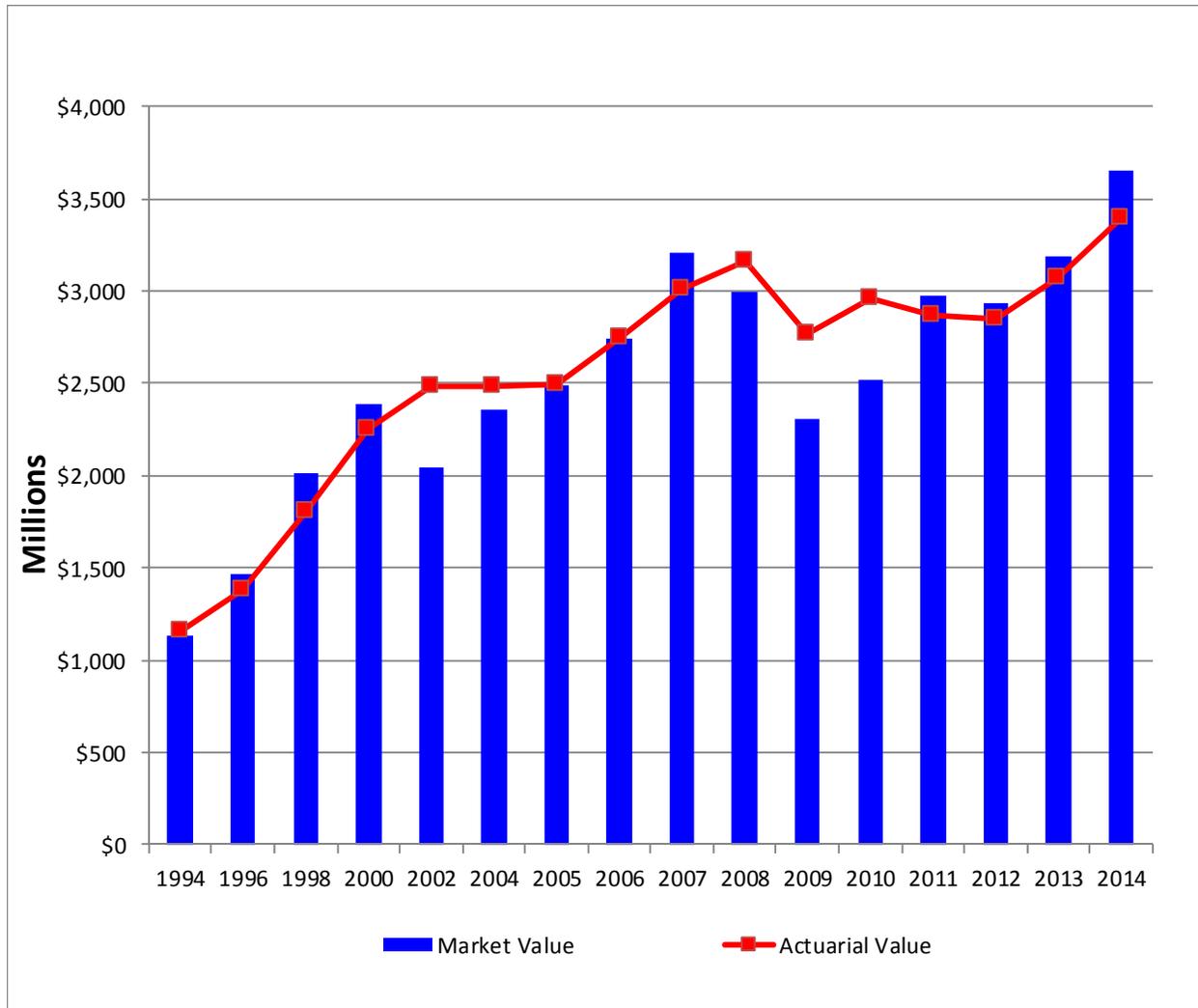
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Section 3

Actuarial Present Value of Future Benefits

In the previous section, an actuarial valuation was related to an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date. In this section, the discussion will focus on the commitments of the System, which will be referred to as its actuarial liabilities.

Table 6 contains an analysis of the actuarial present value of all future benefits for contributing members, for former contributing members, and for beneficiaries. The analysis is given by type of benefit.

The actuarial liabilities summarized in Table 6 include the actuarial present value of all future benefits expected to be paid with respect to each member covered as of the valuation date. For an active member, this value includes a measure of both benefits already earned and future benefits to be earned. Thus, 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 their surviving beneficiaries.

The actuarial valuation does not recognize liabilities for employees who become members and participate in the System after the valuation date.

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Table 6

**Actuarial Present Value of Future Benefits
for Contributing Members, Former Contributing
Members, and Beneficiaries**

(All amounts are actuarial present values in millions)

	July 1, 2014 Total	July 1, 2013 Total
A. Active Members		
Service Retirement	$ 2,159.0	$ 2,127.4
Disability Retirement	12.9	12.9
Survivors' Benefits	58.6	49.0
Vested Retirement	32.4	29.3
Refund of Member Contributions	49.2	45.5
Total	$ 2,312.1	$ 2,264.1
B. Inactive Members and Annuitants		
Service Retirement	$ 3,140.2	$ 2,646.2
Disability Retirement	22.4	20.2
Beneficiaries*	192.1	162.3
Vested Terminated Members	63.4	51.9
Refund of Member Contributions	19.9	19.2
Total	$ 3,438.0	$ 2,899.8
C. Grand Total	$ 5,750.1	$ 5,163.9

* Includes survivors of active and retired members and children's benefits

Pending litigation, a temporary court ordered injunction has been issue which prohibits the reduction of the GABA pursuant to MCA 19-20-719. Therefore, the results as of July 1, 2014 reflect a 1.50% GABA provision while the July 1, 2013 reflect a 0.50% GABA provision.

Section 4

Employer Contributions

In the previous two sections, attention has been focused on the assets and the present value of all future benefits of the System. A comparison of Tables 3 and 6 indicates that there is a shortfall in current actuarial assets to meet the present value of all future benefits for current members and beneficiaries.

In an active system, there will always be a difference between the assets and the present value of all future benefits. An actuarial valuation sets a schedule of future contributions that will deal with this funding in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. For this valuation, the entry age actuarial cost method has been used. A description of the entry age actuarial cost method is provided in Appendix A. Under this method, or essentially any actuarial cost method, the contributions required to meet the difference between current assets and the present value of all future benefits are allocated each year between three elements:

> A normal cost amount, which ideally is relatively stable as a percentage of salary over the years;

> A load for administrative expenses

> and an amount which is used to amortize the UAAL.

The two items described above, normal cost and UAAL, are the keys to understanding the actuarial cost method. Let us first discuss the normal cost.

The normal cost is the theoretical contribution rate, which will meet the ongoing costs of a group of average new employees. Suppose that a group of new employees were covered under a separate fund from which all benefits and to which all contributions and associated investment return were to be paid. Under the entry age actuarial cost method, the normal cost contribution rate is that level percentage of pay which would be exactly right to maintain this fund on a stable basis. If experience were to follow the actuarial assumptions exactly, the fund would be completely liquidated with the last payment to the last survivor of the group.

The assumed investment rate of return is 7.75%, net of investment expenses. As a result, the actuarially determined contribution must include an amount for administrative expenses expected to occur during the year.

We have determined the normal cost rates separately by type of benefit under the System. These are summarized in Table 7. In Table 7 we also provide a summary of the member and employer statutory contributions and ARC under GASB.

The term "fully funded" is often applied to a system where contributions for everyone at the normal cost rate will fully pay for the benefits of existing as well as new employees. Often, systems are not fully funded, either because of benefit improvements in the past that have not been completely paid for or actuarial deficiencies that have occurred because experience has not been as anticipated. Under these circumstances, a UAAL exists.

Table 8 shows how the UAAL was derived for the System. Lines A and B show, respectively, the total present value of future benefits and the portion of the future liability that is expected to be paid from future normal cost contributions, both employer and employee. Line C shows the actuarial accrued liability. Line D shows the amount of assets available for benefits. Line E shows the UAAL.

The amortization of the UAAL assumes university supplemental contributions are made as a percent of pay for members of the Optional Retirement Plan (ORP) until June 30, 2033.   Under Section 19-20-621, periodic separate valuations are to be performed to measure the liabilities of benefits to be paid under the Teachers' Retirement System (TRS) for Montana University System (MUS) members. The MUS valuations calculate contribution rates that finance the university member benefits with university contributions and reflect actual experience including investment returns. Therefore the university supplemental contribution rate has varied from time to time. Recently it has varied as follows:

Supplemental University Contribution Rate	Fiscal Years Ending
2.81%	June 30, 1998
3.12%	June 30, 1999
3.42%	June 30, 2000
3.73%	June 30, 2001
4.04%	June 30, 2002 to June 30, 2007
4.72%	June 30, 2008 to June 30, 2033

The value of future supplemental university contributions included in the July 1, 2014 TRS valuation is $146.7 million based on a 4.72% contribution rate until July 1, 2033.

The UAAL at any date after establishment of a system is affected by any actuarial gains or losses arising when the actual experience of the system varies from the experience anticipated by the actuarial assumptions used in the valuations. To the extent actual experience as it develops differs from the assumptions used, so also will the actual emerging costs differ from the estimated costs. The impact of these differences in actual experience from the assumptions is included in Section 1, the Summary of Findings.

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Table 7

Normal Cost Contribution Rates
As Percentages of Salary

	July 1, 2014 Total	July 1, 2013 Total
Service retirement	7.03%	7.17%
Disability retirement	0.07%	0.08%
Survivors' benefits	0.28%	0.24%
Vested retirement	0.43%	0.40%
Refund of member contributions	1.32%	1.31%
Total Normal Rate	9.13%	9.20%
Employee Normal Rate	8.15%	8.15%
Employer Normal Rate	0.98%	1.05%
Administrative Expense Load	0.31%	N/A

Pending litigation, a temporary court ordered injunction has been issue which prohibits the reduction of the GABA pursuant to MCA 19-20-719. Therefore, the results as of July 1, 2014 reflect a 1.50% GABA provision while the July 1, 2013 reflect a 0.50% GABA provision.

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Table 8

Unfunded Actuarial Accrued Liability
(Dollar amounts in millions)

	July 1, 2014	July 1, 2013
A. Actuarial present value of all future benefits for present and former members and their survivors (Table 6)	$ 5,750.1	$ 5,163.9
B. Less actuarial present value of total future normal costs for present members	559.1	571.2
C. Actuarial accrued liability	$ 5,191.0	$ 4,592.7
D. Less assets available for benefits	3,397.4	3,067.9
E. Unfunded actuarial accrued liability	$ 1,793.6	$ 1,524.8

Pending litigation, a temporary court ordered injunction has been issue which prohibits the reduction of the GABA pursuant to MCA 19-20-719. Therefore, the results as of July 1, 2014 reflect a 1.50% GABA provision while the July 1, 2013 reflect a 0.50% GABA provision.

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Section 5

Cash Flows

The fundamental equation for funding a retirement system is that benefits and administrative expenses must be provided for by contributions (past and future) and investment income. When a retirement system matures, benefits and administrative expenses often exceed contributions. In this case we say the system has a "negative cash flow." Mature systems are characterized by negative cash flows and large pools of assets. This is natural. Actuarial funding is designed to accumulate large pools of assets which will in turn provide investment income and finance negative cash flows when systems mature. If the fund is looked at as a whole, investment income is usually larger than the difference between contributions and benefit payments. The retirement system's investment strategy should maximize potential returns at a prudent level of risk while providing for needed cash flows.

Table 9 shows the System had a positive cash flow for the year ended June 30, 2014. The System's total cash flow including benefits payments, administrative expenses and investment earnings was $467.0 million. Of the $467.0 million, $540.3 million was due to investment returns. The System is projected to have a positive cash flow in all future years.

As long as the System had a positive cash flow, there was no need to plan where the funds would come from to pay benefits since benefits could be paid by incoming contributions. A negative cash flow, as defined above, requires planning what funds will be used to pay the difference between benefits and contributions. We are providing these projections to aid in developing the investment strategy for the System's assets.

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Table 9

Cash Flow History
(Dollar amounts in millions)
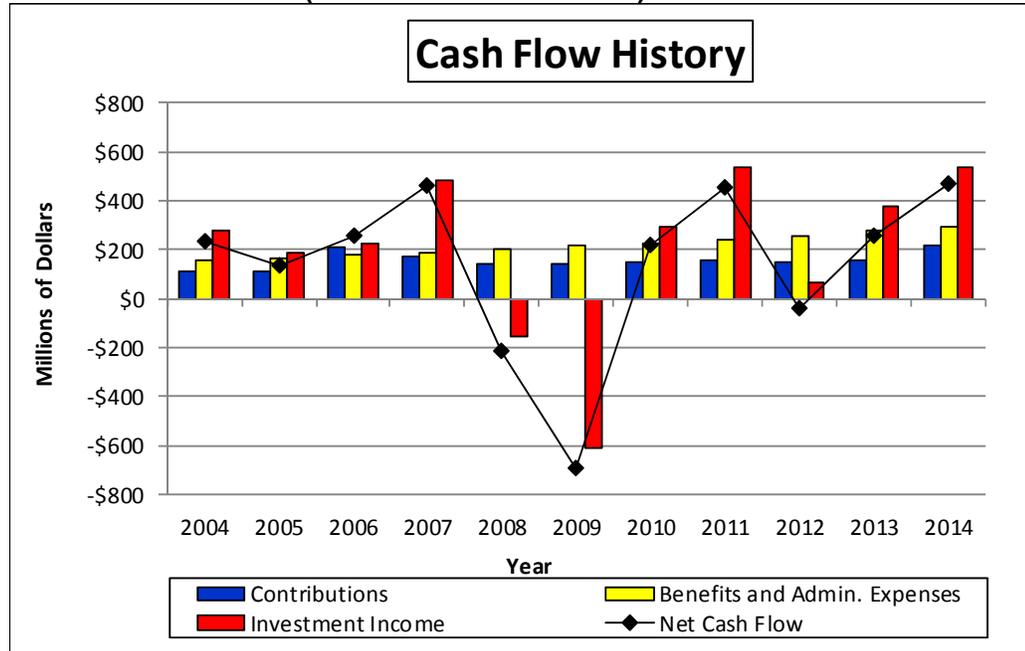
Year Ended June 30	Contributions		Benefits & Administrative Expenses	Investment Income	Net Cash Flow
2004	$ 107.9		$ 158.5	$ 281.8	$ 231.2
2005	110.7		167.1	188.7	132.3
2006	212.3	*	178.4	224.8	258.7
2007	169.2	**	190.4	484.5	463.3
2008	141.0		203.6	(153.3)	(215.9)
2009	138.3		217.0	(612.8)	(691.5)
2010	152.3		226.3	295.0	221.0
2011	153.3		241.4	539.0	450.9
2012	152.0		258.6	66.3	(40.3)
2013	154.5		275.4	373.7	252.8
2014	218.8		292.1	540.3	467.0

* Reflects $100 million transfer to TRS
** Reflects $50 million transfer to TRS

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Table 10

Cash Flow Projections

(Dollar amounts in millions)
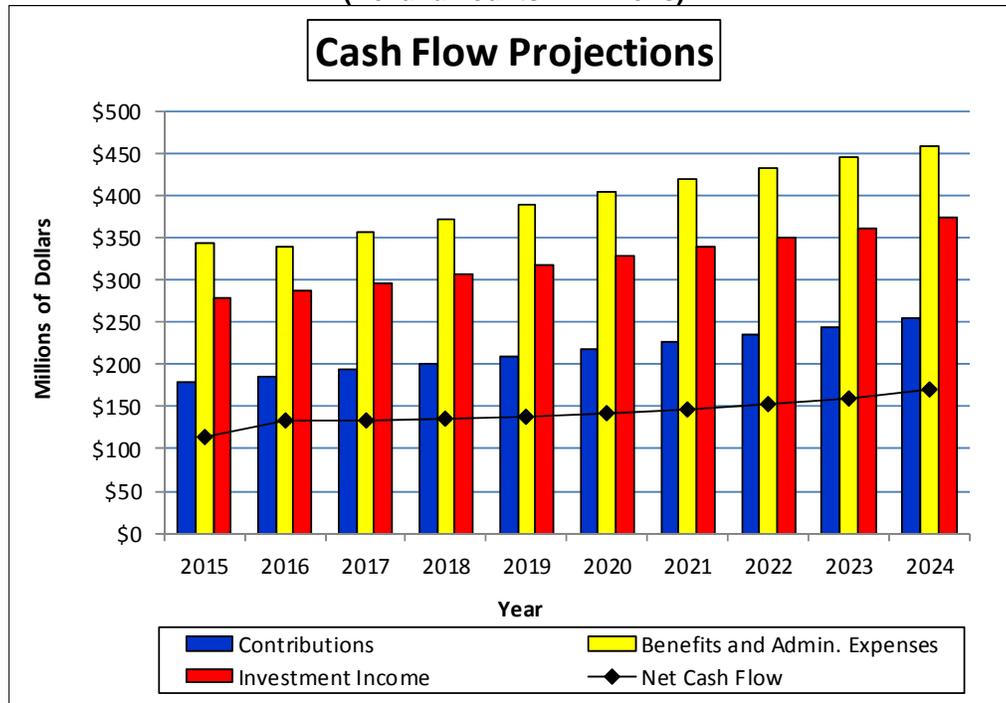
Projected Cash Flows				
Year Ended June 30	Contributions	Benefits & Administrative Expenses	Assumed Investment Income	Net Cash Flow
2015	$ 179.4	$ 342.6	$ 277.7	$ 114.5
2016	186.4	340.1	286.9	133.2
2017	193.6	356.4	296.9	134.1
2018	201.2	372.7	307.0	135.5
2019	209.2	388.3	317.2	138.1
2020	217.4	403.5	327.6	141.5
2021	226.1	418.4	338.3	146.0
2022	235.1	432.4	349.4	152.1
2023	244.5	445.5	361.1	160.1
2024	254.4	457.8	373.4	170.0

Section 6

Actuarial Gains or Losses

An analysis of actuarial gains or losses is performed in conjunction with all regularly scheduled valuations.

The results of our analysis of the financial experience of the System in the three most recent regular actuarial valuations are presented in Table 11. Each gain or loss shown represents our estimate of how much the given type of experience caused the Unfunded Actuarial Accrued Liability or Funding Reserve to change in the period since the previous actuarial valuation.

Gains and losses shown due to demographic sources are approximate. Demographic experience is analyzed in greater detail in our periodic assumption studies.

Non-recurring gains and losses result from changes in the actuarial assumptions and benefit improvements.

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Table 11

Analysis of Actuarial Gains or Losses*
(Dollar amounts in millions)

	UAAL (Gain)/Loss		
	June 30, 2014	June 30, 2013	June 30, 2012
Investment Income Investment income was (greater) less than expected based on actuarial value of assets.	$ (165.6)	$ (118.2)	$ 128.0
Pay Increases Pay increases were (less) greater than expected.	(28.1)	(38.2)	(58.2)
Age & Service Retirements Members retired at (older) younger ages or with (less) greater final average pay than expected	18.8	19.3	19.8
Disability Retirements Disability claims were (less) greater than expected	0.2	0.3	0.4
Death-in-Service Benefits Survivor claims were (less) greater than expected	(2.8)	(0.4)	(0.1)
Withdrawal From Employment (More) less reserves were released by withdrawals than expected	20.0	4.1	6.7
Death After Retirement Retirees (died younger) lived longer than expected	12.0	2.3	4.6
Data Adjustments and Benefit Payment Timing Service purchases, data corrections, etc.	(1.6)	(4.4)	10.2
Other Miscellaneous (gains) and losses	(0.4)	0.1	0.5
Total (Gain) or Loss During Period From Financial Experience	$ (147.5)	$ (135.1)	$ 111.9
Non-Recurring Items. Changes in actuarial assumptions and methods	46.5	-	-
Changes in benefits caused a (gain) loss	405.2	(371.1)	-
Composite (Gain) Loss During Period	$ 304.2	$ (506.2)	$ 111.9

* Effects related to gains are shown in parentheses. Numerical results are expressed as a (decrease) increase in the Unfunded Actuarial Accrued Liability (UAAL). Gains decrease the UAAL and losses increase the UAAL.

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Appendix A

Actuarial Procedures and Assumptions

Retirement, disablement and termination of employment assumptions reflect the five-year experience study for the period ending 2009 adopted by the Board on May 13, 2010.

The assumed rates of mortality have been updated based a five-year experience study for the period ending 2013 adopted by the Board on May 13, 2014.

The current asset valuation method was adopted for the July 1, 2007 valuation.

Tables A-3 through A-6 give rates of decrement for service retirement, disablement, mortality, and other terminations of employment.

Actuarial Cost Method

The actuarial valuation was prepared using the entry age actuarial cost method. Under this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The normal cost was first calculated for each individual member. The normal cost rate is defined to equal the total of the individual normal costs, divided by the total pay rate.

The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets and (b) the actuarial present value of future normal costs is called the UAAL. The UAAL is amortized as a level percentage of the projected salaries of present and future members of the System.

Records and Data

The data used in the valuation consist of financial information; records of age, sex, service, salary, contribution rates, and account balances of contributing members; and records of age, sex, and amount of benefit for retired members and beneficiaries. All of the data were supplied by the System and are accepted for valuation purposes without audit.

Replacement of Terminated Members

The ages at entry and distribution by sex of future members are assumed to average the same as those of the present members they replace. If the number of active members should increase, it is further assumed that the average entry age of the larger group will be the same, from an actuarial standpoint, as that of the present group. Under these assumptions, the normal cost rates for active members will not vary with the termination of present members.

Employer Contributions

At the time of this valuation, the total employer contribution rate for normal costs and amortization of the UAAL was 11.06% of members' salaries. The employer contribution rate will increase by 0.10% each year beginning July 1, 2014 until the total employer contribution rate equals 11.96%.

Administrative and Investment Expenses

The investment expenses of the System are assumed to be funded by investment earnings in excess of 7.75% per year.

Administrative expenses are assumed to equal 0.31% of payroll.

Valuation of Assets - Actuarial Basis

The actuarial asset valuation method spreads asset gains and losses over four years. The expected return is determined each year based on the beginning of year market value and actual cash flows during the year. Any difference between the expected market value return and the actual market value return is recognized evenly over a period of four years. The actuarial value of assets is not allowed to be greater than 120% or less than 80% of the market assets. (Adopted effective July 1, 2007.)

Investment Earnings

The annual rate of investment earnings of the assets of the System is assumed to be 7.75% per year net of investment expenses, compounded annually. (Adopted effective July 1, 2014)

Interest on Member Contributions

Interest on member contributions is assumed to accrue at a rate of 5% per annum, compounded annually. This assumption was set as of July 1, 2004.

Postretirement Benefit Increases

On January 1 of each year for Tier 1 Members, the retirement allowance payable is increased by 1.5% if the retiree has received benefits for at least 36 months prior to January 1 of the year in which the adjustment is to be made.

Future Salaries

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-2. In addition to increases in salary due to merit and longevity, this scale includes an assumed 4.0% annual rate of increase in the general wage level of the membership. The merit and longevity increases for the MUS members did not show a pattern of increasing or decreasing with service at the time of our most recent study. Therefore, the MUS members have a flat 1% merit and longevity assumption. The general wage increase assumption was adopted July 1, 2004 and the merit and longevity scales were adopted July 1, 2002.

Montana University System (MUS) members are assumed to have a 0.63% higher average final compensation to account for the larger than average annual compensation increases observed in the years immediately preceding retirement.

Service Retirement

Table A-3 shows the annual assumed rates of retirement among members eligible for service retirement. Separate rates are used when a member is eligible for reduced benefits, for the first year a member is eligible for full benefits, and for the years following the first year a member is eligible for full benefits. The rates for General Members were adopted May 13, 2010. The rates for University Members were adopted May 13, 2010.

Disablement

The rates of disablement used in this valuation are illustrated in Table A-4. These rates were adopted May 13, 2010.

Mortality

The mortality rates used in this valuation are illustrated in Table A-5. A written description of each table used is included in Table A-1. These rates were adopted July 1, 2014.

Other Terminations of Employment

The rates of assumed future withdrawal from active service for reasons other than death, disability or retirement are shown for representative ages in Table A-6. These rates were adopted May 13, 2010.

Benefits for Terminating Members

Members terminating with less than five years of service are assumed to request an immediate withdrawal of their contributions with interest. Table A-7 shows the assumed probability of retaining membership in the System among members terminating with five or more years of service. These rates were adopted July 1, 2002.

We estimated the present value of future benefits for terminated vested members based on the greater of the present value of their deferred benefit at age 60 or their available contribution account.

Part-Time Employees

The valuation data for active members identify part-time members. Part-time members earning less than $1,000 during the last year were valued at their current member contribution balance.

Optional Retirement Program

ORP payroll as of June 30, 2014 was $208,282,777.

Effective for fiscal years after June 30, 2007 until June 30, 2033, the Optional Retirement Program contribution rate is 4.72%, pursuant to MCA 19-20-621.

Buybacks, Purchase of Service, and Military Service

The active liabilities and normal cost (excluding liabilities and normal cost in respect of Return of Employee Contributions) were increased to 100.5% of their original value to fund this additional service based on a study of the System's experience for the five calendar years 1995 through 1999. Effective July 1, 2008.

Probability of Marriage

If death occurs in active status, all members are assumed to have an eligible surviving spouse and two children. The spouse is assumed to be the same age as the member.

Records with no Birth Date

New records with no birth date are assumed to be 25 years old. Records that are not new and have no birth date used the same birth date as the prior year's valuation.

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Table A-1

Summary of Valuation Assumptions

I.	Economic assumptions		
	A.	General wage increases* (Adopted July 1, 2014)	4.00%
	B.	Investment return (Adopted July 1, 2004)	7.75%
	C.	Price Inflation Assumption (Adopted July 1, 2014)	3.25%
	D.	Growth in membership	0.00%
	E.	Postretirement benefit increases	1.50%
		(Starting three years after retirement)	
	F.	Interest on member accounts (Adopted July 1, 2004)	5.00%
II.	Demographic assumptions		
	A.	Individual salary increase due to promotion and longevity (General Member assumptions adopted July 1, 2002) (University Member assumptions adopted July 1, 2000)	Table A-2
	B.	Retirement (adopted May 13, 2010)	Table A-3
	C.	Disablement (adopted May 13, 2010)	Table A-4
	D.	Mortality among contributing members, service retired members, and beneficiaries	Table A-5
		For Males: RP 2000 Healthy Annuitant Mortality Table for ages 50 and above and the RP 2000 Combined Healthy Annuitant Mortality Table for ages below 50, set back four years, with mortality improvements projected by Scale BB to 2018 (adopted July 1, 2014).	
		For Females: RP 2000 Healthy Annuitant Mortality Table for ages 50 and above and the RP 2000 Combined Healthy Annuitant Mortality Table for ages below 50, set back two years, with mortality improvements projected by Scale BB to 2018 (adopted July 1, 2014).	
	E.	Mortality among disabled members	Table A-5
		For Males: RP 2000 Disabled Mortality Table for Males, set forward one year, with mortality improvements projected by Scale BB to 2018 (adopted July 1, 2014).	
		For Females: RP 2000 Disabled Mortality Table for Females, set forward five years, with mortality improvements projected by Scale BB to 2018 (adopted July 1, 2014).	
	F.	Other terminations of employment (adopted May 13, 2010)	Table A-6
	G.	Probability of retaining membership in the System upon vested termination (adopted July 1, 2002)	Table A-7

* Montana University System (MUS) members are assumed to have a 0.63% higher average final compensation to account for the larger than average annual compensation increases observed in the years immediately preceding retirement.

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Table A-2

Future Salaries

Years of Service	General Members			University Members		
	Individual Merit & Longevity	General Wage Increase	Total Salary Increase	Individual Merit & Longevity	General Wage Increase	Total Salary Increase
1	4.51%	4.00%	8.51%	1.00%	4.00%	5.00%
2	4.09	4.00	8.09	1.00	4.00	5.00
3	3.46	4.00	7.46	1.00	4.00	5.00
4	2.94	4.00	6.94	1.00	4.00	5.00
5	2.52	4.00	6.52	1.00	4.00	5.00
6	2.21	4.00	6.21	1.00	4.00	5.00
7	1.89	4.00	5.89	1.00	4.00	5.00
8	1.68	4.00	5.68	1.00	4.00	5.00
9	1.47	4.00	5.47	1.00	4.00	5.00
10	1.31	4.00	5.31	1.00	4.00	5.00
11	1.16	4.00	5.16	1.00	4.00	5.00
12	1.00	4.00	5.00	1.00	4.00	5.00
13	0.84	4.00	4.84	1.00	4.00	5.00
14	0.68	4.00	4.68	1.00	4.00	5.00
15	0.58	4.00	4.58	1.00	4.00	5.00
16	0.47	4.00	4.47	1.00	4.00	5.00
17	0.37	4.00	4.37	1.00	4.00	5.00
18	0.26	4.00	4.26	1.00	4.00	5.00
19	0.21	4.00	4.21	1.00	4.00	5.00
20	0.16	4.00	4.16	1.00	4.00	5.00
21	0.11	4.00	4.11	1.00	4.00	5.00
22 & Up	0.00	4.00	4.00	1.00	4.00	5.00

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Table A-3

Retirement
Annual Rates

	General Members			University Members		
Age	Eligible for Reduced Benefits	First Year Eligible for Full Benefits	Thereafter	Eligible for Reduced Benefits	First Year Eligible for Full Benefits	Thereafter
45		8.0%	5.5%		17.0%	8.0%
46		8.0	5.5		17.0	8.0
47		8.0	5.5		17.0	8.0
48		8.0	5.5		17.0	8.0
49	*	8.0	5.5	*	17.0	8.0
50	5.0%	8.0	5.5	7.0%	17.0	8.0
51	5.0	8.0	6.3	7.0	17.0	8.0
52	5.0	8.0	8.0	7.0	17.0	8.0
53	5.0	9.0	7.3	7.0	17.0	8.0
54	5.0	9.0	8.2	7.0	17.0	8.0
55	7.0	9.0	9.8	7.0	15.0	8.0
56	7.0	12.0	11.3	7.0	15.0	8.0
57	7.0	11.8	12.5	7.0	15.0	8.0
58	7.0	14.8	13.1	7.0	15.0	8.0
59	7.0	17.4	14.8	7.0	15.0	8.0
60	*	14.6	17.0	*	15.0	8.5
61		21.3	25.0		14.0	14.5
62		23.8	25.0		20.0	19.0
63		11.4	25.0		14.0	14.5
64		19.0	25.0		20.0	18.0
65		40.0	35.0		28.0	26.0
66		8.0	20.0		21.0	21.0
67		30.0	20.0		21.0	24.5
68		6.0	20.0		21.0	19.5
69		6.0	20.0		21.0	30.0
70		**	**		**	**

  *   All benefits are unreduced after attaining age 60. Reduced benefits are not available before age 50.
 **   Immediate retirement is assumed at age 70 or over.

Teachers' Retirement System
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Table A-4

Disablement
Annual Rates

Age	All Members
25	.005%
30	.005
35	.008
40	.028
45	.044
50	.063
55	.084
60	.100

Teachers' Retirement System
State of Montana

Table A-5

Mortality
Annual Rates

Age	Contributing Members, Service Retired Members and Beneficiaries		Disabled Members	
	Men	Women	Men	Women
25	0.04%	0.02%	2.26%	0.75%
30	0.04	0.02	2.26	0.75
35	0.05	0.04	2.26	0.75
40	0.08	0.06	2.26	0.75
45	0.11	0.09	2.38	1.15
50	0.16	0.14	3.03	1.65
55	0.58	0.29	3.67	2.18
60	0.66	0.49	4.35	2.80
65	0.98	0.85	5.22	3.76
70	1.61	1.38	6.58	5.22
75	2.66	2.30	8.70	7.23
80	4.57	3.76	11.55	10.02
85	7.74	6.25	14.84	14.00
90	12.68	10.73	19.98	19.45
95	19.98	17.04	28.39	23.75

Teachers' Retirement System
State of Montana

Table A-6

Other Terminations of Employment
Among Members Not Eligible to Retire
Annual Rates

Years of Service	All Members
1	36.5%
2	20.5
3	14.6
4	10.5
5	8.5
6	7.0
7	6.4
8	5.8
9	5.4
10	5.0
11	4.3
12	3.9
13	3.5
14	3.2
15	2.9
16	2.6
17	2.3
18	2.0
19	1.9
20	1.8
21	1.7
22	1.6
23	1.5
24	1.5

**Teachers' Retirement System
State of Montana**

Table A-7

**Probability of Retaining Membership in the System
Upon Vested Termination**

Age	Probability of Retaining Membership
25	54%
30	54
35	58
40	58
45	60
50	70
55	75

Teachers' Retirement System
State of Montana

Appendix B

Summary of Benefit Provisions

Effective Date

September 1, 1937.

Vesting Period

Five years. No benefits are payable unless the member has a vested right, except the return of employee contributions with interest.

Tier One Member

A person who became a member before July 1, 2013 and who has not withdrawn the member's account balance.

Tier Two Member

A person who became a member on or after July 1, 2013, or who after withdrawing the member's account balance, became a member again after July 1, 2013.

Final Compensation

Tier One Members

       Average of highest three consecutive years of earned compensation.

Tier Two Members

       Average of highest five consecutive years of earned compensation.

Normal Form of Benefits

Life only annuity. All benefits cease upon death; however, in no event will the member receive less than the amount of employee contributions with interest.

Normal Retirement Benefits

Tier One Members

Eligibility: 25 years of service or age 60 with five years of service.

Benefit: The retirement benefit is equal to 1/60 of final compensation for each year of service.

Tier Two Members

Eligibility: Age 55 with 30 years of service or age 60 with five years of service.

Benefit: A member age 60 with at least 30 years of creditable service will receive a retirement allowance equal to 185/100 of final compensation for each year of service. Otherwise, the multiplier used to calculate the retirement allowance will equal 1/60 of final compensation for each year of service.

Early Retirement Benefits

Tier One Member

Eligibility: Five years of service and age 50.

Benefit: The retirement benefit is calculated in the same manner as described for normal retirement, but the benefit is actuarially reduced by the lesser of the number of years equal to the age of the participant at the early retirement subtracted from age 60 or the number of years of service at early retirement subtracted from 25 years of service.

Tier Two Member

Eligibility: Five years of service and age 55.

Benefit: The retirement benefit is calculated in the same manner as described for normal retirement, but the benefit is actuarially reduced by the lesser of the number of years equal to the age of the participant at the early retirement subtracted from age 60 or the number of years of service at early retirement subtracted from 30 years of service.

Death Benefit

      Eligibility: Five years of service.

      Benefit: The death benefit is equal to 1/60 of final compensation for each year of service accrued at date of death, with an actuarial adjustment based on the relation of the member's age at death to the beneficiary's age. A monthly benefit of $200 is paid to each child until age 18. In addition, a lump-sum benefit of $500 is paid upon the death of an active or retired member.

Disability Benefit

      Eligibility: Five years of service.

      Benefit: The disability benefit is equal to 1/60 of final compensation for each year of service accrued at date of disability. The minimum benefit is 1/4 of the final compensation. A Tier Two Member is not eligible for a disability retirement if the member is or will be eligible for a service retirement on or before the member's date of determination.

Withdrawal Benefits   With less than five years of service, the accumulated employee contributions with interest are returned. With more than five years, the member may elect a refund of contributions with interest or leave the contributions and interest in the System and retain a vested right to retirement benefits.

Contributions   Tier One Member: 7.15% of compensation. Tier One members are required to contribute a Supplemental Contribution equal to an additional 1% of compensation. The Board may decrease the Supplemental Contribution if the average funded ratio of the System based on the last three actuarial valuations is equal to or greater than 90% and the period necessary to amortize the unfunded liabilities of the System based on the most recent actuarial valuation is less than 15 years. Following one or more decreases in the supplemental contribution the Board may increase the supplemental contribution to a rate not to exceed 1% if the average funded ratio of the System based on the last three annual actuarial valuations is equal to or less than 80% and the period necessary to amortize all liabilities of the System based on the most recent annual actuarial valuation is greater than 20 years.

                              Tier Two Member: 8.15% of compensation. The Board may require a Tier Two member to contribute a Supplemental Contribution if the average funded ratio of the System based on the last three actuarial valuations is equal to or less than 80% and the period necessary to amortize the unfunded actuarial

accrued liability is greater than 20 years and a State or employer contribution rate increase or a flat dollar contribution to the System has been enacted which is equivalent to or greater than the Supplemental Contribution Rate imposed by the Board. A singe Tier Two Supplemental Contribution Rate increase cannot exceed 0.5% of compensation and in total cannot exceed 9.15% of compensation. The Board may decrease the Supplemental Contribution if the average funded ratio of the System based on the previous three annual actuarial valuations is equal to or greater than 90%; and the period necessary to amortize the unfunded actuarial accrued liability is less than 15 years.

Employer: 9.96% of compensation. Employer's are required to contribute a supplemental contribution equal to 1% for fiscal year 2014 and increase by 0.1% each fiscal year through 2024. The Board may decrease the Employer Supplemental Contribution if the average funded ratio of the System based on the last three actuarial valuations is equal to or greater than 90% and the period necessary to amortize the unfunded actuarial accrued liability based on the most recent valuation is less than 15 years and the GABA has been increased to the maximum allowable. Following one or more decreases in the Supplemental Contribution Rate the Board may increase the Supplemental Contribution Rate to a rate not to exceed 1% if the average funded ratio of the System based on the last three actuarial valuations is equal to or less than 80% and the period necessary to amortize the unfunded actuarial accrued liability is greater than 20 years.

MCA 19-20-604 specifies that the employer contribution rate will be reduced by 0.11% when the amortization period of the System's UAAL is 10 years or less according to the System's latest actuarial valuation.

State Supplemental Contribution: $25 million per year on an annual basis payable on July 1st of each year.

Re-employed Retirees: Employers are required to contribute 9.85% of total compensation paid to re-employed retirees who are hired in a TRS covered position.

Interest on Member contributions	Effective July 1, 2015, the interest credited on member contributions is reduced from 0.25% to 0.20% per annum.
Cost-of-Living Adjustments	On January 1 of each year, if the retiree has received benefits for at least 36 months prior to January 1 of the year in which the

adjustment is to be made, for Tier One Members, the retirement allowance will be increased by 0.5% if the funded ratio of the System is less than 90%. If the most recent actuarial valuation shows that the System is at least 90% funded and the provisions of the increase is not projected to cause the System's liabilities to be less than 85% funded, the increase can be an amount greater than 0.5% and no more than 1.5%, as set by the Board.

Pending litigation, a temporary court ordered injunction has been issue which prohibited the reduction of the GABA, pursuant to MCA 19-20-719. Until the litigation is resolved, Tier 1 members benefit shall be increased by 1.50% regardless of the funded ratio.

For Tier Two Members, the retirement allowance will be increased by an amount equal to or greater than 0.5% but no more than 1.5% if the most recent actuarial valuation shows the System to be at least 90% funded and the provisions of the increase is not projected to cause the funded to be less than 85%.

Teachers' Retirement System
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Appendix C

Valuation Data

This valuation is based upon the membership of the System as of July 1, 2014. Membership data were supplied by the System and accepted for valuation purposes without audit. However, tests were performed to ensure that the data are sufficiently accurate for valuation purposes.

Active Members	Number	Annual Salaries in Millions
Full-Time Members	12,286	$ 638.5
Part-Time Members*	5,428	74.3
Total Contributing Members*	17,714	$ 712.8
Active Members with Annual Compensation less than $1,000	558	
Total Active Members	18,272	

* Excludes part-time members with annual compensation less than $1,000.

Table C-1 contains summaries of the data for contributing members. For full-time members, values shown in the tables are the numbers of members and their total and average annual salaries. For part-time members, only the numbers of members are shown.

Table C-2 presents distributions of the following:

- Members receiving service retirement benefits.
- Members receiving disability retirement benefits.
- Survivors of deceased retired members receiving benefits.
- Survivors of deceased active members.
- Child beneficiaries.
- Terminated vested members.

Table C-3 is a reconciliation of membership data from July 1, 2013 to July 1, 2014.

The following is a summary of retired members and beneficiaries currently receiving benefits:

Type of Annuitant	Number	Annual Benefits in Thousands		Average Annual Benefits	
Service Retirement	12,566	$	280,535	$	22,325
Survivors of Deceased Retired Members	1,119		16,143		14,426
Total Service Retirement (including survivors	13,685	$	296,678	$	21,679
Disability Retirement	204		2,248		11,021
Survivors of Deceased Active Members	432		4,526		10,477
Child Beneficiaries	28		67		2,400
Total Annuitants	14,349	$	303,520	$	21,153

Terminated Members with Contributions Not Withdrawn	Number
Vested Terminated Members	1,654
Non-Vested Terminated Members	12,308
Total Terminated Members	13,962

Teachers' Retirement System
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Table C-1

Active Members Distribution of
Full-Time Employees and Salaries
as of July 1, 2014

Number of Employees

Age	0	1	2	3 to 4	5 to 9	Completed Years of Service 10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+	Totals
<25	15	130	51	5									201
25 to 29	44	258	311	356	205								1,174
30 to 34	23	139	138	235	761	147							1,443
35 to 39	14	98	85	150	514	577	126						1,564
40 to 44	4	76	61	112	354	362	552	119					1,640
45 to 49	13	46	54	67	234	271	326	495	105				1,611
50 to 54	13	44	41	33	195	230	258	380	352	129			1,675
55 to 59	7	25	23	48	133	202	218	298	270	321	102		1,647
60 to 64	5	13	14	23	52	99	132	169	163	153	154	44	1,021
65 to 69	4	9	7	3	19	21	28	34	44	26	29	39	263
70 and up	1				5	3	2	3	6	7	8	12	47
Totals	143	838	785	1,032	2,472	1,912	1,642	1,498	940	636	293	95	12,286

Teachers' Retirement System
State of Montana

Table C-1

Active Members Distribution of
Full-Time Employees and Salaries
as of July 1, 2014

Annual Salaries in Thousands

					Completed Years of Service								
Age	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+	Totals
<25	436	4,104	1,716	174									6,430
25 to 29	1,201	8,635	10,714	13,018	8,313								41,881
30 to 34	663	5,180	5,325	9,260	33,239	7,107							60,773
35 to 39	366	3,416	3,286	6,264	24,299	30,326	7,256						75,213
40 to 44	111	2,998	2,481	4,714	16,632	19,840	32,669	7,542					86,986
45 to 49	540	1,860	2,557	2,979	10,939	14,539	19,027	31,232	6,874				90,548
50 to 54	414	1,794	1,975	1,507	9,193	12,067	15,077	23,779	22,023	8,308			96,137
55 to 59	276	1,071	969	2,163	6,272	10,699	11,946	18,614	17,212	20,958	6,570		96,749
60 to 64	95	731	780	1,053	2,612	5,295	7,688	10,298	10,396	9,967	10,641	2,891	62,446
65 to 69	156	427	393	156	1,206	1,163	1,567	2,193	3,037	2,109	2,535	3,014	17,958
70 and up	43				287	144	99	146	410	548	711	958	3,345
Totals	4,300	30,216	30,196	41,288	112,991	101,180	95,329	93,803	59,953	41,891	20,457	6,863	638,467

Active Members Distribution of
Full-Time Employees and Salaries
as of July 1, 2014

Average Annual Salary

Age	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+	Totals
						Completed Years of Service							
<25	29,093	31,570	33,648	34,788									31,992
25 to 29	27,292	33,470	34,449	36,567	40,549								35,673
30 to 34	28,818	37,264	38,585	39,404	43,678	48,347							42,116
35 to 39	26,130	34,855	38,658	41,760	47,274	52,558	57,589						48,090
40 to 44	27,770	39,448	40,671	42,087	46,982	54,807	59,182	63,377					53,040
45 to 49	41,540	40,443	47,361	44,467	46,747	53,651	58,365	63,094	65,470				56,206
50 to 54	31,879	40,775	48,166	45,672	47,144	52,464	58,438	62,575	62,566	64,404			57,395
55 to 59	39,366	42,826	42,151	45,066	47,155	52,965	54,796	62,464	63,749	65,291	64,408		58,743
60 to 64	18,941	56,210	55,701	45,770	50,240	53,480	58,245	60,932	63,778	65,142	69,101	65,699	61,161
65 to 69	38,886	47,449	56,156	51,992	63,487	55,391	55,969	64,512	69,033	81,133	87,430	77,289	68,283
70 and up	42,614				57,400	47,972	49,712	48,538	68,394	78,354	88,813	79,799	71,181
Totals	30,069	36,057	38,466	40,008	45,708	52,918	58,057	62,619	63,780	65,866	69,819	72,238	51,967

Teachers' Retirement System
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Table C-1

Active Members Distribution of
Part-Time Employees
as of July 1, 2014

Number of Employees

Age	Completed Years of Service												Totals
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+	Totals
<25	151	58	10	7									226
25 to 29	331	145	62	62	27								627
30 to 34	119	97	51	74	94	8							443
35 to 39	155	90	70	71	108	59	10						563
40 to 44	94	99	63	93	147	50	36	4					586
45 to 49	88	69	56	80	149	95	33	30	2				602
50 to 54	79	55	43	90	201	150	70	33	10				731
55 to 59	75	46	44	71	166	139	103	57	15	11	4		731
60 to 64	47	40	40	39	119	105	86	69	15	4	3		567
65 to 69	22	23	14	38	50	42	17	21	10	2	2	1	242
70 and up	11	11	9	10	28	25	7	4	5				110
Totals	1,172	733	462	635	1,089	673	362	218	57	17	9	1	5,428

Teachers' Retirement System
State of Montana

Table C-2

Distribution of Inactive Lives

Members Receiving Service Retirement Benefits as of July 1, 2014

Age	Number of Persons	Annual Benefits in Thousands	Average Annual Benefits
<50	16	$ 449	$ 28,061
50 to 54	188	4,647	24,716
55 to 59	736	18,542	25,193
60 to 64	2,525	59,930	23,735
65 to 69	3,272	78,404	23,962
70 to 74	2,385	54,645	22,912
75 to 79	1,502	31,975	21,288
80 to 84	1,017	19,341	19,018
85 to 89	547	8,422	15,397
90 and up	378	4,180	11,058
Totals	12,566	$ 280,535	$ 22,325

Members Receiving Disability Retirement Benefits as of July 1, 2014

Age	Number of Persons	Annual Benefits in Thousands	Average Annual Benefits
<50	11	$ 126	$ 11,417
50 to 54	16	228	14,238
55 to 59	21	229	10,927
60 to 64	40	444	11,096
65 to 69	48	567	11,817
70 to 74	27	255	9,457
75 to 79	20	213	10,637
80 to 84	8	69	8,571
85 to 89	8	76	9,466
90 and up	5	42	8,393
Totals	204	$ 2,248	$ 11,021

Teachers' Retirement System
State of Montana

Table C-2

Distribution of Inactive Lives

Survivors of Deceased Retired Members as of July 1, 2014

Age	Number of Persons	Annual Benefits in Thousands	Average Annual Benefits
<50	53	$ 455	$ 8,576
50 to 54	20	207	10,366
55 to 59	51	624	12,235
60 to 64	81	1,003	12,388
65 to 69	120	1,937	16,139
70 to 74	178	3,170	17,807
75 to 79	180	2,989	16,604
80 to 84	160	2,237	13,981
85 to 89	160	2,164	13,527
90 and up	116	1,357	11,698
Totals	1,119	$ 16,143	$ 14,426

Survivors of Deceased Active Members as of July 1, 2014

Age	Number of Persons	Annual Benefits in Thousands	Average Annual Benefits
<50	78	$ 582	$ 7,462
50 to 54	27	193	7,161
55 to 59	46	413	8,976
60 to 64	71	935	13,169
65 to 69	61	691	11,322
70 to 74	50	658	13,156
75 to 79	38	392	10,316
80 to 84	29	339	11,680
85 to 89	16	176	10,979
90 and up	16	148	9,241
Totals	432	$ 4,526	$ 10,477

Teachers' Retirement System
State of Montana

Table C-2

Distribution of Inactive Lives

Terminated Vested Members as of July 1, 2014
Number of Persons

Age	Number
<25	
25 to 29	8
30 to 34	107
35 to 39	164
40 to 44	191
45 to 49	228
50 to 54	321
55 to 59	410
60 to 64	180
65 to 69	39
70 and above	6
Total	1,654

Child Beneficiaries as of July 1, 2014
Number of Persons

Age	Number
<5	3
5 to 6	1
7 to 8	
9 to 10	1
11 to 12	3
13 to 14	9
15 to 16	9
17 to 18	2
Total	28

Teachers' Retirement System
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Table C-3

Data Reconciliation

	Active Contributing Members*	Terminated Vested Members	Service Retired Members	Disabled Members	Survivors and Beneficiaries
July 1, 2013 Valuation	17,616	1,566	12,138	203	1,528
Refunds and Non-Vested Terminations	(1,106)	(50)			
Change to Annual Pay Under $1,000	53	12			
Vested Terminations	(246)	246	46		
Service Retirements	(633)	(46)	633		
Disability Retirements	(6)			6	
Deaths with Beneficiary	(13)		(80)	(2)	95
Deaths without Beneficiary			(167)	(3)	(52)
New Entrants	1,603				
Rehires	436	(73)	(8)		
Other	10	(1)	4		8
July 1, 2014 Valuation	17,714	1,654	12,566	204	1,579

* Excludes active members with annual compensation less than $1,000

Teachers' Retirement System
State of Montana

Appendix D

Comparative Schedules

This section contains tables that summarize the experience of the System shown in present and past valuation reports.

Table D-1 shows a summary of the active members covered as of the various valuation dates.

Table D-2 shows a summary of the retired and inactive members as of the various valuation dates.

Table D-3 summarizes the contribution rates determined by each annual actuarial valuation.

Teachers' Retirement System
State of Montana

Table D-1

Active Membership Data

Valuation Date (July 1)	Full-Time Members	Part-Time Members**	Total Contributing Members**	Part-Time Members Annual Compensation less than $1,000	Annual Full-Time Salaries in Thousands	Average Full-Time Annual Salary	Average Age**	Average Years of Service**	Average Hire Age**
1989	12,546	2,541	15,087	*	339,866	27,090	*	*	*
1992	13,502	3,141	16,643	*	401,092	29,706	42.4	11.6	30.8
1994	14,938	2,637	17,575	377	416,968	27,914	42.5	11.0	31.5
1996	13,251	5,444	18,695	1,295	424,085	32,004	43.3	11.6	31.7
1998	13,545	4,647	18,192	776	459,191	33,901	44.0	12.1	31.9
2000	13,289	4,245	17,534	886	477,160	35,906	44.5	12.2	32.3
2002	12,796	4,650	17,446	723	486,204	37,997	45.0	12.2	32.8
2004	12,601	5,013	17,614	637	510,808	40,537	45.6	12.2	33.4
2005	12,523	5,019	17,542	697	523,909	41,836	45.8	12.4	33.4
2006	12,715	4,840	17,555	544	549,268	43,198	46.0	12.5	33.5
2007	12,634	4,994	17,628	548	568,351	44,986	46.2	12.5	33.7
2008	12,694	5,077	17,771	521	592,514	46,677	46.1	12.3	33.8
2009	12,673	5,270	17,943	513	613,077	48,377	46.2	12.4	33.8
2010	12,711	5,642	18,353	600	630,444	49,598	45.9	12.2	33.8
2011	12,506	5,400	17,906	578	633,005	50,616	46.2	12.4	33.8
2012	12,202	5,534	17,736	636	622,140	50,987	46.0	12.4	33.6
2013	12,229	5,387	17,616	633	628,832	51,421	45.8	12.2	33.6
2014	12,286	5,428	17,714	558	712,802	51,967	45.6	11.6	34.0

*   Not available.

**   Excludes part-time active members with annual compensation less than $1,000.

Teachers' Retirement System
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Table D-2

Retired and Inactive Membership Data

Valuation Date (July 1)	Number	All Annuitants					Terminated Members	
		Annual Benefits in Thousands	Average Annual Benefit	Average Current Age	Average Age at Retirement	Average Service at Retirement	Number Vested Terminated	Number Non-Vested Terminated
1989	6,330	49,546	7,827	*	*	*	*	*
1992	6,927	63,483	9,165	*	*	*	*	*
1994	7,530	78,183	10,383	*	*	*	1,105	5,722
1996	7,896	87,351	11,063	*	*	*	1,152	6,479
1998	8,362	99,040	11,844	69.6	57.3	*	1,190	8,158
2000	9,021	117,227	12,995	69.3	57.0	*	1,256	9,308
2002	9,768	139,131	14,244	69.1	56.8	*	1,485	8,231
2004	10,375	159,776	15,400	69.1	56.7	*	1,620	7,861
2005	10,664	170,129	15,954	69.3	56.7	*	1,649	8,569
2006	11,019	181,114	16,436	69.3	56.5	*	1,684	8,542
2007	11,356	195,237	17,192	69.3	56.6	*	1,671	8,963
2008	11,788	208,985	17,729	69.4	56.7	*	1,649	9,574
2009	12,036	219,267	18,218	69.7	57.5	25.5	1,640	9,868
2010	12,440	234,048	18,814	69.9	57.6	25.5	1,553	10,304
2011	12,899	250,500	19,420	70.0	57.8	25.5	1,580	10,727
2012	13,363	267,851	20,044	70.2	57.9	25.5	1,566	11,172
2013	13,868	284,333	20,503	70.4	58.0	25.5	1,566	11,710
2014	14,349	302,272	21,066	70.6	58.2	25.5	1,654	12,308

* Not available.

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Contribution Rates

Valuation Date	Contribution Rates			Normal	UAAL
(July 1)	Employee	Employer	Total	Cost Rate	Rate*
1994	7.044	7.470	14.514	9.494	5.020
1996	7.044	7.470	14.514	9.328	5.186
1998	7.044	7.470	14.514	8.880	5.634
2000	7.15	7.58**	14.73	9.71	5.02
2002	7.15	7.58	14.73	10.33	4.40
2004	7.15	7.58	14.73	10.34	4.39
2005	7.15	7.58	14.73	10.35	4.38
2006	7.15	7.58	14.73	10.37	4.36
2007	7.15	9.58	16.73	10.40	6.33
2008	7.15	9.58	16.73	10.87	5.86
2009	7.15	9.96	17.11	10.69	6.42
2010	7.15	9.96	17.11	9.74	7.37
2011	7.15	9.96	17.11	9.64	7.47
2012	7.15	9.96	17.11	9.64	7.47
2013	8.15^	10.96	19.11	9.20	9.91
2014	8.15	11.06	19.21	9.44	9.77

*   The UAAL rate is the amount available to amortize the UAAL. It is equal to the total contribution rate, minus the normal cost rate.
**   The 1999 Legislation which passed the 1.5% GABA, also added a 0.11% state general fund contribution.

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Appendix E

Glossary

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases the definitions have been modified for specific applicability to the Montana Teachers' Retirement System. Defined terms are capitalized throughout this Appendix.

Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Actuarial Accrued Liability

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Present Value

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

Amortization Payment

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Entry Age Actuarial Cost Method

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

Market Value of Assets

The fair value of cash, investments and other property belonging to a pension plan that could be acquired by exchanging them on the open market.

Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

Projected Benefits

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

Unaccrued Benefit

The excess of an individual's Projected Benefits over the Accrued Benefits as of a specified date.

Unfunded Actuarial Accrued Liability

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.