Gabriel Roeder Smith & Company
Consultants & Actuaries

MINNESOTA STATE RETIREMENT SYSTEM

JUDGES RETIREMENT FUND

ACTUARIAL VALUATION REPORT AS OF JULY 1, 2013

GRS
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November 26, 2013

Minnesota State Retirement System
Judges Retirement Fund
St. Paul, Minnesota

Dear Board of Directors:

The results of the July 1, 2013 annual actuarial valuation of the Judges Retirement Fund are presented in this report. This report was prepared at the request of the Board and is intended for use by the Board and staff and those designated or approved by the Board. This report may be provided to parties other than the Fund only in its entirety. GRS is not responsible for the consequences of any unauthorized use of this report.

The purpose of the valuation is to measure the Fund's funding progress, to determine the required contribution rate for the fiscal year beginning July 1, 2013, and to determine the actuarial information required by Governmental Accounting Standards Board (GASB) Statement No. 25. Note that we have not attempted to quantify the impact of GASB Statements No. 67 and No. 68.

The valuation was based upon information furnished by the Minnesota State Retirement System (MSRS), concerning benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not otherwise audit the data. We are not responsible for the accuracy or completeness of the information provided by MSRS.

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 Board of Directors. These parties are responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in the Actuarial Basis of this report. MSRS is solely responsible for communicating to GRS any changes required thereto.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

This report should not be relied on for any purpose other than the purpose described herein. Determinations of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

Brian B. Murphy and Bonita J. Wurst are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. In addition, Mr. Murphy meets the requirements of "approved actuary" under Minnesota Statutes Section 356.215, Subdivision 1, Paragraph (c).

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge and belief the information contained in this report is accurate and fairly presents the actuarial position of the Judges Retirement Fund as of the valuation date and 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 LCPR. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

Based on the current statutory contributions, the unfunded liability will not be eliminated if all actuarial assumptions are met.

We are available to answer any questions or provide further details.

Respectfully submitted,

Brian B. Murphy

Brian B. Murphy, FSA, EA, MAAA

Bonita J. Wurst

Bonita J. Wurst, ASA, EA, MAAA

BBM/BJW:bd

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Summary of Valuation Results

Contributions

The following table summarizes important contribution information as described in the Development of Costs section.

	Actuarial Valuation as of	
Contributions for Fiscal Year Beginning	**July 1, 2013**	**July 1, 2012**
Statutory Contributions - Chapter 490* (% of Payroll)	30.96%	28.02%
Required Contributions - Chapter 356 (% of Payroll)	42.42%	41.52%
Sufficiency / (Deficiency)	(11.46)%	(13.50)%

The contribution deficiency decreased from (13.50)% of payroll to (11.46)% of payroll. The primary reasons for the decreased contribution deficiency are the increase in member and employer contributions and the impact of the plan changes. See page 3 for additional detail about these changes. Lower than expected salaries resulted in a liability gain but also increased the payment on the unfunded actuarial accrued liability as a percent of payroll. A significant contribution deficiency remains. Without further changes or favorable actuarial experience, the funded status will deteriorate in the future and assets will be depleted. Plan changes affecting members first hired after June 30, 2013 are expected to ultimately reduce the cost of the plan, but have not yet impacted the valuation results.

Statutory contributions are not sufficient to fully amortize the unfunded actuarial accrued liability over the statutory amortization period of 26 years. Based on the current member and employer contribution rates and other methods and assumptions described in this report, an infinite number of years would be required to eliminate the unfunded liability (the unfunded liability will never be eliminated). Furthermore, based on current contributions, the payment on the unfunded liability as a percent of pay will increase without limit to an infinite value.

The Plan Assets section provides detail on the plan assets used for the valuation including a development of the actuarial value of assets (AVA). The market value of assets (MVA) earned approximately 14.2% for the plan year ending June 30, 2013. The AVA earned approximately 6.1% for the plan year ending June 30, 2013 as compared to the assumed rate of 8.0%. The assumed rate is a prescribed assumption mandated by Minnesota Statutes.

Participant reconciliation and statistics are detailed in the Membership Data section. The Actuarial Basis section includes a summary of plan provisions and actuarial methods and assumptions used for the calculations in this report.

The Plan Accounting sections detail the required accounting information for the Plan under GASB No. 25 (as amended by GASB No. 50). Statements No. 67 and No. 68 issued in June 2012, replace the requirements of Statements No. 25 and No. 27, respectively. Statement No. 68, effective for the fiscal year beginning July 1, 2014, sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67, effective for the fiscal year beginning July 1, 2013, sets rules for the systems themselves. Accounting information prepared according to Statements No. 67 and No. 68 will be provided in a separate report beginning with the July 1, 2014 valuation.

* *Statutory contributions reflect the fact that member contributions for Judges at the maximum benefit level are directed to the Unclassified Employees Retirement Plan. If these contributions were not directed to the Unclassified Employees Retirement Plan, the statutory contribution rate would be 31.50% instead of 30.96% as of July 1, 2013 and 28.50% instead of 28.02% as of July 1, 2012.*

Summary of Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in plan provisions, actuarial assumptions or valuation methods and procedures between the two valuations are described after the summary.

	Actuarial Valuation as of	
	July 1, 2013	**July 1, 2012**
Contributions (*% of Payroll*)		
Statutory - Chapter 490*	30.96%	28.02%
Required - Chapter 356	42.42%	41.52%
Sufficiency / (Deficiency)	(11.46%)	(13.50%)
Funding Ratios (*dollars in thousands*)		
Assets		
- Current assets (AVA)	$ 144,918	$ 144,898
- Current assets (MVA)	155,398	144,086
Accrued Benefit Funding Ratio		
- Current benefit obligations	$ 274,005	$ 267,902
- Funding ratio (AVA)	52.89%	54.09%
- Funding ratio (MVA)	56.71%	53.78%
Accrued Liability Funding Ratio		
- Actuarial accrued liability	$ 284,513	$ 281,576
- Funding ratio (AVA)	50.94%	51.46%
- Funding ratio (MVA)	54.62%	51.17%
Projected Benefit Funding Ratio		
- Current and expected future assets	$ 266,246	$ 249,493
- Current and expected future benefit obligations	332,430	329,128
- Projected benefit funding ratio (AVA)	80.09%	75.80%
Participant Data		
Active Members		
- Number	309	308
- Projected annual earnings *(000s)*	40,545	40,557
- Average projected annual earnings	131,214	131,679
- Average age	57.1	57.4
- Average service	10.4	11.1
Service Retirements	210	190
Survivors	98	99
Disability Retirements	24	25
Deferred Retirements	16	17
Terminated other Non-Vested	0	0
Total	**657**	**639**

* *Statutory contributions reflect the fact that member contributions for Judges at the maximum benefit level are directed to the Unclassified Employees Retirement Plan. If these contributions were not directed to the Unclassified Employees Retirement Plan, the statutory contribution rate would be 31.50% instead of 30.96% as of July 1, 2013 and 28.50% instead of 28.02% as of July 1, 2012.*

Summary of Valuation Results

Effects of Changes

The following changes were recognized as of July 1, 2013:

- A new benefit program (Tier 2) was created for judges first appointed or elected after June 30, 2013. Judges first appointed or elected before July 1, 2013 with less than five years of service as of December 31, 2013 may make a one-time irrevocable election for Tier 2 benefits.
- Tier 1 member contributions were increased from 8.00% of payroll to 9.00% of payroll effective July 1, 2013. Tier 2 member contributions were set at 7.00% of payroll. Employer contributions for both Tier 1 and Tier 2 members were increased from 20.50% of payroll to 22.50% of payroll as of July 1, 2013.
- The Normal Retirement Age for Tier 2 members was set at age 66.
- The retirement benefit formula for Tier 2 members was set at 2.5% of Average Salary multiplied by the number of years of service. There is no maximum benefit percentage for Tier 2 members.
- Post-retirement increases were reduced from 2.0% per year to 1.75% per year. Increases revert to 2.0% when a 70% funding ratio is reached (on a Market Value of Assets basis). Increases revert to 2.5% when a 90% funding ratio is reached (on a Market Value of Assets basis).

For the purpose of this valuation, we have assumed no Tier 1 members elected Tier 2 benefits as of the valuation date.

The combined impact of the above changes was to decrease the accrued liability by $5.3 million and decrease the required contribution by 1.3% of pay, as follows:

	Before Plan Changes	**Reflecting Plan Changes**
Normal Cost Rate, % of pay	18.4%	18.0%
Amortization of UAAL*, % of pay	25.1%	24.2%
Expenses (% of pay)	0.2%	0.2%
Total Required Contribution, % of pay	43.7%	42.4%
Accrued Liability Funding Ratio	50.0%	50.9%
Projected Benefit Funding Ratio	73.2%	80.1%
UAAL* (in millions)	$144.9	$139.6

**Unfunded Actuarial Accrued Liability.*

Refer to the Actuarial Basis section of this report for a complete description of these changes.

Summary of Valuation Results

Valuation of Future Annual Post-Retirement Benefit Increases

A very important assumption affecting the valuation results is the expectation of future annual post-retirement benefit increases. The plan's accrued liability funding ratio (on a market value of assets basis and assuming 1.75% postretirement benefit increases in all future years) is currently 54.6%. If the plan reaches a funding ratio of 70% (on a market value of assets basis) in the future, post-retirement increases will revert to the 2.0% level. If the plan reaches a funding ratio of 90% (on a market value of assets basis) in the future, post-retirement increases will revert to the 2.5% level.

We performed a projection of liabilities and assets, using the 2013 valuation results as a baseline and assuming future experience follows the valuation assumptions (including future investment returns of 8.0% for four years and 8.5% thereafter). In addition, the projection utilized the following methods and assumptions:

- Liabilities and normal cost assume future benefit increases at 2.50% level payable for all years.
- Cash flow assuming future benefit increases at current 1.75% level.
- Level normal cost as a percent of pay (assuming total payroll increases as assumed in the valuation for purposes of amortizing the unfunded liability). Plan changes affecting members first hired after June 30, 2013 are expected to ultimately reduce the cost of the plan. We did not attempt to quantify this reduction.
- Current statutory contribution levels (i.e., not including potential contribution increases under the contribution stabilizer statutes).

Based on these assumptions and methods, the projection indicates that the funded status of this plan is not expected to reach 90% within the next 15 years of the projection. The liabilities in this report are based on the assumption that the post-retirement benefit increase will remain at the reduced level of 1.75% indefinitely. If we assumed future post-retirement benefit increases of 2.5% instead of 1.75%, the actuarial accrued liability would be $304 million instead of $285 million, resulting in a funded ratio of 51.2% (on a market value basis) as of July 1, 2013.

Supplemental Information

The remainder of the report includes information supporting the results presented in the previous sections.

- **Plan assets** presents information about the plan's assets as reported by the Minnesota State Retirement System. The assets represent the portion of total fund liabilities that has been funded.
- **Membership data** presents and describes the membership data used in the valuation.
- **Development of costs** shows the liabilities for plan benefits and the derivation of the contribution amount.
- **Actuarial basis** describes the plan provisions, as well as the methods and assumptions used to value the plan. The valuation is based on the premise that the plan is ongoing.
- **Plan accounting under GASB No. 25 (as amended by GASB No. 50)** shows the disclosures required by GASB Statement No. 25 as amended by GASB Statement No. 50.
- **Glossary** defines the terms used in this report.

Plan Assets

Statement of Fiduciary Net Position *(Dollars in Thousands)*

	Market Value	
Assets	**June 30, 2013**	**June 30, 2012**
Cash, equivalents, short term securities	$ 4,504	$ 3,587
Fixed income	35,620	31,977
Equity	115,388	108,703
Other*	15,131	13,049
Total cash, investments, and other assets	**$ 170,643**	**$ 157,316**
Amounts Receivable	7	10
Total Assets	**$ 170,650**	**$ 157,326**
Amounts Payable*	(15,252)	(13,240)
Net Position Restricted for Pensions	**$ 155,398**	**$ 144,086**

** Includes $15,131 in Securities Lending Collateral as of June 30, 2013 and $13,049 as of June 30, 2012.*

Plan Assets

Reconciliation of Plan Assets *(Dollars in Thousands)*

The following exhibit shows the revenue, expenses and resulting assets of the Fund as reported by the Minnesota State Retirement System for the prior two fiscal years.

Change in Assets		**Market Value**	
Year Ending		**June 30, 2013**	**June 30, 2012**
1.	**Fund balance at market value at beginning of year**	**$ 144,086**	**$ 148,504**
2.	Contributions		
	a. Member	3,037	2,931
	b. Employer	8,177	7,922
	c. Other sources	0	0
	d. Total contributions	$ 11,214	$ 10,853
3.	Investment income		
	a. Investment income/(loss)	20,156	3,537
	b. Investment expenses	(213)	(196)
	c. Net investment income/(loss)	19,943	3,341
4.	Other	0	0
5.	**Total income:** *(2.d.) + (3.c.) + (4.)*	**$ 31,157**	**$ 14,194**
6.	Benefits Paid		
	a. Annuity benefits	(19,772)	(18,539)
	b. Refunds	0	0
	c. Total benefits paid	(19,772)	(18,539)
7.	Expenses		
	a. Other	(1)	(1)
	b. Administrative	(72)	(72)
	c. Total expenses	(73)	(73)
8.	**Total disbursements:** *(6.c.) + (7.c.)*	**(19,845)**	**(18,612)**
9.	**Fund balance at market value at end of year:** *(1.) + (5.) + (8.)*	**$ 155,398**	**$ 144,086**
10.	Approximate return on market value of assets	14.2%	2.3%

Plan Assets

Actuarial Asset Value *(Dollars in Thousands)*

	Original Amount	June 30, 2013 Unrecognized Amount %	June 30, 2013 Unrecognized Amount Dollar	June 30, 2012 Unrecognized Amount %	June 30, 2012 Unrecognized Amount Dollar
1. Market value of assets available for benefits			**$ 155,398**		**$ 144,086**
2. Determination of average balance					
a. Total assets available at beginning of year			144,086		148,504
b. Total assets available at end of year			155,398		144,086
c. Net investment income for fiscal year			19,943		3,341
d. Average balance *[a. + b. - c.] / 2*			139,771		144,625
3. Expected return* *[8.0% x 2.d.] (8.5% in 2012)*			11,182		12,293
4. Actual return			19,943		3,341
5. Current year asset gain/(loss) *[4. - 3.]*			8,761		(8,952)
6. Unrecognized asset returns					
a. Year ended June 30, 2013	$ 8,761	80%	$ 7,009		N/A
b. Year ended June 30, 2012	(8,952)	60%	(5,371)	80%	(7,162)
c. Year ended June 30, 2011	18,186	40%	7,274	60%	10,912
d. Year ended June 30, 2010	7,838	20%	1,568	40%	3,135
e. Year ended June 30, 2009	(38,483)		N/A	20%	(7,697)
f. Unrecognized return adjustment			**$ 10,480**		**$ (812)**
7. **Actuarial value at end of year** *(1. - 6.f.)*			**$ 144,918**		**$ 144,898**
8. Approximate return on actuarial value of assets during fiscal year			6.1%		4.6%
9. Ratio of actuarial value of assets to market value of assets			0.93		1.01

* *The expected return is 8.5% prior to fiscal year 2013; beginning with fiscal year 2013 the expected return is 8.0%.*

Membership Data

Distribution of Active Members*

	Years of Service as of June 30, 2013									
Age	**<3****	**3 - 4****	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35+**	**Total**
< 25										
Avg. Earnings										
25 - 29										
Avg. Earnings										
30 - 34										
Avg. Earnings										
35 - 39	3	1								**4**
Avg. Earnings	108,845	145,981								**118,129**
40 - 44	10	3								**13**
Avg. Earnings	120,519	120,961								**120,621**
45 - 49	10	9	13	1						**33**
Avg. Earnings	95,424	129,124	130,269	143,940						**119,812**
50 - 54	13	8	27	10	3					**61**
Avg. Earnings	121,302	129,124	131,168	129,967	131,276					**128,606**
55 - 59	10	1	15	23	9	2				**60**
Avg. Earnings	116,857	129,124	129,554	130,980	130,783	129,124				**128,148**
60 - 64	10	2	15	20	16	13	5	1		**82**
Avg. Earnings	116,336	129,124	129,124	130,824	130,054	131,149	129,124	129,124		**128,482**
65 - 69		6	8	12	11	13	4	1		**55**
Avg. Earnings		130,529	131,231	129,248	129,124	131,031	133,494	129,124		**130,379**
70+							1			**1**
Avg. Earnings							129,124			**129,124**
Total	**56**	**30**	**78**	**66**	**39**	**28**	**10**	**2**		**309**
Avg. Earnings	**114,193**	**129,151**	**130,321**	**130,661**	**130,054**	**130,950**	**130,872**	**129,124**		**127,391**

* *Includes 18 judges who have reached the maximum benefit formula (member contributions are directed to the Unclassified Employees Retirement Plan).*

** *This exhibit does not reflect service earned in other MSRS or 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 average valuation earnings for the fiscal year ending on the valuation date.

Membership Data

Distribution of Service Retirements

	Years Retired as of June 30, 2013							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Total**
<50								
Avg. Benefit								
50 - 54								
Avg. Benefit								
55 - 59								
Avg. Benefit								
60 - 64	7	5						**12**
Avg. Benefit	57,972	58,840						**58,333**
65 - 69	13	34	5					**52**
Avg. Benefit	68,411	65,952	59,056					**65,904**
70 - 74	5	17	26	4				**52**
Avg. Benefit	62,206	64,228	65,626	44,550				**63,219**
75 - 79		1	14	18				**33**
Avg. Benefit		78,344	63,698	65,712				**65,240**
80 - 84				12	12	3		**27**
Avg. Benefit				50,357	84,824	72,619		**68,149**
85 - 89				2	11	12	2	**27**
Avg. Benefit				71,654	67,992	86,504	66,971	**76,415**
90+					1	2	4	**7**
Avg. Benefit					42,721	72,736	55,717	**58,723**
Total	**25**	**57**	**45**	**36**	**24**	**17**	**6**	**210**
Avg. Benefit	**64,247**	**65,032**	**64,296**	**58,572**	**75,355**	**82,434**	**59,468**	**66,103**

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.

Membership Data

Distribution of Survivors

	Years Since Death as of June 30, 2013							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Total**
<45								
Avg. Benefit								
45 - 49								
Avg. Benefit								
50 - 54								
Avg. Benefit								
55 - 59		2	1	1				**4**
Avg. Benefit		38,696	42,859	29,369				**37,405**
60 - 64		4	3		2		2	**11**
Avg. Benefit		40,947	41,187		48,143		58,102	**45,440**
65 - 69	1	4	4	2		1	1	**13**
Avg. Benefit	32,818	36,549	37,665	46,162		50,059	86,389	**42,958**
70 - 74	2	3	1		1	1		**8**
Avg. Benefit	32,920	45,857	38,738		47,730	49,655		**42,442**
75 - 79	2	6			2		1	**11**
Avg. Benefit	40,265	54,518			67,331		46,916	**53,565**
80 - 84		3	2	2	5	1		**13**
Avg. Benefit		51,108	56,845	28,802	40,617	24,090		**42,446**
85 - 89	1	3	2	8	5	2	5	**26**
Avg. Benefit	46,577	70,509	40,307	37,158	55,550	54,187	41,716	**47,334**
90+	1	1	4	1	2	2	1	**12**
Avg. Benefit	98,817	73,414	48,903	73,652	86,348	49,664	72,223	**65,478**
Total	**7**	**26**	**17**	**14**	**17**	**7**	**10**	**98**
Avg. Benefit	**46,369**	**49,628**	**43,867**	**39,301**	**54,836**	**47,358**	**53,031**	**48,009**

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

Membership Data

Distribution of Disability Retirements

	Years Disabled as of June 30, 2013							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Total**
< 45								
Avg. Benefit								
45 - 49								
Avg. Benefit								
50 - 54								
Avg. Benefit								
55 - 59								
Avg. Benefit								
60 - 64			3					**3**
Avg. Benefit			53,261					**53,261**
65 - 69			6					**6**
Avg. Benefit			67,368					**67,368**
70 - 74			3	1				**4**
Avg. Benefit			61,716	46,993				**58,035**
75+				4	3	2	2	**11**
Avg. Benefit				68,174	107,956	99,968	86,725	**88,177**
Total			**12**	**5**	**3**	**2**	**2**	**24**
Avg. Benefit			**62,428**	**63,938**	**107,956**	**99,968**	**86,725**	**73,587**

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

Membership Data

Reconciliation of Members

		Terminated		Recipients			
	Actives*	Deferred Retirement	Other Non-Vested	Service Retirement	Disability Retirement	Survivor	Total
Members on 7/1/2012	**308**	**17**	**0**	**190**	**25**	**99**	**639**
New members	26	0	0	0	0	0	**26**
Return to active	0	0	0	0	0	0	**0**
Terminated non-vested	0	0	0	0	0	0	**0**
Service retirements	(23)	(2)	0	25	0	0	**0**
Terminated deferred	(2)	2	0	0	0	0	**0**
Terminated refund/transfer	0	0	0	0	0	0	**0**
Deaths	(1)	0	0	(5)	(1)	(8)	**(15)**
New beneficiary	0	0	0	0	0	7	**7**
Disabled	0	0	0	0	0	0	**0**
Data correction	1	(1)	0	0	0	0	**0**
Net change	1	(1)	0	20	(1)	(1)	**18**
Members on 6/30/2013	**309**	**16**	**0**	**210**	**24**	**98**	**657**

Terminated Member Statistics	Deferred Retirement	Other Non-Vested	Total
Number	16	0	16
Average age	57.6	N/A	57.6
Average service	9.9	N/A	9.9
Average annual benefit at Normal Retirement Date	$ 36,903	N/A	$ 36,903
Average refund value	$125,116	N/A	$125,116

* *Includes active Judges who have reached the maximum benefit formula (employee contributions are directed to the Unclassified Employees Retirement Plan)*

Development of Costs

Actuarial Valuation Balance Sheet *(Dollars in Thousands)*

The actuarial balance sheet is based on the principle that the long-term projected benefit obligations of the plan should be ideally equal to the long-term resources available to fund those obligations. The resources available to meet projected obligations for current members consist of current fund assets plus the present value of anticipated future contributions intended to fund benefits for current members. In the exhibit below, B.2 is the estimated present value of contributions to fund the normal cost rate for current members until their respective termination dates. Item B.1 is the present value of the total 30.96% statutory contribution net of normal cost and anticipated plan expenses during the period from the valuation date to the statutory unfunded amortization date.

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. It is this reserve system which permits the establishment of a level rate of contribution each year.

	Non-Vested	Vested	June 30, 2013 / Total
A. Actuarial Value of Assets			$ 144,918
B. Expected Future Assets			
1. Present value of expected future statutory supplemental contributions*			73,411
2. Present value of future normal cost contributions			47,917
3. Total expected future assets: *(1.) + (2.)*			$ 121,328
C. Total Current and Expected Future Assets			$ 266,246
D. Current Benefit Obligations**			
1. Benefit recipients	**Non-Vested**	**Vested**	**Total**
a. Service retirements	$ 0	$ 128,759	$ 128,759
b. Disability retirements	0	15,938	15,938
c. Survivors	0	35,944	35,944
2. Deferred retirements with augmentation	0	3,660	3,660
3. Former members without vested rights***	0	0	0
4. Active members	2,613	87,091	89,704
5. Total Current Benefit Obligations	$ 2,613	$ 271,392	$ 274,005
E. Expected Future Benefit Obligations			$ 58,425
F. Total Current and Expected Future Benefit Obligations****			$ 332,430
G. Unfunded Current Benefit Obligations: *(D.5.) - (A.)*			$ 129,087
H. Unfunded Current and Future Benefit Obligations: *(F.) - (C.)*			$ 66,184
I. Accrued Benefit Funding Ratio: *(A.)/(D.5.)*			52.89%
J. Projected Benefit Funding Ratio: *(C.)/(F.)*			80.09%

* *Based on Tier 1 member contribution rate; does not account for potential future Tier 2 member contributions.*

** *Present value of credited projected benefits (projected compensation, current service).*

*** *Former members who have not satisfied vesting requirements and have not collected a refund of member contributions as of the valuation date.*

*****Present value of projected benefits (projected compensation, projected service).*

Development of Costs

Determination of Unfunded Actuarial Accrued Liability and Supplemental Contribution Rate (*Dollars in Thousands)*

	Actuarial Present Value of Projected Benefits	Actuarial Present Value of Future Normal Costs	Actuarial Accrued Liability
A. Determination of Actuarial Accrued Liability (AAL)			
1. Active members			
a. Retirement annuities	$ 140,813	$ 43,678	$ 97,135
b. Disability benefits	3,283	1,963	1,320
c. Survivor's benefits	3,818	2,181	1,637
d. Deferred retirements	0	0	0
e. Refunds*	215	95	120
f. Total	$ 148,129	$ 47,917	$ 100,212
2. Deferred retirements with future augmentation	3,660	0	3,660
3. Former members without vested rights	0	0	0
4. Benefit recipients	180,641	0	180,641
5. Total	$ 332,430	$ 47,917	$ 284,513
B. Determination of Unfunded Actuarial Accrued Liability (UAAL)			
1. Actuarial accrued liability			$ 284,513
2. Current assets (AVA)			144,918
3. Unfunded actuarial accrued liability			$ 139,595
C. Determination of Supplemental Contribution Rate**			
1. Present value of future payrolls through the amortization date of June 30, 2039			$ 577,583
2. Supplemental contribution rate: *(B.3.) / (C.1.)*			24.17% ***

* *Includes non-vested refunds and non-married survivor benefits only.*

** *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 for an initial period of time.*

*** *The amortization factor as of July 1, 2013 is 14.24549.*

Development of Costs

Changes in Unfunded Actuarial Accrued Liability (UAAL) *(Dollars in Thousands)*

	Year Ending June 30, 2013		
	Actuarial Accrued Liability	Current Assets	Unfunded Actuarial Accrued Liability
A. At beginning of year	$ 281,576	$ 144,898	$ 136,678
B. Changes due to interest requirements and current rate of funding			
1. Normal cost and expenses	$ 7,447	$ 0	$ 7,447
2. Benefit payments	(19,772)	(19,772)	0
3. Contributions	0	11,214	(11,214)
4. Interest on A., B.1., B.2., and B.3.	22,914	11,250	11,664
5. Total *(B.1. + B.2. + B.3. + B.4.)*	10,589	2,692	7,897
C. Expected unfunded actuarial accrued liability at end of year *(A. + B.5.)*			$ 144,575
D. Increase (decrease) due to actuarial losses (gains) because of experience deviations from expected			
1. Age and Service Retirements			$ 1,551
2. Disability Retirements			(124)
3. Death-in-Service Benefits			(95)
4. Withdrawals			(607)
5. Salary increases			(1,916)
6. Investment income			2,672
7. Mortality of annuitants			1,052
8. Other items			(2,236)
9. Total			$ 297
E. Unfunded actuarial accrued liability at end of year before plan amendments and changes in actuarial assumptions *(C. + D.9.)*			$ 144,872
F. Change in unfunded actuarial accrued liability due to changes in plan provisions			$ (5,277)
G. Change in unfunded actuarial accrued liability due to changes in actuarial assumptions			$ 0
H. Change in unfunded actuarial accrued liability due to changes in decrement timing and miscellaneous methodology			$ 0
I. Unfunded actuarial accrued liability at end of year *(E. + F. + G. + H.)**			$ 139,595

** The unfunded actuarial accrued liability on a market value of assets basis is $129,115.*

Development of Costs

Determination of Contribution Sufficiency/(Deficiency) *(Dollars in Thousands)*

The required contribution is defined in statutes as the sum of normal cost, a supplemental contribution to amortize the UAAL, and an allowance for expenses.

	Percent of Payroll	Dollar Amount
A. Statutory contributions - Chapter 490		
1. Employee contributions*	8.46%	$ 3,430
2. Employer contributions	22.50%	9,123
3. Total	30.96%	$ 12,553
B. Required contributions - Chapter 356		
1. Normal cost		
a. Retirement benefits	16.47%	$ 6,678
b. Disability benefits	0.73%	296
c. Survivors	0.83%	337
d. Deferred retirement benefits	0.00%	0
e. Refunds**	0.04%	16
f. Total	18.07%	$ 7,327
2. Supplemental contribution amortization of Unfunded Actuarial Accrued Liability by June 30, 2039	24.17%	$ 9,800
3. Allowance for expenses	0.18%	$ 73
4. Total	42.42% ***	$ 17,200
C. Contribution Sufficiency/(Deficiency) *(A.3. - B.4.)*	(11.46)%	$ (4,647)

Note: Projected annual payroll for fiscal year beginning on the valuation date: $40,545.

* *For Tier I Judges who have reached the maximum benefit amount, member contributions equal to 9% of pay are directed to the Unclassified Employees Retirement Plan. The member contribution amount of $3,430 shown above is equal to 9% of a payroll amount of $38,125 which excludes the payroll for Judges at the maximum level.*

** *Includes non-vested refunds and non-married survivor benefits only.*

*** *The required contribution on a market value of assets basis is 40.6% of payroll.*

Actuarial Basis

Actuarial Methods

All actuarial methods are prescribed by Minnesota Statutes, the Legislative Commission on Pensions and Retirement, or the MSRS Board of Directors. Different methodologies may also be reasonable and results based on other methodologies would be different.

Actuarial Cost Method

Actuarial Accrued Liability and required contributions in this report are computed using the Entry Age Normal Cost Method. This method is prescribed by Minnesota Statute. An actuarial cost method is a set of techniques used by the actuary to develop contribution levels under a retirement plan. The actuarial cost method used in this valuation for all purposes is the Entry Age Actuarial Cost Method. Under this method, a normal cost is developed by amortizing the actuarial value of benefits expected to be received by each active participant (as a level percentage of pay) over the total working lifetime of that participant, from hire to termination. Age as of the valuation date was calculated based on the dates of birth provided by the Fund. Entry age for valuation purposes was calculated as the age on the valuation date minus the provided years of service on the valuation date.

To the extent that current assets and future normal costs do not support participants' expected future benefits, an Unfunded Actuarial Accrued Liability ("UAAL") develops. The UAAL is amortized over the statutory amortization period using level percent of payroll assuming payroll increases. The total contribution developed under this method is the sum of normal cost, expenses, and the payment toward the UAAL.

Select and Ultimate Discount Rate Methodology

Based on direction from the LCPR's actuary, the select and ultimate discount rate methodology was applied to the entry age normal results as follows:

1. The present value of projected benefits was calculated using the prescribed select and ultimate discount rates.
2. An equivalent single interest rate that produced approximately the same present value of projected benefits was determined.
3. The equivalent single interest rate was used to determine the entry age normal accrued liability and normal cost.

The equivalent single interest rate used in this valuation was 8.35% (8.32% last year).

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.

Decrement Timing

All decrements are assumed to occur mid-fiscal year.

Actuarial Basis

Actuarial Methods (Concluded)

Asset Valuation Method

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 asset value plus the scheduled recognition of investment gains or (losses) during the current and the preceding four fiscal years.

The Minnesota Post Retirement Investment Fund (MPRIF) was dissolved on June 30, 2009. For the purpose of determining the actuarial value of assets, the MPRIF asset loss for the fiscal year ending June 30, 2009 was recognized incrementally over five years at 20% per year, similar to the smoothing described above. Prior to June 30, 2009, MPRIF asset gains and losses were not smoothed.

Payment on the Unfunded Actuarial Accrued Liability

Payment equals a level percentage of payroll each year to the statutory amortization date of June 30, 2039 assuming payroll increases of 3.00% per annum. If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount is amortized over 30 years as a level percentage of payroll. If the unfunded liability increases due to changes in benefits, assumptions, or methods, the statutory amortization date will be re-determined. Projected payroll is multiplied by 0.959 in the determination of the present value of future payroll to account for timing differences (as required by the Standards for Actuarial Work).

Changes in Methods since Prior Valuation

None.

Actuarial Basis

Summary of Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the plan. All actuarial assumptions are prescribed by Minnesota Statutes, the Legislative Commission on Pensions and Retirement (LCPR), or the MSRS Board of Directors. These parties are responsible for selecting the assumptions used for this valuation. The assumptions prescribed are based on the last experience study, dated February 2012, prepared by a former actuary.

Investment return	Select and Ultimate Rates: July 1, 2013 to June 30, 2017 6.25% per annum post-retirement 8.00% per annum pre-retirement July 1, 2017 and later 6.75% per annum post-retirement 8.50% per annum pre-retirement
Benefit increases after retirement	Payment of 1.75% annual benefit increases after retirement are accounted for by using the 6.75% post-retirement assumption (6.25% during 4-year select period), as required by Minnesota Statute. Mathematically, this assumption funds a post-retirement benefit increase of 1.64% instead of 1.75%. This valuation does not reflect any potential additional benefit increases payable if the plan's funding ratio exceeds 70%.
Salary increases	3.00% per year.
Payroll growth	3.00% per year.
Inflation	3.00% per year.
Mortality rates	
Healthy pre-retirement	RP-2000 employee generational mortality table projected using mortality improvement scale AA, white collar adjustment.
Healthy post-retirement	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment, set back one year for males and set back two years for females. The RP-2000 employee mortality table as published by the Society of Actuaries (SOA) contains mortality rates for ages 15 to 70 and the annuitant mortality table contains mortality rates for ages 50 to 95. We have applied the annuitant mortality table for active members beyond age 70 until the assumed retirement age and the employee mortality table for annuitants younger than age 50.
Disabled	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment, set back one year for males and set back two years for females.
Retirement	Members retiring from active status are assumed to retire according to the age related rates shown in the rate table. Members who have attained the highest assumed retirement age are assumed to retire in one year.
Withdrawal	None.

Actuarial Basis

Summary of Actuarial Assumptions (Continued)

Disability	Age-related rates based on experience; see table of sample rates.
Administrative expenses	Prior year administrative expenses expressed as percentage of prior year projected payroll.
Refund of contributions	Account balances for deferred members accumulate interest until normal retirement date and are discounted back to the valuation date.
Commencement of deferred benefits	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at age 65.
Percentage married	Marital status as indicated by data.
Age of spouse	Females are assumed to be three years younger than their male spouses.
Form of payment	Members are assumed to elect a life annuity.
Eligibility testing	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Decrement operation	Withdrawal decrements do not operate during retirement eligibility.
Service credit accruals	It is assumed that members accrue one year of service credit per year.
Unknown data for certain members	To prepare this report, GRS has used and relied on participant data supplied by the Fund. Although GRS has reviewed the data in accordance with Actuarial Standards of Practice No. 23, GRS has not verified or audited any of the data or information provided. There are no members reported with missing gender or birth dates. In cases where submitted data was missing or incomplete, the following assumptions were applied: <u>Data for active members:</u> There are 18 Tier 1 members who have reached the 24 year service cap; 13 of these were reported as terminated members. These members are reflected as active members in this valuation. We assumed these members earned the greater of the salary reported under the Unclassified Employees Retirement Plan or $129,124 for the July 1, 2012 to June 30, 2013 plan year. There were no members reported with missing salary or service. <u>Data for terminated members:</u> There were no members reported without a benefit. <u>Data for members receiving benefits:</u> There were no members reported without a benefit.
Changes in actuarial assumptions	The post-retirement investment rate assumption was changed from 6.50% (6.00% for the select period ending June 30, 2017) to 6.75% (6.25% for the select period ending June 30, 2017) to reflect the post-retirement benefit increase change from 2.00% to 1.75%.

Actuarial Basis

Summary of Actuarial Assumptions (Concluded)

	Rate (%) *					
	Healthy Post-Retirement Mortality**		Healthy Pre-Retirement Mortality**		Disability Mortality**	
Age	Male	Female	Male	Female	Male	Female
20	0.03%	0.02%	0.03%	0.02%	0.03%	0.02%
25	0.04	0.02	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.03	0.04	0.02
35	0.05	0.04	0.06	0.05	0.05	0.04
40	0.08	0.06	0.09	0.06	0.08	0.06
45	0.12	0.08	0.13	0.10	0.12	0.08
50	0.18	0.13	0.20	0.16	0.18	0.13
55	0.56	0.29	0.27	0.24	0.56	0.29
60	0.61	0.47	0.43	0.38	0.61	0.47
65	1.04	0.74	0.67	0.59	1.04	0.74
70	1.74	1.24	0.98	0.88	1.74	1.24

* *Generally, mortality rates are expected to increase as age increases. Due to the combination of pre-retirement rates, post-retirement rates, the white collar adjustment, and Projection Scale AA, the prescribed mortality tables have a few ages where assumed mortality decreases slightly instead of increases. We have used the rates as prescribed, but note that the prescribed assumption may not be reasonable at every age. If the rates were reasonably adjusted so that they decreased at all ages, we would not expect the valuation results to be materially different.*

** *These rates were adjusted for mortality improvements using projection scale AA.*

	Disability Retirement	
Age	Male	Female
20	0.00%	0.00%
25	0.00	0.00
30	0.00	0.00
35	0.01	0.00
40	0.01	0.01
45	0.02	0.03
50	0.07	0.05
55	0.17	0.12
60	0.38	0.31
65	0.00	0.00
70	0.00	0.00

Age	Retirement
60	0%
61	0
62	8
63	5
64	8
65	25
66	20
67	10
68	30
69	10
70	100

Actuarial Basis

Summary of Plan Provisions

Following is a summary of the major plan provisions used in the valuation of this report. MSRS is solely responsible for the validity, accuracy and comprehensiveness of this information. If any of the plan provisions shown below are not accurate and complete, the valuation results may differ significantly from those shown in this report and may require a revision of this report.

Plan year	July 1 through June 30.
Eligibility	A judge or justice of any court. If the member was active prior to January 1, 1974, benefits may be computed according to provisions of the prior plan.
Tier 1 / Tier 2 Member	Tier 1 includes judges or justices first appointed or elected before July 1, 2013 and Tier 2 includes judges or justices first appointed or elected after June 30, 2013. A judge or justice with less than five years of service as of December 31, 2013 may make a one-time irrevocable election into Tier 2. For the purpose of this valuation, we have assumed no Tier 1 members elected Tier 2 benefits as of the valuation date.
Contributions	
Member	9.00% of salary for Tier 1 members, 7.00% of salary for Tier 2 members. Tier 1 member contributions after maximum benefit is reached are redirected to the Unclassified Employees Retirement Plan.
Employer	22.50% of salary. Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).
Allowable service	Service as a judge. Credit may also be earned for uncredited judicial service if the appropriate employee contributions, with interest, are made.
Salary	Salary set by law.
Average salary	Average of the five highest years of salary of the last 10 years prior to termination of judicial service.
Retirement	
<u>Normal retirement benefit</u>	
Age/Service requirement	First appointed as a judge before July 1, 2013 (Tier 1): (a.) Age 65 and five years of Allowable Service (b.) Age 70 (mandatory retirement age) First appointed as a judge after June 30, 2013 (Tier 2): (a.) Age 66 and five years of Allowable Service (b.) Age 70 (mandatory retirement age) Judges appointed before July 1, 2013 with less than five years of allowable service on or before December 31, 2013 may make a one-time election for the Tier 2 benefit package.
Amount	2.70% of Average Salary for each year of Allowable Service prior to July 1, 1980 and 3.20% (2.5% if Tier 2) of Average Salary for each year of Allowable Service after June 30, 1980. Tier 1 maximum benefit equal to 76.80% of Average Salary (no limit for Tier 2 benefit).

Actuarial Basis

Summary of Plan Provisions (Continued)

Retirement (Continued)	
Early retirement	
Age/Service requirement	Age 60 and five years of Allowable Service.
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction of 0.50% for each month the member is under Normal Retirement Age at time of retirement.
Form of payment	Life annuity. Actuarially equivalent options are: (a.) 50%,75% or 100% joint and survivor with no bounce back feature (b.) 50%, 75% or 100% bounce back feature (c.) 10 or 15-year certain and life thereafter
Benefit increases	Benefit recipients receive future annual 1.75% benefit increases. If the accrued liability funding ratio reaches 70% (on a Market Value of Assets basis), the benefit increase will revert to 2.0%. If the accrued liability funding ratio reaches 90% (on a Market Value of Assets basis), the benefit increase will revert to 2.5%. A benefit recipient who has been receiving a benefit for at least 18 full months as of January 1 will receive a full increase. Members receiving benefits for at least six months but less than 18 full months as of January 1 will receive a pro rata increase.
Disability	
Disability benefit	
Age/Service requirement	Permanent inability to perform the function of judge.
Amount	No benefit is paid by the Fund. Instead salary is continued for one year but not beyond age 70. Employee contributions continue and Allowable Service is earned. If disability continues after the first year (or at age 70 if earlier), the larger of 25.00% of Average Salary or the Normal Retirement Benefit, without reduction.
Retirement after disability	
Age/Service requirement	Member is still disabled after salary payments cease after one year or at age 70, if earlier.
Amount	No change in disability benefit amount from pre-retirement computed benefit amount.
Form of payment	Same as for retirement.
Benefit increases	Same as for retirement.
Death	
Survivor’s benefit	
Age/service requirement	Active or disabled member dies before retirement or a former member eligible for a deferred annuity dies.
Amount	Larger of 25% of Average Salary or 60% of Normal Retirement Benefit earned at date of death. If member dies after age 60 with five or more years of service, spouse may receive the 100% joint and survivor benefit the member had earned as of date of death. Benefit paid to spouse for life. If no spouse, benefit is paid to surviving dependent children until child marries, dies, or attains age 18 (age 22 if full-time student).
Benefit increases	Same as for retirement.

Actuarial Basis

Summary of Plan Provisions (Continued)

Death (Continued)	
Refund of contributions	
Age/service requirement	Member dies prior to retirement or former member eligible for a deferred annuity dies and survivors' benefits are not payable.
Amount	Member contributions with 6.00% annual interest compounded daily until June 30, 2011 and 4.00% thereafter.
Termination	
Refund of contributions	
Age/Service requirement	Termination of service as a judge.
Amount	Member contributions with 6.00% annual interest compounded daily until June 30, 2011, 4.00% thereafter. If a member is vested, a deferred annuity may be elected in lieu of a refund.
Deferred benefit	
Age/service requirement	Five years of Allowable Service.
Amount	Benefit computed under law in effect at termination. Amount is payable at normal or early retirement. If a member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Form of payment	Same as for retirement.
Optional form conversion factors	Actuarially equivalent factors based on RP-2000 for healthy annuitants, white collar adjustment, projected to 2022 using scale AA, set back one year for males and set back two years for females, blended 80% males, and 6.5% interest.
Combined service annuity	Members are eligible for combined service benefits if they: (a.) Have sufficient allowable service in total that equals or exceeds the applicable service credit vesting requirement of the retirement plan with the longest applicable service credit vesting requirement; (b.) Have at least six months of allowable service credit in each plan worked under; and (c.) Are not in receipt of a benefit from another plan, or have applied for benefits with an effective date within one year. Members who meet the above requirements must have their benefit based on the following: (a.) Allowable service in all covered plans are combined in order to determine eligibility for early retirement; (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans.

Actuarial Basis

Summary of Plan Provisions (Concluded)

Changes in plan provisions	A new benefit program (Tier 2) was created for judges first appointed after June 30, 2013. Judges first appointed before July 1, 2013 with less than five years of service as of December 31, 2013 may make a one-time irrevocable election for Tier 2 benefits. Tier 1 member contributions were increased from 8.00% of payroll to 9.00% of payroll effective July 1, 2013. Tier 2 member contributions were set at 7.00% of payroll. Employer contributions for both Tier 1 and Tier 2 members were increased from 20.50% of payroll to 22.50% of payroll as of July 1, 2013. The Normal Retirement Age for Tier 2 members was set at age 66. The retirement benefit formula for Tier 2 members was set at 2.5% of Average Salary multiplied by the number of years of service. There is no maximum benefit percentage for Tier 2 members. Post-retirement increases were reduced from 2.0% per year to 1.75% per year. Increases revert to 2.0% when a 70% funding ratio is reached (on a Market Value of Assets basis). Increases revert to 2.5% when a 90% funding ratio is reached (on a Market Value of Assets basis).

Plan Accounting Under GASB No. 25 (as amended by GASB No. 50)

Provided below is information required under GASB Statement No. 25 as amended by GASB Statement No. 50 - Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans as amended by GASB Statement No. 50.

Schedule of Funding Progress[1] *(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)
7-1-1991	$ 33,559	$ 78,429	$ 44,870	42.79%	$ 18,410	243.73 %
7-1-1992	37,768	83,969	46,201	44.98	22,765	202.95
7-1-1993	44,156	90,509	46,353	48.79	22,084	209.89
7-1-1994	50,428	98,313	47,885	51.29	22,264	215.08
7-1-1995	56,813	102,238	45,425	55.57	22,877	198.56
7-1-1996	64,851	108,150	43,299	59.96	22,421	193.12
7-1-1997	74,681	117,714	43,033	63.44	22,909	187.84
7-1-1998	86,578	130,727	44,149	66.23	24,965	176.84
7-1-1999	97,692	139,649	41,957	69.96	32,940	127.37
7-1-2000	111,113	153,660	42,547	72.31	26,315	161.68
7-1-2001	123,589	165,244	41,655	74.79	28,246	147.47
7-1-2002	131,379	171,921	40,542	76.42	31,078	130.45
7-1-2003	134,142	176,291	42,149	76.09	33,771	124.81
7-1-2004	138,948	190,338	51,390	73.00	34,683	148.17
7-1-2005	144,465	191,414	46,949	75.47	35,941	130.63
7-1-2006	151,850	202,301	50,451	75.06	36,529	138.11
7-1-2007	153,562	214,297	60,735	71.66	36,195	167.80
7-1-2008	147,542	231,623	84,081	63.70	38,296	219.56
7-1-2009	147,120	241,815	94,695	60.84	39,444	240.07
7-1-2010	144,728	240,579	95,851	60.16	39,291	243.95
7-1-2011	145,996	248,630	102,634	58.72	40,473	253.59
7-1-2012	144,898	281,576	136,678	51.46	38,644 [2]	353.69
7-1-2013	144,918	284,513	139,595	50.94	39,888 [2]	349.97

[1] *Information prior to 2012 provided by prior actuaries. See prior reports for additional detail.*
[2] *Assumed equal to actual employer contribution divided by 20.50%.*

Plan Accounting Under GASB No. 25 (as amended by GASB No. 50)

Schedule of Contributions from the Employer and Other Contributing Entities[1]

(Dollars in Thousands)

The GASB Statement No. 25 required and actual contributions are as follows:

Plan Year Ended June 30	Actuarially Required Contribution Rate (a)	Actual Covered Payroll (b)	Actual Member Contributions (c)	Annual Required Contributions [(a)x(b)] - (c) = (d)	Actual Employer Contributions[2] (e)	Percentage Contributed (e)/(d)
1991	23.59%	$ 18,410	$ 799	$ 3,544	$ 0	0.00 %
1992	25.10	22,765	988	4,726	4,722	99.92
1993	26.59	22,084	1,409	4,463	4,845	108.56
1994	26.29	22,264	1,416	4,437	4,912	110.71
1995	28.27	22,877	1,455	5,012	5,162	102.99
1996	27.32	22,421	1,426	4,699	4,972	105.81
1997	27.01	22,909	1,457	4,731	6,632	140.18
1998	27.60	24,965	1,570	5,320	7,129	134.00
1999	27.32	32,940	2,069	6,930	7,051	101.75
2000	26.75	26,315	2,107	4,932	7,298	147.97
2001	24.58	28,246	2,162	4,781	7,793	163.00
2002	26.72	31,078	2,345	5,959	8,369	140.44
2003	26.82	33,771	2,574	6,483	6,923	106.79
2004	26.73	34,683	2,643	6,628	7,110	107.27
2005	29.42	35,941	2,662	7,912	7,225	91.32
2006	29.14	36,529	2,866	7,779	7,336	94.30
2007	30.73	36,195	2,792	8,331	7,572	90.88
2008	33.70	38,296	2,861	10,045	7,936	79.00
2009	30.33	39,444	2,978	8,985	8,219	91.47
2010	31.53	39,291	2,988	9,400	8,283 [3]	88.12
2011	31.66	40,473	3,010	9,804	8,297	84.63 [3]
2012	33.15	38,644 [4]	2,931	9,879	7,922	80.19
2013	41.52	39,888 [4]	3,037	13,524	8,177	60.46
2014	42.42	N/A	N/A	N/A	N/A	N/A

[1] *Information prior to 2012 provided by prior actuary. See prior reports for additional detail.*
[2] *Includes contributions from other sources (if applicable).*
[3] *Provided by MSRS instead of prior actuary.*
[4] *Assumed equal to actual employer contribution divided by 20.50%.*

Glossary of Terms

Accrued Benefit Funding Ratio	The ratio of assets to Current Benefit Obligations.
Accrued Liability Funding Ratio	The ratio of assets to Actuarial Accrued Liability.
Actuarial Accrued Liability (AAL)	The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.
Actuarial Assumptions	Assumptions about future plan experience that affect costs or liabilities, such as: mortality, withdrawal, disablement, and retirement; future increases in salary; future rates of investment earnings; future investment and administrative expenses; characteristics of members not specified in the data, such as marital status; characteristics of future members; future elections made by members; and other items.
Actuarial Cost Method	A procedure for allocating the Actuarial Present Value of Future Benefits between the Actuarial Present Value of future Normal Costs and the Actuarial Accrued Liability.
Actuarial Equivalent	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV)	The amount of funds required to provide a payment or series of payments in the future. It is determined by discounting the future payments with an assumed interest rate and with the assumed probability each payment will be made.
Actuarial Present Value of Projected Benefits	The Actuarial Present Value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, non-retired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
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 plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB No. 25, such as the Funded Ratio and the Annual Required Contribution (ARC).
Actuarial Value of Assets	The value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially required contribution (ARC).

Glossary of Terms (Continued)

Amortization Method	A method for determining the Amortization Payment. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. The stream of payments increases at the rate at which total covered payroll of all active members is assumed to increase.
Amortization Payment	That portion of the plan contribution or ARC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
Amortization Period	The period used in calculating the Amortization Payment.
Annual Required Contribution (ARC)	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under GASB No. 25. The ARC consists of the Employer Normal Cost and Amortization Payment.
Augmentation	Annual increases to deferred benefits.
Closed Amortization Period	A specific number of years that is reduced by one each year, and declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc.
Current Benefit Obligations	The present value of benefits earned to the valuation date, based on current service and including future salary increases to retirement.
Employer Normal Cost	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Expected Assets	The present value of anticipated future contributions intended to fund benefits for current members.
Experience 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 valuations. To the extent that actual experience differs from that assumed, Unfunded Actuarial Accrued Liabilities emerge which may be larger or smaller than projected. Gains are due to favorable experience, e.g., the assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, losses are the result of unfavorable experience, i.e., actual results that produce Unfunded Actuarial Accrued Liabilities which are larger than projected.

Glossary of Terms (Concluded)

GASB	Governmental Accounting Standards Board.
GASB No. 25 and GASB No. 27	These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 27 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 25 sets the rules for the systems themselves.
GASB No. 50	The accounting standard governing a state or local governmental employer's accounting for pensions.
GASB No. 67 and GASB No. 68	Statements No. 67 and No. 68, issued in June 2012, replace the requirements of Statements No. 25 and No. 27, respectively. Statement No. 68, effective for the fiscal year beginning July 1, 2014, sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67, effective for the fiscal year beginning July 1, 2013, sets the rules for the systems themselves. Accounting information prepared according to Statements No. 67 and No. 68 will be provided in a separate report beginning with the July 1, 2014 valuation.
Normal Cost	The annual cost assigned, under the Actuarial Cost Method, to the current plan year.
Projected Benefit Funding Ratio	The ratio of the sum of Actuarial Value of Assets and Expected Assets to the Actuarial Present Value of Projected Benefits.
Unfunded Actuarial Accrued Liability	The difference between the Actuarial Accrued Liability and Actuarial Value of Assets.
Valuation Date	The date as of which the Actuarial Present Value of Future Benefits are determined. The benefits expected to be paid in the future are discounted to this date.