Gabriel Roeder Smith & Company
Consultants & Actuaries

STATE EMPLOYEES RETIREMENT FUND

MINNESOTA STATE RETIREMENT SYSTEM

ACTUARIAL VALUATION REPORT AS OF JULY 1, 2012

GRS
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December 2012

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

Dear Board of Directors:

The results of the July 1, 2012 annual actuarial valuation of the State Employees Retirement Fund are presented in this report. This report was prepared at the request of the Board and is intended for use by the Retirement Fund 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, 2012, 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 in this report.

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.

This report should not be relied on for any purpose other than the purpose described in the primary communication. 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.

The undersigned actuaries 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 State Employees 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.

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

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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	**July 1, 2012**	**July 1, 2011**
Statutory Contributions - Chapter 352 (% of Payroll)	10.00%	10.00%
Required Contributions - Chapter 356 (% of Payroll)	12.32%	11.03%
Sufficiency / (Deficiency)	(2.32%)	(1.03%)

The contribution deficiency increased from (1.03%) of payroll to (2.32%) of payroll. The primary reasons for the increased contribution deficiency are the recognition of investment losses from this year and prior years in the actuarial value of assets as well as the change in assumed investment return. See page 3 for additional detail about these changes. The contribution deficiency indicates that without further changes or favorable actuarial experience, the funded status will deteriorate in the future and assets will be depleted.

Statutory contributions are not sufficient to fully amortize the unfunded actuarial accrued liability over the statutory amortization period of 28 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).

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 2.6% for the plan year ending June 30, 2012. The AVA earned approximately 4.0% for the plan year ending June 30, 2012 as compared to the assumed rate of 8.5%. The assumed rate is 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).

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, 2012	**July 1, 2011**
Contributions *(% of Payroll)*		
Statutory - Chapter 352	10.00%	10.00%
Required - Chapter 356	12.32%	11.03%
Sufficiency / (Deficiency)	(2.32%)	(1.03%)
Funding Ratios *(dollars in thousands)*		
Assets		
- Current assets (AVA)	$ 9,162,301	$ 9,130,011
- Current assets (MVA)	9,098,097	9,197,664
Accrued Benefit Funding Ratio		
- Current benefit obligations	$ 10,499,095	$ 10,144,509
- Funding ratio (AVA)	87.27%	90.00%
- Funding ratio (MVA)	86.66%	90.67%
Accrued Liability Funding Ratio		
- Actuarial accrued liability	$ 11,083,227	$ 10,576,481
- Funding ratio (AVA)	82.67%	86.32%
- Funding ratio (MVA)	82.09%	86.96%
Projected Benefit Funding Ratio		
- Current and expected future assets	$ 11,369,411	$ 11,356,335
- Current and expected future benefit obligations	12,280,227	11,757,390
- Projected benefit funding ratio (AVA)	92.58%	96.59%
Participant Data		
Active members		
- Number	48,207	47,955
- Projected annual earnings *(000s)*	2,463,700	2,459,441
- Average projected annual earnings	51,107	51,286
- Average age	47.1	47.1
- Average service	12.4	12.6
Service retirements	26,524	24,900
Survivors	3,701	3,541
Disability retirements	1,750	1,723
Deferred retirements	15,702	15,422
Terminated other non-vested	5,788	6,117
Total	**101,672**	**99,658**

Summary of Valuation Results

The 2011 valuation was prepared by Mercer. As part of the transition of actuarial work from Mercer to GRS, we replicated the 2011 valuation including a change from beginning of year decrement timing to mid-year decrement timing. The results of this replication are as follows:

	Valuation Results As of July 1, 2011 (000's)		
	Mercer	**GRS**	**Ratio**
Present Value of Projected Benefits	$11,757,390	$11,703,043	99.5%
Actuarial Accrued Liability	10,576,481	$10,502,504	99.3%
Required Contributions (% of pay)	11.03%	10.67%	96.7%

Differences in valuation results due to differences in actuarial software are not unexpected. Note that the relatively small difference in actuarial accrued liability of only 0.7% results in a corresponding difference in the unfunded actuarial accrued liability of 5.1%, which is why the required contribution decreased more than the liability measures shown. The replication results indicate a high degree of consistency.

Effects of Changes

The following changes in actuarial assumptions and methods were recognized as of July 1, 2012:

- The investment return assumption was changed from 8.5% pre-retirement and 6.5% post-retirement to a 5-year select and ultimate approach with rates of 8.0% pre-retirement and 6.0% post-retirement for the period July 1, 2012 to June 30, 2017 and 8.5% pre-retirement and 6.5% post-retirement thereafter.
- The salary scale assumption was reduced 0.25% for all years of service.

Summary of Valuation Results

Effects of Changes (Concluded)

The combined impact of the above changes was to increase the accrued liability by $0.1 billion and increase the required contribution by 0.3% of pay, as follows:

	Before Assumption Changes	Reflecting Assumption Changes
Normal Cost Rate, % of pay	7.1%	7.1%
Amortization of Unfunded Accrued Liability, % of pay	4.6%	4.9%
Expenses (% of pay)	0.3%	0.3%
Total Required Contribution, % of pay	12.0%	12.3%
Accrued Liability Funding Ratio	83.7%	87.3%
Projected Benefit Funding Ratio	93.6%	92.6%
Unfunded Accrued Liability (in billions)	$1.8	$1.9

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

Summary of Valuation Results

Valuation of Future Post-Retirement Benefit Increases

A very important assumption affecting the valuation results is the expectation of future post-retirement benefit increases. The plan's accrued liability funding ratio (on a market value of assets basis and assuming 2.0% postretirement benefit increases in all future years) is currently 82.1%. 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.

The liabilities in this report are based on the assumption that the post-retirement benefit increase will remain at the reduced level of 2.0% indefinitely. If we assumed future post-retirement benefit increases of 2.5% instead of 2.0%, the actuarial accrued liability would be $11.5 billion instead of $11.1 billion, resulting in a funded ratio of 79.6% (on a market value basis) as of July 1, 2012.

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 Plan Net Assets as of June 30, 2012 *(Dollars in Thousands)*

Assets Held in Trust		**Market Value**
Cash, equivalents, short term securities	$	175,025
Fixed income		2,026,807
Equity		6,889,888
Other*		832,581
Total cash, investments, and other assets	**$**	**9,924,301**
Amounts Receivable		12,970
Total Assets	**$**	**9,937,271**
Amounts Payable*		(839,174)
Net Assets Held in Trust for Pension Benefits	**$**	**9,098,097**

** Includes $826,547 in Securities Lending Collateral.*

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 Plan's fiscal year July 1, 2011 to June 30, 2012.

Change in Assets	Market Value
1. Starting Fund balance at July 1, 2011 per prior year valuation report	$ 9,197,664
2. Adjustment to match MSRS fund balance	(1,427)
3. Fund balance at market value at July 1, 2011 *(1.) + (2.)*	$ 9,196,237
4. Contributions	
a. Member	118,358
b. Employer	115,159
c. Other sources	0
d. Total contributions	$ 233,517
5. Investment income	
a. Investment income/(loss)	226,289
b. Investment expenses	(12,402)
c. Net investment income/(loss)	213,887
6. Other	24,473
7. Total income: *(4.d.) + (5.c.) + (6.)*	**$ 471,877**
8. Benefits Paid	
a. Annuity benefits	(552,088)
b. Refunds	(11,573)
c. Total benefits paid	(563,661)
9. Expenses	
a. Other	(15)
b. Administrative	(6,341)
c. Total expenses	(6,356)
10 Total disbursements: *(8.c.) + (9.c.)*	**(570,017)**
11 Fund balance at market value at July 1, 2012: *(3.) + (7.) + (10.)*	**$ 9,098,097**

Plan Assets

Actuarial Asset Value *(Dollars in Thousands)*

	Original Amount	% Not Recognized	June 30, 2012
1. Market value of assets available for benefits			$ 9,098,097
2. Determination of average balance			
a. Total assets available at July 1, 2011			9,196,237
b. Total assets available at June 30, 2012			9,098,097
c. Net investment income for fiscal year ending June 30, 2012			213,887
d. Average balance *[a. + b. - c.] / 2*			9,040,224
3. Expected return* *[8.5% * 2.d.]*			768,419
4. Actual return			213,887
5. Current year asset gain/(loss) *[4. - 3.]*			(554,532)
6. Unrecognized asset returns			
a. Year ended June 30, 2012	(554,532)	80%	(443,626)
b. Year ended June 30, 2011	1,121,457	60%	672,874
c. Year ended June 30, 2010	465,050	40%	186,020
d. Year ended June 30, 2009	(2,397,363)	20%	(479,472)
e. Unrecognized return adjustment			(64,204)
7. **Actuarial value at June 30, 2012** *(1. - 6.e.)*			**$ 9,162,301**

* *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, 2012									
Age	**<3***	**3 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35+**	**Total**
< 25	925	52	5							**982**
Avg. Earnings	21,802	29,296	30,178							**22,241**
25 - 29	2,194	865	530	4						**3,593**
Avg. Earnings	30,513	37,819	39,066	40,572						**33,545**
30 - 34	1,669	979	1,669	372	2					**4,691**
Avg. Earnings	34,011	40,843	43,976	48,077	31,742					**40,096**
35 - 39	982	704	1,317	1,025	142	1				**4,171**
Avg. Earnings	35,112	46,242	47,909	52,695	53,026	48,154				**45,965**
40 - 44	1,141	691	1,302	1,178	637	157	7			**5,113**
Avg. Earnings	32,839	45,296	48,567	55,576	59,722	59,400	45,222			**47,948**
45 - 49	937	637	1,246	1,314	827	816	368	34		**6,179**
Avg. Earnings	35,706	46,269	49,226	54,362	59,694	60,146	58,010	52,288		**51,346**
50 - 54	897	664	1,274	1,291	928	1,147	1,082	709	34	**8,026**
Avg. Earnings	35,973	45,267	49,420	54,642	58,149	60,290	60,765	55,971	53,182	**53,100**
55 - 59	734	502	1,063	1,234	864	1,102	1,083	1,183	630	**8,395**
Avg. Earnings	35,555	45,515	49,643	54,342	57,374	60,249	59,960	60,136	57,540	**54,445**
60 - 64	359	290	680	818	573	741	648	605	784	**5,498**
Avg. Earnings	35,359	42,569	49,818	55,889	55,713	59,932	60,226	61,679	61,596	**55,584**
65 - 69	106	73	192	211	159	167	113	85	190	**1,296**
Avg. Earnings	24,155	36,914	44,369	52,865	56,784	60,031	63,915	62,078	65,050	**53,118**
70+	36	23	46	50	29	21	9	16	33	**263**
Avg. Earnings	13,237	13,446	33,742	46,902	55,549	51,113	50,300	61,966	64,060	**41,542**
Total	**9,980**	**5,480**	**9,324**	**7,497**	**4,161**	**4,152**	**3,310**	**2,632**	**1,671**	**48,207**
Avg. Earnings	**32,403**	**43,030**	**47,361**	**54,125**	**57,943**	**60,093**	**60,136**	**59,341**	**60,337**	**48,815**

* *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, 2012							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Total**
<50		1						**1**
Avg. Benefit		3,733						**3,733**
50 - 54	12	10	1					**23**
Avg. Benefit	13,731	12,070	7,997					**12,759**
55 - 59	406	664	24					**1,094**
Avg. Benefit	17,856	16,107	11,847					**16,663**
60 - 64	1,025	2,470	1,207	22				**4,724**
Avg. Benefit	18,788	19,635	15,514	13,784				**18,371**
65 - 69	702	2,831	2,483	904	12			**6,932**
Avg. Benefit	18,400	18,565	18,537	15,059	16,465			**18,077**
70 - 74	103	690	2,092	1,834	457	3		**5,179**
Avg. Benefit	14,535	16,936	16,888	18,157	16,481	7,898		**17,256**
75 - 79	23	89	418	1,585	1,118	294	1	**3,528**
Avg. Benefit	11,404	13,355	13,659	17,236	19,479	23,578	16,958	**17,914**
80 - 84	3	26	73	292	1,238	711	138	**2,481**
Avg. Benefit	22,542	12,226	11,398	15,568	19,343	22,178	28,033	**19,890**
85 - 89	1	10	19	44	266	844	438	**1,622**
Avg. Benefit	384	12,107	12,467	12,440	19,581	19,291	23,404	**20,128**
90+		1	4	7	26	109	793	**940**
Avg. Benefit		25,495	7,766	5,627	15,008	16,936	17,901	**17,582**
Total	**2,275**	**6,792**	**6,321**	**4,688**	**3,117**	**1,961**	**1,370**	**26,524**
Avg. Benefit	**18,205**	**18,433**	**16,957**	**16,994**	**18,945**	**20,820**	**20,680**	**18,160**

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, 2012							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Total**
<45	17	44	29	5		2		**97**
Avg. Benefit	6,689	7,929	11,856	4,278		15,200		**8,848**
45 - 49	8	22	10	5	2			**47**
Avg. Benefit	8,782	6,466	7,393	4,451	2,755			**6,685**
50 - 54	12	49	24	7	8		1	**101**
Avg. Benefit	6,706	8,056	11,626	6,692	5,117		9,056	**8,427**
55 - 59	25	90	64	30	15	3	1	**228**
Avg. Benefit	12,386	12,825	12,494	9,082	8,833	7,180	7,432	**11,831**
60 - 64	56	164	116	53	21	3	3	**416**
Avg. Benefit	15,224	13,954	13,209	11,049	12,259	3,433	5,056	**13,322**
65 - 69	42	138	142	70	31	9	4	**436**
Avg. Benefit	13,260	13,363	13,629	14,216	14,584	9,986	13,277	**13,593**
70 - 74	52	138	125	85	57	16	6	**479**
Avg. Benefit	16,435	15,520	14,703	14,341	15,466	18,913	13,371	**15,277**
75 - 79	39	135	136	104	59	28	13	**514**
Avg. Benefit	21,536	18,605	18,486	18,641	18,883	13,378	11,981	**18,383**
80 - 84	43	141	119	104	70	57	29	**563**
Avg. Benefit	17,977	19,518	18,946	20,620	18,164	17,543	13,125	**18,785**
85 - 89	30	85	116	94	68	44	49	**486**
Avg. Benefit	23,390	21,060	18,595	20,615	20,628	18,425	16,475	**19,768**
90+	13	44	77	64	54	31	51	**334**
Avg. Benefit	16,549	17,675	15,672	18,742	16,295	17,007	14,184	**16,556**
Total	**337**	**1,050**	**958**	**621**	**385**	**193**	**157**	**3,701**
Avg. Benefit	**15,929**	**15,377**	**15,589**	**16,720**	**16,723**	**16,410**	**14,217**	**15,852**

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, 2012							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Total**
< 45	3	10	9	2				**24**
Avg. Benefit	6,630	4,258	3,662	7,212				**4,577**
45 - 49	9	22	19	3	3			**56**
Avg. Benefit	8,279	8,977	7,250	3,818	6,634			**7,877**
50 - 54	22	57	54	17	8	5		**163**
Avg. Benefit	14,136	12,555	10,290	7,226	9,275	3,977		**11,038**
55 - 59	36	98	88	56	36	4		**318**
Avg. Benefit	15,452	15,979	12,427	10,118	11,705	5,647		**13,290**
60 - 64	20	154	172	100	29	4	1	**480**
Avg. Benefit	15,984	14,929	15,715	13,078	12,003	12,245	4,278	**14,648**
65 - 69	1	54	135	80	34	20	5	**329**
Avg. Benefit	16,441	13,690	14,425	12,993	14,538	15,223	13,721	**14,012**
70 - 74		1	38	92	57	10	4	**202**
Avg. Benefit		13,342	11,061	13,518	16,300	10,972	11,632	**13,677**
75+				24	60	49	45	**178**
Avg. Benefit				14,750	15,294	15,115	13,072	**14,609**
Total	**91**	**396**	**515**	**374**	**227**	**92**	**55**	**1,750**
Avg. Benefit	**14,261**	**14,074**	**13,380**	**12,461**	**14,117**	**13,546**	**12,866**	**13,474**

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 7/1/2011	**47,955**	**15,422**	**6,117**	**24,900**	**1,723**	**3,541**	**99,658**
Additions	4,966	1,384	1,351	2,371	96	71	**10,239**
Return to active	323	(188)	(135)				**0**
Terminated non-vested	(1,327)	(1)	1				**(1,327)**
Service retirements	(1,484)	(716)	(13)				**(2,213)**
Terminated deferred	(1,194)	104	(104)				**(1,194)**
Terminated refund/transfer	(714)	(192)	(1,427)				**(2,333)**
Deaths	(69)	(38)	(5)	(838)	(68)	(152)	**(1,170)**
New beneficiary							**0**
Disabled	(91)	(5)	(1)				**(97)**
Data correction	(220)	(67)	4	178	1	254	**150**
Net change	190	281	(329)	1,711	29	173	**2,055**
Preliminary Number as of 6/30/2012*	**48,145**	**15,703**	**5,788**	**26,611**	**1,752**	**3,714**	**101,713**
MSRS Data Adjustment	62	25	1	(87)	(1)	(11)	**(11)**
GRS Data Adjustment	0	(26)	(1)	0	(1)	(2)	**(30)**
Final Number as of 6/30/2012	**48,207**	**15,702**	**5,788**	**26,524**	**1,750**	**3,701**	**101,672**

* *Provided by MSRS and checked for reasonableness.*

** *Includes members in the General or Military Affairs Plans.*

*** *Includes members in the General, Military Affairs or Unclassified Plans.*

Terminated Member Statistics	Deferred Retirement	Other Non-Vested	Total
Number	15,702	5,788	21,490
Average age	50.3	37.3	46.8
Average service	8.3	1.1	6.4
Average annual benefit, with augmentation to Normal Retirement Date and 40% CSA load	$15,535	N/A	$15,535
Average refund value, with 40% CSA load	$33,092	$2,465	$24,843

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 10.00% 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.

			June 30, 2012
A. Actuarial Value of Assets			$ 9,162,301
B. Expected Future Assets			
1. Present value of expected future statutory supplemental contributions			1,010,110
2. Present value of future normal cost contributions			1,197,000
3. Total expected future assets: *(1.) + (2.)*			$ 2,207,110
C. Total Current and Expected Future Assets			$ 11,369,411
D. Current Benefit Obligations*			
1. Benefit recipients	**Non-Vested**	**Vested**	**Total**
a. Service retirements	$ 0	$ 4,819,984	$ 4,819,984
b. Disability retirements	0	210,076	210,076
c. Survivors	0	459,696	459,696
2. Deferred retirements with augmentation	0	1,180,318	1,180,318
3. Former members without vested rights**	14,266	0	14,266
4. Active members	57,648	3,757,107	3,814,755
5. Total Current Benefit Obligations	$ 71,914	$ 10,427,181	$ 10,499,095
E. Expected Future Benefit Obligations			$ 1,781,132
F. Total Current and Expected Future Benefit Obligations***			$ 12,280,227
G. Unfunded Current Benefit Obligations: *(D.5.) - (A.)*			$ 1,336,794
H. Unfunded Current and Future Benefit Obligations: *(F.) - (C.)*			$ 910,816
I. Accrued Benefit Funding Ratio: *(A.)/(D.5.)*			87.27%
J. Projected Benefit Funding Ratio: *(C.)/(F.)*			92.58%

* *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	$ 5,008,338	$ 842,065	$ 4,166,273
b. Disability benefits	205,477	65,307	140,170
c. Survivor's benefits	93,994	24,610	69,384
d. Deferred retirements	254,058	191,353	62,705
e. Refunds*	18,764	73,665	(54,901)
f. Total	$ 5,580,631	$ 1,197,000	$ 4,383,631
2. Deferred retirements with future augmentation	1,180,318	0	1,180,318
3. Former members without vested rights	14,266	0	14,266
4. Benefit recipients	5,489,756	0	5,489,756
5. Contingent actuarial accrued liability - UNCL Plan	15,256	0	15,256
6. Total	$ 12,280,227	$ 1,197,000	$ 11,083,227
B. Determination of Unfunded Actuarial Accrued Liability (UAAL)			
1. Actuarial accrued liability			$ 11,083,227
2. Current assets (AVA)			9,162,301
3. Unfunded actuarial accrued liability			$ 1,920,926
C. Determination of Supplemental Contribution Rate**			
1. Present value of future payrolls through the amortization date of June 30, 2040			$ 39,303,875
2. Supplemental contribution rate: *(B.3.) / (C.1.)*			4.89% ***

* *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, 2012 is 15.9532.*

Development of Costs

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

	Year Ending June 30, 2012
A. Unfunded actuarial accrued liability at beginning of year	$ 1,446,470
B. Changes due to interest requirements and current rate of funding	
1. Normal cost and expenses	181,829
2. Contributions	(233,517)
3. Interest on A., B.1. and B.2.	120,753
4. Total (B.1. + B.2. + B.3.)	69,065
C. Expected unfunded actuarial accrued liability at end of year (A. + B.4.)	1,515,535
D. Increase (decrease) due to actuarial losses (gains) because of experience deviations from expected	
1. Age and Service Retirements	9,319
2. Disability Retirements	815
3. Death-in-Service Benefits	707
4. Withdrawals	813
5. Salary increases	(82,891)
6. Investment income	391,769
7. Mortality of annuitants	41,442
8. Other items	(13,074)
9. Total	348,900
E. Unfunded actuarial accrued liability at end of year before plan amendments and changes in actuarial assumptions (C. + D.9.)	1,864,435
F. Change in unfunded actuarial accrued liability due to changes in plan provisions	0
G. Change in unfunded actuarial accrued liability due to changes in actuarial assumptions	140,932
H. Change in unfunded actuarial accrued liability due to changes in decrement timing and miscellaneous methodology	(84,441)
I. Unfunded actuarial accrued liability at end of year (E. + F. + G. + H.)*	$ 1,920,926

** The unfunded actuarial accrued liability on a market value of assets basis is $1,985,130.*

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 352		
1. Employee contributions	5.00%	$ 123,185
2. Employer contributions	5.00%	123,185
3. Total	10.00%	$ 246,370
B. Required contributions - Chapter 356		
1. Normal cost		
a. Retirement benefits	5.19%	$ 127,866
b. Disability benefits	0.37%	9,116
c. Survivors	0.15%	3,696
d. Deferred retirement benefits	1.03%	25,376
e. Refunds*	0.43%	10,594
f. Total	7.17%	$ 176,648
2. Supplemental contribution amortization of Unfunded Actuarial Accrued Liability by June 30, 2040	4.89%	$ 120,475
3. Allowance for expenses	0.26%	$ 6,406
4. Total	12.32% **	$ 303,529
C. Contribution Sufficiency/(Deficiency) *(A.3. - B.4.)*	(2.32%)	$ (57,159)

Note: Projected annual payroll for fiscal year beginning on the valuation date: $2,463,700.

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

*** The required contribution on a market value of assets basis is 12.48% of payroll.*

Development of Costs

Special Groups - Military Affairs Calculation

Section 352.85 of Chapter 352 of Minnesota Statutes provides that certain military affairs personnel may retire, with an unreduced benefit, at age 60. In addition, they may receive disability benefits upon being found disqualified for retention in active military duty. To fund these special benefits, employees and employer contribute an extra 1.60% of payroll.

To recognize the effect of the unreduced early retirement benefit available at age 60, we have assumed that all military affairs personnel will retire at age 60, or if over age 60, one year from the valuation date.

	Year Ending June 30, 2012
A. Projected annual earnings	$ 91,563
B. Total normal cost	
1. Dollar amount	$ 6,249
2. Percent of payroll	6.82%
C. Normal cost of State Employees Retirement Fund (percent of payroll)	7.17%
D. Difference in normal cost *(B. - C., not less than zero)*	0.00%

Active Military Affairs Statistics	**Active Members**
Number	2
Average Age, in years	40.5
Average Service, in years	15.7

Development of Costs

Special Groups - Pilots Calculation

Section 352.86 of Chapter 352 of Minnesota Statutes provides that certain transportation department pilots may retire, with an unreduced benefit, at age 62. In addition, they may receive disability benefits upon being found disqualified for retention as pilots. To fund these special benefits, employees and employer contribute an extra 1.60% of payroll.

To recognize the effect of the unreduced early retirement benefit available at age 62, we have assumed that all pilots will retire at age 62, or if over age 62, one year from the valuation date.

This group is closed to new entrants effective June 1, 2008.

	Year Ending June 30, 2012
A. Projected annual earnings	$ 168,691
B. Total normal cost	
1. Dollar amount	$ 20,331
2. Percent of payroll	12.05%
C. Normal cost of State Employees Retirement Fund (percent of payroll)	7.17%
D. Difference in normal cost (B. - C.)	4.88%

Active Pilots Statistics	**Active Members**
Number	2
Average Age, in years	66.0
Average Service, in years	19.7

Development of Costs

Special Groups - Fire Marshals Calculation

Section 352.87 of Chapter 352 of Minnesota Statutes provides that deputy state fire marshals may retire, with an unreduced benefit (with respect to service after July 1, 1999), at age 55. Credited Service after July 1, 1999 accrues retirement benefits at a rate of 2.00% per year, and disability benefits are based on a minimum of 15 years of service (20 years if duty related.) To fund these special benefits, members contribute an extra 2.78% of payroll and employers contribute an extra 4.20% of payroll.

To recognize the effect of the unreduced early retirement benefit available at age 55, we have assumed that all fire marshals will retire in accordance with the retirement assumptions which apply to the members of the Correctional Employees Retirement Fund.

	Year Ending June 30, 2012
A. Projected annual earnings	$ 768,793
B. Total normal cost	
1. Dollar amount	$ 107,052
2. Percent of payroll	13.92%
C. Normal cost of State Employees Retirement Fund (percent of payroll)	7.17%
D. Difference in normal cost (B. - C.)	6.75%

Active Fire Marshals Statistics	**Active Members**
Number	12
Average Age, in years	52.4
Average Service, in years	14.1

Development of Costs

Special Groups - Unclassified Plan Contingent Liability Calculation

(Dollars in Thousands)

Section 352D.02 of Chapter 352D of Minnesota Statutes provides that members credited with employee shares in the Unclassified Plan may elect to terminate participation in the Unclassified Plan and be covered by the State Employees Retirement Fund (general plan) prior to termination of covered employment assuming that the member has acquired at least 10 years of allowable state service if hired prior to July 1, 2010 and has no more than 7 years of service if hired after June 30, 2010. Unclassified Plan members contribute 5% of payroll and employers contribute 6% of payroll. Certain members Judges and Legislators) are not eligible to elect coverage under the State Employees Retirement Fund.

To recognize the effect of the option to elect coverage under the general plan, we have assumed that all eligible Unclassified Plan members will elect coverage under the general plan if such election provides the member with a greater economic present value than the accumulated contribution balance under the Unclassified Plan. The liabilities were measured using the actuarial assumptions that are applied to the State Employees Retirement Fund.

	Year Ending June 30, 2012
A. Number of active eligible members	1,159
B. Account balances for active members	$ 136,115
C. Accrued liability for active members	$ 151,371
D. Number of inactive members and ineligible active members	2,394
E. Account balances for inactive members	$ 136,861
F. Net assets held in trust for Unclassified Plan members	$ 273,389
G. Contingent liability (C. - B.)	$ 15,256
H. Projected annual earnings for active members	$ 87,576
I. Normal cost	
1. Dollar amount	$ 9,653
2. Percent of payroll	11.02%
J. Normal cost of State Employee Retirement Fund (percent of payroll)	7.17%
K. Difference in normal cost (I.2. - J.)	3.85%

Unclassified Member Statistics	**Active Eligible Members**
Number	1,159
Average Age, in years	46.5
Average Service, in years	10.6
Average Unclassified Account Balance	117,442

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. 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 the 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 8.34%.

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-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 is 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, 2040 assuming payroll increases of 3.75% 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

Decrement timing was changed from beginning of year to mid-year.

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 August 2009, prepared by a former actuary.

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

Investment return	Select and Ultimate Rates: July 1, 2012 to June 30, 2017 6.00% per annum post-retirement 8.00% per annum pre-retirement July 1, 2017 and later 6.50% per annum post-retirement 8.50% per annum pre-retirement
Benefit increases after retirement	Payment of 2.0% annual benefit increases after retirement are accounted for by using the 6.50% post-retirement assumption (6.00% during 5-year select period), as required by Minnesota Statute. Mathematically, this assumption funds a post-retirement benefit increase of 1.9% instead of 2.0%.
Salary increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service.
Payroll growth	3.75% per year.
Mortality rates	
Healthy Pre-retirement	RP-2000 employee generational mortality table, white collar adjustment, set forward three years for males and set back one year for females.
Healthy Post-retirement	RP-2000 annuitant generational mortality table, white collar adjustment. 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 disabled mortality table, white collar adjustment, with no setback for males and set forward five 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.

Actuarial Basis

Summary of Actuarial Assumptions (Continued)

Withdrawal	Select and Ultimate rates based on actual experience. Ultimate rates after the third year are shown in rate table. Select rates in the first three years are: **First Year** / **Second Year** / **Third Year** Male: 0.45 / 0.14 / 0.09 Female: 0.48 / 0.15 / 0.10
Disability	Age-related rates based on experience; see table of sample rates.
Allowance for Combined Service Annuity	Liabilities for active members are increased by 1.20% and liabilities for former members are increased by 40.00% to account for the effect of some participants having eligibility for a Combined Service Annuity.
Administrative expenses	Prior year administrative expenses expressed as percentage of prior year projected payroll.
Refund of contributions	All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit. 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 normal retirement age.
Percentage married	85% of active male members and 70% of female members are assumed to be married. Actual marital status is used for members in payment status.
Age of spouse	Male members are assumed to have a beneficiary three years younger and female members are assumed to have a beneficiary two years older.
Form of payment	Married members retiring from active status are assumed to elect subsidized joint and survivor form of annuity as follows: Males: 15% elect 50% Joint & Survivor option 10% elect 75% Joint & Survivor option 50% elect 100% Joint & Survivor option Females: 15% elect 50% Joint & Survivor option 0% elect 75% Joint & Survivor option 25% elect 100% Joint & Survivor option Remaining married members and unmarried members are assumed to elect the Straight Life option. Members receiving deferred annuities (including current terminated deferred members) are assumed to elect a life annuity.
Eligibility testing	Eligibility for benefits is determined based upon the age nearest birthday and service 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.

Actuarial Basis

Summary of Actuarial Assumptions (Continued)

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 were 58 members reported with zero salary and 11 members reported with zero service; due to the small number of members with zero salary and/or service, and based on direction from MSRS, we made no adjustment to the reported data for active members. <u>Data for terminated members:</u> There were 926 members reported without a benefit. If available, we calculated benefits for these members using the reported Average Salary, termination date and credited service. If Average Salary was also not reported (890 members), we assumed a value of $30,000. If termination date was not reported (58 members), we assumed the termination occurred when the member was age 40 (or current age if younger than 40). If credited service was not reported (2 members), we assumed a value of 7.5 years. <u>Data for members receiving benefits:</u> There were two members reported without a benefit; due to the small number of members with missing benefits, and based on direction from MSRS, we made no adjustment to the reported data for members receiving benefits.
Changes in actuarial assumptions	The investment return assumption was changed from 8.5% pre-retirement and 6.5% post-retirement to a select and ultimate approach with rates of 8.0% pre-retirement and 6.0% post-retirement for the period July 1, 2012 to June 30, 2017 and 8.5% pre-retirement and 6.5% post-retirement thereafter. The salary scale assumption was reduced 0.25% for all years of service.

Actuarial Basis

Summary of Actuarial Assumptions (Continued)

	Rate (%)			
	Healthy Pre-Retirement Mortality*		Disability Mortality	
Age	Male	Female	Male	Female
20	0.04%	0.02%	2.26%	0.75%
25	0.04	0.02	2.26	0.75
30	0.05	0.02	2.26	0.75
35	0.08	0.04	2.26	0.75
40	0.11	0.06	2.26	0.75
45	0.17	0.09	2.26	1.15
50	0.24	0.15	2.90	1.65
55	0.35	0.22	3.54	2.18
60	0.56	0.34	4.20	2.80
65	0.85	0.54	5.02	3.76
70	2.67	0.82	6.26	5.22

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

	Withdrawal Rates After Third Year		Disability Retirement	
Age	Male	Female	Male	Female
20	6.90%	8.55%	0.01%	0.01%
25	5.90	7.80	0.01	0.01
30	4.90	7.05	0.01	0.01
35	3.90	5.10	0.03	0.03
40	3.20	4.38	0.08	0.08
45	2.70	3.75	0.13	0.13
50	2.20	3.05	0.29	0.29
55	0.00	0.00	0.50	0.43
60	0.00	0.00	0.78	0.62
65	0.00	0.00	0.00	0.00

Actuarial Basis

Summary of Actuarial Assumptions (Concluded)

Retirement		
Age	Rule of 90 Eligible	All Others
55	20%	5%
56	15	5
57	15	5
58	15	5
59	20	6
60	20	7
61	22	12
62	40	22
63	30	16
64	30	18
65	40	40
66	30	30
67	25	25
68	25	25
69	25	25
70	30	30
71+	100	100

Salary Scale	
Year	Increase
1	10.50%
2	8.10
3	6.90
4	6.20
5	5.70
6	5.30
7	5.00
8	4.70
9	4.50
10	4.40
11	4.20
12	4.10
13	4.00
14	3.80
15	3.70
16	3.60
17+	3.50

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	State employees, non-academic staff of the University of Minnesota and employees of certain Metro level government units, unless excluded by law.
Contributions	Shown as a percent of salary: **Member**: 5.00% **Employer**: 5.00% Member contributions are “picked up” according to the provisions of Internal Revenue Code 414(h).
Allowable Service	Service during which member contributions were made. May also include certain leaves of absence, military service and periods while temporary Worker's Compensation is paid. Excludes lump sum vacation and severance pay at termination.
Average Salary	Average of the five highest years of Salary. Average Salary is based on all Allowable Service if less than five years.
Salary	Includes wages, allowances and fees. Excludes lump sum payments at separation, employer contributions to deferred compensation and tax-sheltered annuity plans and benevolent vacation and sick leave donation programs.
Retirement	
Normal retirement benefit	
Age/Service requirement	First hired before July 1, 1989: (a.) Age 65 and three years of Allowable Service. (b.) Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service. First hired after June 30, 1989: (a.) The greater of age 65 or the age eligible for full Social Security retirement benefits (but not higher than age 66) and three years of Allowable Service (five years if hired after June 30, 2010). (b.) Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.
Amount	1.70% of Average Salary for each year of Allowable Service.

Actuarial Basis

Summary of Plan Provisions (Continued)

Retirement (Continued)	
Early retirement	
Age/Service requirement	First hired before July 1, 1989: (a.) Age 55 and three years of Allowable Service. (b.) Any age with 30 years of Allowable Service. (c.) Rule of 90: Age plus Allowable Service totals 90. First hired after June 30, 1989: (a.) Age 55 and three years (five years if hired after June 30, 2010) of Allowable Service.
Amount	First hired before July 1, 1989: The greater of (a) or (b): (a.) 1.20% of Average Salary for each of the first ten years of Allowable Service and 1.70% of Average Salary for each subsequent year with reduction of 0.25% for each month the member is under age 65 at time of retirement or under age 62 if 30 or more years of Allowable Service. No reduction if age plus years of Allowable Service totals 90. (b.) 1.70% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3.00% per year and actuarial reduction for each month the member is under age 65. First hired after June 30, 1989: 1.70% of Average Salary for each year of Allowable Service assuming augmentation to the age eligible for full Social Security retirement benefit (but not higher than age 66) at 3.00% (2.50% if hired after June 30, 2006) per year and actuarial reduction for each month the member is under the normal retirement age.
Form of payment	Life annuity with return on death of any balance of member contributions over aggregate monthly payments. Actuarially equivalent options are: (a.) 50%, 75%, or 100% Joint and Survivor with bounce back feature without additional reduction. (b.) 15-year Certain and Life.
Benefit increases	Benefit recipients receive future annual 2.0% benefit increases. When the 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 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one month but less than 12 full months as of June 30 will receive a pro rata increase.

Actuarial Basis

Summary of Plan Provisions (Continued)

Retirement (Continued)	
Benefit increases (Continued)	Prior to 2002, members who retired under the laws in effect before July 1, 1973 received an additional lump sum payment each year. In 1989, this lump sum payment was the greater of $25 times each full year of Allowable Service or $400 per full year of service less any Social Security benefits received or annuity from a Minnesota public employee pension plan. In each following year, the lump sum payment was increased by the same percentage increase that was applied to regular annuities paid from the Minnesota Post-Retirement Investment Fund. Effective January 1, 2002, the annual lump sum payment was divided by 12 and paid as a monthly life annuity in the annuity form elected.
Disability	
Disability benefit	
Age/Service requirement	Total and permanent disability before normal retirement age with three years of Allowable Service (five years if hired after June 30, 2010).
Amount	Normal Retirement benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age. Payments stop if disability ceases or death occurs. Payments revert to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.
Retirement after disability	
Age/Service requirement	Normal retirement age with continued disability.
Amount	Any optional annuity continues. Otherwise, a normal retirement benefit equal to the disability benefit paid before normal retirement age, or an actuarially equivalent optional annuity.
Form of payment	Same as for retirement.
Benefit Increases	Same as for retirement.
Death	
Surviving spouse optional benefit	
Age/Service requirement	Member or former member who dies before retirement or disability benefits commence with three years of Allowable Service (five years if hired after June 30, 2010). If a former member dies before age 55 and has less than 30 years of Allowable Service, benefits commence when the former member would have been age 55. If an active member dies, benefits may commence immediately, regardless of age.
Amount	Surviving spouse receives the 100% joint and survivor benefits using the Normal Retirement formula above. If commencement is prior to age 55, the appropriate early retirement formula described above applies except that one-half the monthly reduction factor is used from age 55 to the commencement age and the Rule of 90 does not apply. In lieu of this benefit, the surviving spouse may elect a refund of member contributions with interest or an actuarially equivalent term certain annuity.

Actuarial Basis

Summary of Plan Provisions (Continued)

Death (Continued)	
Amount (Continued)	If a member dies prior to July 1, 1997 and the beneficiary was not eligible to commence a survivor benefit as of July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Benefit increases	Same as for retirement.
Surviving dependent children's benefit	
Age/Service requirement	If no surviving spouse, all dependent children (biological or adopted) below age 20 who are dependent for more than half of their support on deceased member.
Amount	Actuarially equivalent 100% joint and survivor annuity to surviving spouse payable to the later of age 20 or five years. The amount is proportionally divided among surviving children.
Benefit increases	Same as for retirement.
Refund of contributions	
Age/Service requirement	Active member dies and survivor benefits are not payable or a former member dies before annuity begins or former member who is not entitled to an annuity dies.
Amount	Member's contributions with 6.00% interest through June 30, 2011 compounded daily. Beginning July 1, 2011, a member's contributions will increase at 4.00% interest compounded daily.
Age/Service requirement	Retired or disabled annuitant who did not select an optional annuity dies, or the remaining recipient of an option dies.
Amount	The excess of the member's contributions over all benefits paid.
Unclassified Plan Provision	Eligible members credited with employee shares in the Unclassified Plan may elect to terminate participation in the Unclassified Plan and be covered by the State Employees Retirement Fund prior to termination of covered employment assuming that the member has acquired at least 10 years of allowable state service (no more than seven years of service if hired after June 30, 2010).
Termination	
Refund of contributions	
Age/Service requirement	Termination of state service.
Amount	Member's contributions with 6.00% interest through June 30, 2011 compounded daily. Beginning July 1, 2011 a member's contributions will increase at 4.00% interest compounded daily. If a member is vested, a deferred annuity may be elected in lieu of a refund.

Actuarial Basis

Summary of Plan Provisions (Concluded)

Termination (Continued)	
Deferred benefit	
Age/Service requirement	Three years of Allowable Service if hired prior to June 30, 2010, five years of Allowable Service if hired after June 30, 2010.
Amount	Benefit computed under law in effect at termination and increased by the following annual augmentation percentage: (a.) 0.00% before July 1, 1971; (b.) 5.00% from July 1, 1971 to January 1, 1981; (c.) 3.00% thereafter (2.50% if hired after June 30, 2006) until January 1 of the year following attainment of age 55 or January 1, 2012, whichever is earlier; (d.) 5.00% thereafter until the annuity begins (2.50% if hired after June 30, 2006), but before January 1, 2012. Amount is payable as a normal or early retirement; (e.) 2.00% from January 1, 2012 thereafter. 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%.
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; (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.
Optional Form Conversion Factors	Actuarially equivalent factors based on 1983 Group Annuity Mortality blended 50% male and 50% female, and 6% interest.
Changes in Plan Provisions	None.

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	$ 2,304,311	$ 2,883,603	$ 579,292	79.91%	$ 1,370,964	42.25 %
7-1-1992	2,613,472	3,125,299	511,827	83.62	1,409,108	36.32
7-1-1993	2,905,578	3,563,492	657,914	81.54	1,482,005	44.39
7-1-1994	3,158,068	3,876,584	718,516	81.47	1,536,978	46.75
7-1-1995	3,462,098	3,795,926	333,828	91.21	1,514,177	22.05
7-1-1996	3,975,832	4,087,273	111,441	97.27	1,560,369	7.14
7-1-1997	4,664,519	4,519,542	(144,977)	103.21	1,568,747	(9.24)
7-1-1998	5,390,526	5,005,165	(385,361)	107.70	1,557,880	(24.74)
7-1-1999	5,968,692	5,464,207	(504,485)	109.23	1,649,469	(30.58)
7-1-2000	6,744,165	6,105,703	(638,462)	110.46	1,733,054	(36.84)
7-1-2001	7,366,673	6,573,193	(793,480)	112.07	1,834,042	(43.26)
7-1-2002	7,673,028	7,340,397	(332,631)	104.53	1,915,350	(17.37)
7-1-2003	7,757,292	7,830,671	73,379	99.06	2,009,975	3.65
7-1-2004	7,884,984	7,878,363	(6,621)	100.08	1,965,546	(0.34)
7-1-2005	8,081,736	8,455,336	373,600	95.58	1,952,320	19.14
7-1-2006	8,486,756	8,819,161	332,405	96.23	2,016,588	16.48
7-1-2007	8,904,517	9,627,305	722,788	92.49	2,095,310	34.50
7-1-2008	9,013,456	9,994,602	981,146	90.18	2,256,528	43.48
7-1-2009	9,030,401	10,512,760	1,482,359	85.90	2,329,499	63.63
7-1-2010	8,960,391	10,264,071	1,303,680	87.30	2,327,398	56.01
7-1-2011	9,130,011	10,576,481	1,446,470	86.32	2,440,580	59.27
7-1-2012	9,162,301	11,083,227	1,920,926	82.67	2,367,160 [2]	81.15

[1] *Information prior to 2012 provided by prior actuaries. See prior reports for additional detail.*
[2] *Assumed equal to actual member contributions divided by 5.00%*

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	8.17%	$ 1,370,964	$ 56,895	$ 55,113	$ 57,986	105.21%
1992	7.86	1,409,108	58,478	52,278	59,244	113.33
1993	8.27	1,482,005	59,132	63,430	58,982	92.99
1994	8.93	1,536,978	62,555	74,697	60,741	81.32
1995	9.15	1,514,177	61,627	76,920	63,161	82.11
1996	8.05	1,560,369	63,507	62,103	65,557	105.56
1997	7.21	1,568,747	63,848	49,259	66,568	135.14
1998	7.13	1,557,880	62,901	48,176	62,315	129.35
1999	6.48	1,649,469	66,823	40,063	65,979	164.69
2000	6.12	1,733,054	70,378	35,685	69,322	194.26
2001	7.12	1,834,042	74,364	56,220	73,362	130.49
2002	6.79	1,915,350	79,487	50,565	76,614	151.52
2003	8.34	2,009,975	83,850	83,782	80,399	95.96
2004	9.43	1,965,546	82,103	103,248	78,622	76.15
2005	9.33	1,952,323	83,101	99,051	80,312	81.08
2006	10.55	2,016,588	85,379	127,371	82,645	64.88
2007	10.11	2,095,310	89,447	122,389	86,492	70.67
2008	11.76	2,256,528	99,280	166,088	96,746	58.25
2009	12.39	2,329,499	108,866	179,759	107,211	59.64
2010	14.85	2,327,398	115,180	230,439	113,716	49.35
2011	10.99	2,440,580	122,029	146,191	118,563	81.10
2012	11.03	2,367,160 [3]	118,358	142,740	115,159	80.68
2013 [4]	12.32	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] Assumed equal to actual member contributions divided by 5.00%.
[4] Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 11.60%.

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.
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.