December 2011

State Employees Retirement Fund

Actuarial Valuation Report as of July 1, 2011

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Contents

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December 2011

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

Dear Board of Directors:

Submitted in this report are the July 1, 2011 actuarial valuation results for the State Employees Retirement Fund. The purposes of this report are to:

- Present Mercer's actuarial estimates of the Plan's liabilities and expenses as required by Minnesota Statutes, Section 356.215 and the Standards for Actuarial Work established by the State of Minnesota Legislative Commission on Pensions and Retirement (LCPR) for the Minnesota State Retirement System (MSRS) to incorporate, as MSRS deems appropriate, in its financial statements; and

- Provide the actuarially required contribution for the fiscal year beginning July 1, 2011.

To the best of our knowledge and belief, the valuation was performed in accordance with the requirements of Minnesota Statutes, Section 356.215, and the requirements of the Standards for Actuarial Work established by the LCPR, including one modification regarding decrement timing. The LCPR approved this modification prior to the preparation of this report in order to ensure consistency and comparability. For more information about the decrement timing methodology, please refer to the *Actuarial Basis* section.

We are available to answer any questions on the material in this report or to provide explanations or further details as appropriate. Moreover, this report contains a Glossary of certain terms referenced in the report, which you may wish to consult before reviewing the report. The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report. In addition, Mr. Dickson meets the requirements of "approved actuary" under Minnesota Statutes, Section 356.215, Subdivision 1, Paragraph (c). We are not aware of any direct or material indirect financial interest or relationship, including investments or other services that could create a conflict of interest, that would impair the objectivity of our work.

Respectfully submitted,

Gary D. Dickson

Gary D. Dickson, FSA, EA, MAAA

Bonita J. Wurst

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Highlights

Contributions

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

Contributions	Actuarial Valuation as of July 1, 2011	Actuarial Valuation as of July 1, 2010
Statutory Contributions – Chapter 352 (% of Payroll)	10.00%	10.00%
Required Contributions – Chapter 356 (% of Payroll)	11.03%	10.99%
Sufficiency / (Deficiency)	(1.03%)	(0.99%)

The contribution deficiency increased from (0.99%) of payroll to (1.03%) of payroll. The primary reason for the slight change in contribution deficiency was the recognition of deferred investment losses in the actuarial value of assets. The increase in the deficiency due to investment losses was partially offset by changes in actuarial assumptions and an actuarial gain due to lower than expected salary increases. The contribution deficiency indicates that, without further changes or favorable actuarial experience, the funded status will deteriorate in the future. Plan changes affecting members first hired after June 30, 2010 are expected to ultimately reduce the cost of the plan, but have not yet had a material impact on the valuation results.

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 23.7% for the plan year ending June 30, 2011. The AVA earned 5.1% for the plan year ending June 30, 2011 as compared to the assumed rate of 8.5% as required by Minnesota Statute.

The contributions received for the prior year were less than the amount actuarially required. This resulted in an increase of approximately $24.2 million in unfunded liability and an increase of approximately 0.06% of payroll in this year's required contribution.

Participant reconciliation and statistics are detailed in the *Membership Data* section. The *Actuarial Basis* section includes a summary of actuarial assumptions used for the calculations in this report. The *Plan Accounting* sections detail the required accounting information for the Plan under GASB Statement No. 25 (as amended by GASB 50).

Changes in assumptions are reflected in this report and summarized in the *Actuarial Basis* and *Effects of Changes* sections.

Principal 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, 2011	**July 1, 2010**
Contributions *(% of Payroll)*		
Statutory – Chapter 352	10.00%	10.00%
Required – Chapter 356	11.03%	10.99%
Sufficiency / (Deficiency)	(1.03%)	(0.99%)
Funding Ratios *(dollars in thousands)*		
Accrued Liability Funding Ratio		
– Current assets (AVA)	$ 9,130,011	$ 8,960,391
– Current assets (MVA)	9,197,664	7,692,531
– Actuarial accrued liability	10,576,481	10,264,071
– Funding ratio (AVA)	86.32%	87.30%
– Funding ratio (MVA)	86.96%	74.95%
Projected Benefit Funding Ratio		
– Current and expected future assets	$ 11,356,335	$ 11,200,516
– Current and expected future benefit obligations	11,757,390	11,633,641
– Projected benefit funding ratio (AVA)	96.59%	96.28%
Participant Data		
Active members		
– Number	47,955	48,494
– Projected annual earnings *(000s)*	$ 2,459,441	$ 2,483,519
– Average projected annual earnings	$ 51,286	$ 51,213
– Average age	47.1	47.0
– Average service	12.6	12.7
Service retirements	24,900	23,337
Survivors	3,541	3,414
Disability retirements	1,723	1,684
Deferred retirements	15,422	15,388
Terminated other non-vested	6,117	6,537
Total	**99,658**	**98,854**

Effects of Changes

The following changes in actuarial assumptions were recognized as of July 1, 2011:

- Payroll growth assumption was changed from 4.50% to 3.75%.
- Salary scale assumption was changed from an age related table to a service related table that generally reflects lower expected salary increases.

The combined impact of the above changes was to decrease the accrued liability by $121 million and decrease the required contribution by 0.6% of pay, as follows:

	Before Assumption Changes	Reflecting Assumption Changes
Normal Cost Rate, % of pay	7.7%	7.1%
Amortization of Unfunded Accrued Liability, % of pay	3.7%	3.7%
Expenses (% of pay)	0.2%	0.2%
Total Required Contribution, % of pay	11.6%	11.0%
Accrued Liability Funding Ratio	85.3%	86.3%
Projected Benefit Funding Ratio	94.3%	96.6%
Unfunded Accrued Liability (in billions)	$ 1.6	$ 1.4

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

Effects of Changes

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% post-retirement benefit increases in all future years) is currently 87.0%. 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 2011 valuation results as a baseline and assuming future experience follows the valuation assumptions (including future investment returns of 8.5%). In addition, the projection utilized the following methods and assumptions:

- Liabilities and normal cost assume future COLAs at 2.5% level payable for all years
- Cash flow assuming future COLAs at current 2.0% 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, 2010 are expected to ultimately reduce the cost of the plan, but have not yet had a material impact on the valuation results. 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 2.0% indefinitely. We relied on direction from MSRS, including MSRS' interpretation of applicable Minnesota Statutes, on this issue. If we assumed future post-retirement benefit increases of 2.5% instead of 2.0%, the actuarial accrued liability would be $11.0 billion instead of $10.6 billion, resulting in a funded ratio of 83.4% (on a market value basis).

Important Notices

Mercer has prepared this report exclusively for the Board of Directors of the Minnesota State Retirement System (MSRS) and the Legislative Commission on Pensions and Retirement (LCPR); Mercer is not responsible for reliance upon this report by any other party. Subject to this limitation, MSRS may direct that this report be provided to its auditors in connection with audits of the Plan or its sponsoring entities.

The only purposes of this report are to:

- Present Mercer's actuarial estimates of the Plan's liabilities and expenses as required by Minnesota Statutes, Section 356.215 and the Standards for Actuarial Work established by the State of Minnesota LCPR for MSRS to incorporate, as MSRS deems appropriate, in its financial statements; and
- provide the actuarially required contribution rate for the fiscal year beginning July 1, 2011.

This report may not be used for any other purpose; Mercer is not responsible for the consequences of any unauthorized use.

Decisions about benefit changes, granting new benefits, investment policy, funding policy, benefit security and/or benefit-related issues should not be made on the basis of this valuation, but only after careful consideration of alternative economic, financial, demographic and societal factors, including financial scenarios that assume future sustained investment losses.

The State Board of Investment (SBI) is solely responsible for selecting the plan's investment policies, asset allocations and individual investments. Mercer's actuaries have not provided any investment advice to the Board of Directors of the SBI.

A valuation report is only a snapshot of a Plan's estimated financial condition at a particular point in time; it does not predict the Plan's future financial condition or its ability to pay benefits in the future and does not provide any guarantee of future financial soundness of the Plan. Over time, a plan's total cost will depend on a number of factors, including the amount of benefits the plan pays, the number of people paid benefits, the period of time over which benefits are paid, plan expenses and the amount earned on any assets invested to pay benefits. These amounts and other variables are uncertain and unknowable at the valuation date.

Because modeling all aspects of a situation is not possible or practical, we may use summary information, estimates, or simplifications of calculations to facilitate the modeling of future events in an efficient and cost-effective manner. We may also exclude factors or data that are immaterial in our judgment. Use of such simplifying techniques does not, in our judgment, affect the reasonableness of valuation results for the plan.

To prepare the valuation report, actuarial assumptions, as described in the *Actuarial Basis* section of this report, are used in a forward looking financial and demographic model to present a single scenario from a wide range of possibilities; the results based on that single scenario are included in the valuation. The future is uncertain and the plan's actual experience will differ from those assumptions; these differences may be significant or material because these results are very sensitive to the assumptions made and, in some cases, to the interaction between the assumptions.

Different assumptions or scenarios within the range of possibilities may also be reasonable and results based on those assumptions would be different. As a result of the uncertainty inherent in a forward looking projection over a very long period of time, no one projection is uniquely "correct" and many alternative projections of the future could also be regarded as reasonable. Two different actuaries could, quite reasonably, arrive at different results based on the same data and different views of the future. A "sensitivity analysis" shows the degree to which results would be different if you substitute alternative assumptions within the range of possibilities for those utilized in this report. We have not been engaged to perform such a sensitivity analysis and thus the results of

Important Notices

such an analysis are not included in this report. At MSRS' request, Mercer is available to perform such a sensitivity analysis.

Actuarial assumptions may also be changed from one valuation to the next because of changes in mandated requirements, plan experience, changes in expectations about the future and other factors. A change in assumptions is not an indication that prior assumptions were unreasonable when made.

The calculation of actuarial liabilities for valuation purposes is based on a current estimate of future benefit payments. The calculation includes a computation of the "present value" of those estimated future benefit payments using an assumed discount rate; the higher the discount rate assumption, the lower the estimated liability will be. For purposes of estimating the liabilities (future and accrued) in this report, you selected an assumption based on the expected long term rate of return on plan investments. Using a lower discount rate assumption, such as a rate based on long-term bond yields, could substantially increase the estimated present value of future and accrued liabilities.

Because valuations are a snapshot in time and are based on estimates and assumptions that are not precise and will differ from actual experience, contribution calculations are inherently imprecise. There is no uniquely "correct" level of contributions for the coming plan year.

Valuations do not affect the ultimate cost of the Plan, only the timing of contributions into the Plan. Plan funding occurs over time. Contributions not made this year, for whatever reason, including errors, remain the responsibility of the Plan sponsor and can be made in later years. If the contribution levels over a period of years are lower or higher than necessary, it is normal and expected practice for adjustments to be made to future contribution levels to take account of this with a view to funding the plan over time.

Data, computer coding and mathematical errors are possible in the preparation of a valuation involving complex computer programming and thousands of calculations and data inputs. Errors in a valuation discovered after its preparation may be corrected by amendment to the valuation or in a subsequent year's valuation.

Actuarial assumptions, including discount rates, mortality tables and others identified in this report, are prescribed by Minnesota Statutes Section 356.215, the 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* section of this report. MSRS is solely responsible for communicating to Mercer any changes required thereto.

To prepare this report Mercer has used and relied on financial data and participant data supplied by MSRS and summarized in the *Plan Assets* and *Membership Data* sections of this report. MSRS is responsible for ensuring that such participant data provides an accurate description of all persons who are participants under the terms of the plan or otherwise entitled to benefits as of the valuation date that is sufficiently comprehensive and accurate for the purposes of this report. Although Mercer has reviewed the data in accordance with Actuarial Standards of Practice No. 23, Mercer has not verified or audited any of the data or information provided.

Mercer has also used and relied on the summary of plan provisions, including amendments, and interpretations of plan provisions, supplied by MSRS as summarized in the *Actuarial Basis* section of this report and on plan provisions stipulated by statute. The Trustees are solely responsible for the validity, accuracy and comprehensiveness of this information. If any data or plan provisions supplied are not accurate and complete, the valuation results may differ significantly from the results that would be obtained with accurate and complete information; this may require a later revision of this report. Moreover, plan documents may be susceptible to

Important Notices

different interpretations, each of which could be reasonable, and that the different interpretations could lead to different valuation results.

MSRS should notify Mercer promptly after receipt of the valuation report if MSRS disagrees with anything contained in the valuation report or is aware of any information that would affect the results of the valuation report that has not been communicated to Mercer or incorporated therein. The valuation report will be deemed final and acceptable to MSRS unless MSRS promptly provides such notice to Mercer.

The information contained in this document (including any attachments) is not intended by Mercer to be used, and it cannot be used, for the purpose of avoiding penalties under the Internal Revenue Code that may be imposed on the taxpayer.

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 25 (as amended by GASB 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, 2011 *(Dollars in Thousands)*

		Market Value
Assets in Trust		
▪ Cash, equivalents, short term securities	$	244,582
▪ Fixed income		2,029,888
▪ Equity		6,908,239
▪ Other*		636,047
Total assets in trust	**$**	**9,818,756**
Assets Receivable		22,179
Total Assets	**$**	**9,840,935**
Amounts Payable*		(643,271)
Net assets held in trust for pension benefits	**$**	**9,197,664**

* *Includes $629,816 in Securities Lending Collateral.*

Plan Assets

Reconciliation of Plan Assets

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, 2010 to June 30, 2011.

Change in Assets *(dollars in thousands)*		**Market Value**
1. Fund balance at market value at July 1, 2010	**$**	**7,692,531**
2. Contributions		
a. Member		122,029
b. Employer		118,563
c. Other sources		0
d. Total contributions	$	240,592
3. Investment income		
a. Investment income/(loss)	$	1,777,127
b. Investment expenses		(12,820)
c. Total investment income/(loss)	$	1,764,307
4. Other		24,730
5. Total income *(2.d. + 3.c. + 4.)*	**$**	**2,029,629**
6. Benefits Paid		
a. Annuity benefits	$	(505,573)
b. Refunds		(14,206)
c. Total benefits paid	$	(519,779)
7. Expenses		
a. Other	$	(80)
b. Administrative		(4,637)
c. Total expenses	$	(4,717)
8. Total disbursements *(6.c. + 7.c.)*	**$**	**(524,496)**
9. Fund balance at market value at June 30, 2011 *(1. + 5. + 8.)*	**$**	**9,197,664**

Plan Assets

Actuarial Asset Value *(Dollars in Thousands)*

					June 30, 2011
1. Market value of assets available for benefits				$	9,197,664
2. Determination of average balance					
a. Total assets available at July 1, 2010					7,692,531
b. Total assets available at June 30, 2011					9,197,664
c. Net investment income for fiscal year ending June 30, 2011					1,764,307
d. Average balance *[a. + b. – c.] / 2*					7,562,944
3. Expected return *[8.5% x 2.d.]*					642,850
4. Actual return					1,764,307
5. Current year asset gain/(loss) *[4. – 3.]*					1,121,457
6. Unrecognized asset returns*					
		Original Amount	**% Not Recognized**		
a. Year ended June 30, 2011	$	1,121,457	80%	$	897,165
b. Year ended June 30, 2010		465,050	60%		279,030
c. Year ended June 30, 2009		(2,397,363)	40%		(958,945)
d. Year ended June 30, 2008		(747,984)	20%		(149,597)
e. Total unrecognized return				$	67,653
7. Actuarial value at June 30, 2011 *(1. – 6.e.)*				**$**	**9,130,011**

** Prior to the year ending June 30, 2009, unrecognized asset returns do not include MPRIF gains or losses.*

Membership Data

Distribution of Active Members

	Years of Service as of June 30, 2011										
Age	**<3***	**3 – 4***	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35 - 39**	**40+**	**Total**
< 25	1,069	106	17								**1,192**
Avg. Earnings	19,462	30,268	33,175								**20,618**
25 – 29	2,042	1,147	563	20							**3,772**
Avg. Earnings	27,454	37,640	40,350	40,498							**32,545**
30 – 34	1,374	1,128	1,451	460	5						**4,418**
Avg. Earnings	31,838	41,236	44,579	49,134	40,340						**40,233**
35 – 39	948	765	1,253	981	154	4					**4,105**
Avg. Earnings	32,825	45,690	47,688	53,595	54,686	45,488					**45,556**
40 – 44	1,046	813	1,171	1,257	683	243	11				**5,224**
Avg. Earnings	30,629	45,528	48,403	54,729	59,351	57,795	46,099				**47,782**
45 – 49	929	785	1,233	1,283	834	1,036	526	87			**6,713**
Avg. Earnings	33,212	45,029	48,842	54,849	58,568	60,198	56,790	51,931			**51,005**
50 – 54	865	691	1,162	1,314	930	1,215	1,126	889	87		**8,279**
Avg. Earnings	32,763	44,718	49,694	53,600	57,829	60,114	59,529	56,221	50,917		**52,624**
55 – 59	646	533	993	1,145	833	1,141	992	1,227	688	48	**8,246**
Avg. Earnings	32,135	44,804	49,519	54,238	56,583	59,853	59,520	60,761	59,423	55,553	**54,389**
60 – 64	302	239	613	706	520	723	533	544	495	211	**4,886**
Avg. Earnings	28,561	45,649	48,766	53,711	56,018	59,213	58,461	61,235	64,422	59,091	**54,875**
65 – 69	91	60	125	164	97	126	51	69	45	68	**896**
Avg. Earnings	19,742	35,965	44,850	52,123	55,954	59,450	62,157	64,127	64,843	61,832	**51,054**
70+	32	22	37	34	29	16	13	11	13	17	**224**
Avg. Earnings	9,299	17,037	31,150	43,478	53,954	51,515	51,717	50,533	64,136	65,291	**39,571**
Total	**9,344**	**6,289**	**8,618**	**7,364**	**4,085**	**4,504**	**3,252**	**2,827**	**1,328**	**344**	**47,955**
Avg. Earnings	**29,371**	**42,683**	**47,365**	**53,725**	**57,538**	**59,735**	**58,873**	**59,195**	**60,959**	**59,446**	**48,191**

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

Membership Data

Distribution of Service Retirements

	Years Retired as of June 30, 2011							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Total**
<50								**0**
Avg. Benefit								**N/A**
50 – 54	14	15						**29**
Avg. Benefit	18,661	12,901						**15,682**
55 – 59	514	857	29	1				**1,401**
Avg. Benefit	19,207	15,480	13,982	20,316				**16,820**
60 – 64	1,157	2,408	1,458	35	1			**5,059**
Avg. Benefit	19,603	18,829	15,305	14,079	2,145			**17,954**
65 – 69	533	2,232	2,229	1,054	10			**6,058**
Avg. Benefit	19,383	17,114	18,040	15,702	17,203			**17,409**
70 – 74	79	451	1,726	1,742	520	6		**4,524**
Avg. Benefit	17,882	15,559	15,808	17,856	17,778	20,252		**16,736**
75 – 79	11	68	279	1,383	1,228	264		**3,233**
Avg. Benefit	15,239	10,772	12,593	17,169	20,881	24,370		**18,631**
80 – 84	1	24	49	217	1,211	713	135	**2,350**
Avg. Benefit	199	10,266	11,993	14,689	19,270	21,771	25,507	**19,713**
85 – 89	2	5	17	38	184	773	472	**1,491**
Avg. Benefit	20,028	8,469	14,948	12,170	18,670	17,546	22,211	**18,986**
90+	1		2	6	20	51	675	**755**
Avg. Benefit	25,453		2,118	5,260	18,853	20,999	16,979	**17,179**
Total	**2,312**	**6,060**	**5,789**	**4,476**	**3,174**	**1,807**	**1,282**	**24,900**
Avg. Benefit	**19,371**	**17,333**	**16,337**	**16,783**	**19,600**	**20,317**	**19,803**	**17,825**

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

Membership Data

Distribution of Survivors

	Years Since Death as of June 30, 2011							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Tot**
<45	19	47	27	6	1	2		**102**
Avg. Benefit	14,449	5,615	10,727	5,200	3,126	14,902		**8,747**
45 – 49	13	17	15	5	3			**53**
Avg. Benefit	6,647	9,108	7,388	4,354	2,147			**7,175**
50 – 54	21	42	27	8	9	2		**109**
Avg. Benefit	6,968	9,983	11,987	8,506	5,390	6,818		**9,353**
55 – 59	35	116	67	38	14	3	2	**275**
Avg. Benefit	12,713	12,398	12,686	10,400	7,393	7,398	4,186	**11,863**
60 – 64	41	137	138	46	17	3	1	**383**
Avg. Benefit	14,407	13,931	12,970	12,543	11,036	9,862	5,753	**13,287**
65 – 69	40	151	114	67	25	7	5	**409**
Avg. Benefit	10,131	13,234	13,042	14,636	13,286	12,078	11,172	**13,065**
70 – 74	35	116	137	90	56	17	7	**458**
Avg. Benefit	18,190	17,420	15,150	16,599	16,113	18,488	13,036	**16,452**
75 – 79	38	132	118	97	58	32	12	**487**
Avg. Benefit	16,577	17,841	18,014	18,686	17,040	14,091	13,963	**17,515**
80 – 84	29	136	137	109	77	58	28	**574**
Avg. Benefit	19,480	19,215	20,225	21,203	18,330	18,275	16,413	**19,497**
85 – 89	13	94	103	79	59	27	55	**430**
Avg. Benefit	20,154	17,756	17,043	19,617	19,382	14,398	14,694	**17,620**
90+	7	39	55	49	49	20	42	**261**
Avg. Benefit	14,982	17,293	15,524	20,511	16,089	17,375	14,320	**16,764**
Total	**291**	**1,027**	**938**	**594**	**368**	**171**	**152**	**3,541**
Avg. Benefit	**14,249**	**15,108**	**15,386**	**17,249**	**16,074**	**16,030**	**14,460**	**15,587**

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, 2011							
Age	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25+**	**Total**
<45	5	12	10	2				**29**
Avg. Benefit	3,061	4,798	4,249	6,087				**4,398**
45 – 49	6	31	21	10	3			**71**
Avg. Benefit	10,795	8,766	8,496	5,487	7,938			**8,361**
50 – 54	16	64	60	22	12	4		**178**
Avg. Benefit	14,971	12,465	10,258	8,156	10,807	3,644		**11,104**
55 – 59	38	115	115	56	23	3		**350**
Avg. Benefit	15,401	16,134	12,211	10,317	12,381	8,033		**13,519**
60 – 64	27	152	193	80	26	7	2	**487**
Avg. Benefit	9,870	15,658	14,913	14,126	14,319	12,119	7,063	**14,633**
65 – 69	1	27	117	79	35	12	4	**275**
Avg. Benefit	8,446	10,950	12,555	13,232	14,635	11,542	13,598	**12,813**
70 – 74			29	77	47	15	5	**173**
Avg. Benefit			11,652	14,499	15,235	13,079	9,892	**13,965**
75 – 79				20	34	17	4	**75**
Avg. Benefit				15,223	16,065	13,019	11,500	**14,907**
80 – 84					19	18	10	**47**
Avg. Benefit					12,262	14,711	11,660	**13,072**
85 – 89						2	18	**20**
Avg. Benefit						9,291	12,961	**12,594**
90+							18	**18**
Avg. Benefit							15,967	**15,967**
Total	**93**	**401**	**545**	**346**	**199**	**78**	**61**	**1,723**
Avg. Benefit	**12,686**	**14,110**	**12,708**	**12,776**	**14,161**	**12,345**	**13,136**	**13,213**

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	Survivors	Total
Members on 7/1/2010	**48,494**	**15,388**	**6,537**	**23,337**	**1,684**	**3,414**	**98,854**
New members	3,623	0	0	0	0	0	**3,623**
Return to active	523	(183)	(132)	0	0	0	**208**
Terminated non-vested	(1,143)	0	1,143	0	0	0	**0**
Service retirements	(1,651)	(573)	0	2,224	0	0	**0**
Unclassified retirements	0	0	0	40	0	0	**40**
Terminated deferred	(943)	943	0	0	0	0	**0**
Terminated refund/transfer	(799)	(203)	(1,449)	0	0	0	**(2,451)**
Deaths	(81)	(37)	(6)	(746)	(57)	(167)	**(1,094)**
New beneficiary	0	0	0	0	0	294	**294**
Disabled	(80)	0	0	0	80	0	**0**
Unclassified disableds	0	0	0	0	1	0	**1**
Data correction	12	87	24	45	15	0	**183**
Net change	(539)	34	(420)	1,563	39	127	**804**
Members on 6/30/2011	**47,955**	**15,422**	**6,117**	**24,900**	**1,723**	**3,541**	**99,658**

* *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	15,422	6,117	21,539
Average Age	50.4	37.3	46.7
Average Service	8.5	1.0	6.4
Average annual benefits, with augmentation to Normal Retirement Date and 40% CSA load***	$16,219	N/A	$16,219
Average refund value, with 40% CSA load	$33,685	$2,221	$24,749

*** *Includes estimated benefits for 858 participants who were reported without a benefit amount*

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, 2011
A. Actuarial Value of Assets	$ 9,130,011
B. Expected future assets	
1. Present value of expected future statutory supplemental contributions	$ 1,045,415
2. Present value of future normal cost contributions	1,180,909
3. Total expected future assets *(1. + 2.)*	$ 2,226,324
C. Total current and expected future assets	$ 11,356,335

	Non-Vested	Vested	Total
D. Current benefit obligations			
1. Benefit recipients			
a. Service retirements	$ 0	$ 4,357,268	$ 4,357,268
b. Disability	0	200,433	200,433
c. Survivors	0	424,511	424,511
2. Deferred retirements with augmentation	0	1,186,128	1,186,128
3. Former members without vested rights*	13,587	0	13,587
4. Active members	61,191	3,901,391	3,962,582
5. Total Current Benefit Obligations	$ 74,778	$ 10,069,731	$ 10,144,509
E. Expected Future Benefit Obligations			$ 1,612,880
F. Total Current and Expected Future Benefit Obligations			$ 11,757,390
G. Unfunded Current Benefit Obligations *(D.5. − A.)*			$ 1,014,498
H. Unfunded Current and Future Benefit Obligations *(F. − C.)*			$ 401,055

** Former members with less than three years of service (five years if hired after June 30, 2010) in this plan that have not collected a refund of member contributions as of the valuation date.*

Development of Costs

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

Baseline Results	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	$ 4,969,252	$ 863,024	$ 4,106,228
b. Disability benefits	207,623	65,854	141,769
c. Survivor's benefits	113,645	30,625	83,020
d. Deferred retirements	160,222	100,589	59,633
e. Refunds	110,674	120,817	(10,143)
f. Total	$ 5,561,416	$ 1,180,909	$ 4,380,507
2. Deferred retirements with future augmentation	1,186,128	0	1,186,128
3. Former members without vested rights	13,587	0	13,587
4. Benefit recipients	4,982,212	0	4,982,212
5. Contingent actuarial accrued liability – UNCL Plan	14,047	0	14,047
6. Total	$ 11,757,390	$ 1,180,909	$ 10,576,481
B. Determination of Unfunded Actuarial Accrued Liability (UAAL)			
1. Actuarial accrued liability			$ 10,576,481
2. Current assets (AVA)			9,130,011
3. Unfunded actuarial accrued liability			$ 1,446,470
C. Determination of Supplemental Contribution Rate*			
1. Present value of future payrolls through the amortization date of July 1, 2040			$ 39,084,781
2. Supplemental contribution rate *(B.3. / C.1.)*			3.70%**

* *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, 2011 is 15.8954.*

Development of Costs

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

			Year Ending June 30, 2011
A.	Unfunded actuarial accrued liability at beginning of year	$	1,303,680
B.	Changes due to interest requirements and current rate of funding		
	1. Normal cost and actual administrative expenses	$	197,664
	2. Contributions		(240,592)
	3. Interest on A., B.1. and B.2.		108,988
	4. Total *(B.1. + B.2. + B.3.)*	$	66,060
C.	Expected unfunded actuarial accrued liability at end of year *(A. + B.4.)*	$	1,369,740
D.	Increase (decrease) due to actuarial losses (gains) because of experience deviations from expected		
	1. Salary increases	$	(108,331)
	2. Investment return		300,962
	3. Mortality of benefit recipients		9,174
	4. Other items		(3,912)
	5. Total	$	197,893
E.	Unfunded actuarial accrued liability at end of year before plan amendments and changes in actuarial assumptions *(C. + D.5.)*	$	1,567,633
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	$	(121,163)
H.	Change in unfunded actuarial accrued liability due to changes in actuarial asset method	$	0
I.	Unfunded actuarial accrued liability at end of year *(E. + F. + G. + H.)**	$	1,446,470

* *Unfunded actuarial accrued liability on a market value of assets basis is $1,378,817.*

Development of Costs

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

The Annual Required Contribution (ARC) is the sum of normal cost, a supplemental contribution to amortize the UAAL, and an allowance for expenses.

	July 1, 2011		
Baseline Results	**Percent of Payroll**		**Dollar Amount**
A. Statutory contributions – Chapter 352			
1. Employee contributions	5.00%	$	122,972
2. Employer contributions	5.00%		122,972
3. Total	10.00%	$	245,944
B. Required contributions – Chapter 356			
1. Normal cost*			
a. Retirement benefits	5.35%	$	131,588
b. Disability benefits	0.38%		9,249
c. Survivors	0.19%		4,610
d. Deferred retirement benefits	0.60%		14,823
e. Refunds	0.62%		15,218
f. Total	7.14%	$	175,488
2. Supplemental contribution amortization by July 1, 2040 of Unfunded Actuarial Accrued Liability	3.70%		90,999
3. Allowance for expenses	0.19%		4,673
4. Total	11.03%**	$	271,160
C. Contribution Sufficiency/(Deficiency) *(A.3. – B.4.)*	(1.03%)	$	(25,216)

Note: Projected annual payroll for fiscal year beginning on the valuation date: $2,459,441.

* *Normal cost includes ½ year interest adjustment.*
** *Required contribution on a market value of assets basis is 10.86% of pay.*

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, 2011
A.	Projected annual earnings	$ 86,248
B.	Total normal cost	
	1. Dollar amount	$ 5,585
	2. Percent of payroll	6.48%
C.	Normal cost of State Employees Retirement Fund (percent of payroll)	7.14%
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	39.5
Average Service, in years	14.7

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, 2011
A.	Projected annual earnings	$ 251,482
B.	Total normal cost	
	1. Dollar amount	$ 26,810
	2. Percent of payroll	10.66%
C.	Normal cost of State Employees Retirement Fund (percent of payroll)	7.14%
D.	Difference in normal cost (B. – C.)	3.52%

Active Pilots Statistics	Active Members
Number	3
Average Age, in years	65.5
Average Service, in years	19.9

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, 2011
A.	Projected annual earnings	$ 716,470
B.	Total normal cost	
	1. Dollar amount	$ 88,983
	2. Percent of payroll	12.42%
C.	Normal cost of State Employees Retirement Fund (percent of payroll)	7.14%
D.	Difference in normal cost (B. – C.)	5.28%

Active Fire Marshals Statistics	Active Members
Number	12
Average Age, in years	51.4
Average Service, in years	13.1

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, 2011
A.	Number of active eligible members	1,198
B.	Account balances for active members	$ 144,176
C.	Accrued liability for active members	$ 158,223
D.	Number of inactive members and ineligible active members	2,072
E.	Account balances for inactive members	$ 140,094
F.	Net assets held in trust for Unclassified Plan members	$ 284,698
G.	Contingent liability *(C. – B.)*	$ 14,047
H.	Projected annual earnings for active members	$ 88,630
I.	Normal cost	
	1. Dollar amount	$ 10,194
	2. Percent of payroll	11.50%
J.	Normal cost of State Employee Retirement Fund (percent of payroll)	7.14%
K.	Difference in normal cost *(I. – J.)*	4.36%

Unclassified Member Statistics	Active Members
Number	1,198
Average Age, in years	46.4
Average Service, in years	10.6
Average Unclassified Account Balance	120,347

Actuarial Basis

Actuarial methods

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

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

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

A detailed description of the calculation follows:

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

- The present value of future normal costs is the total of the discounted values of all active members' normal cost, assuming these to be paid in each case from the valuation date until retirement (termination, disability or death) date. The discount rate assumptions used in this calculation are 8.5% pre-retirement and 6.5% post-retirement, as described in the *Summary of Actuarial Assumptions*.

- The present value of projected benefits is calculated as the value of all benefit payments expected to be paid to the Plan's current members, including active and retired members, beneficiaries, and terminated members with vested rights.

- The accrued liability is the excess of the present value of projected benefits over the present value of future normal costs.

- The unfunded liability is the excess of the accrued liability over the assets of the fund, and represents that part of the accrued liability which has not been funded by accumulated past contributions.

Current Benefit Obligation is computed under the Projected Unit Credit cost method.

Decrement timing

All decrements are assumed to occur on the anniversary of the valuation date, beginning on the valuation date. Decrement timing is a fundamental part of the computer programming underlying actuarial calculations. Mercer's valuation systems use beginning of year decrements, a generally accepted actuarial practice. The LCPR approved this modification to the Standards for Actuarial Work prior to the preparation of this report in order to ensure consistency and comparability.

Actuarial Basis

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

A level percentage of payroll each year to the statutory amortization date of July 1, 2040 assuming payroll increases of 3.75% per annum (4.50% last year). If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount shall be amortized over 30 years as a level percentage of payroll. Projected payroll is multiplied by 0.957 in the determination of the present value of future payroll to account for timing differences (as required by the Standards for Actuarial Work).

Funding objective

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

Benefits included or excluded

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

IRC Section 415(b): The limitations of Internal Revenue Code Section 415(b) have been incorporated into our calculations. Annual benefits may not exceed the limits in IRC Section 415. This limit is indexed annually. For 2011, the limit is $195,000.

IRC Section 401(a)(17): The limitations of Internal Revenue Code Section 401(a)(17) have been incorporated into our calculations. Compensation for any 12-month period used to determine accrued benefits may not exceed the limits in IRC Section 401(a)(17) for the calendar year in which the 12-month period begins. This limit is indexed annually. For 2011, the limit is $245,000 for members hired after 1995 and is $360,000 for all other members.

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 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.

The *Allowance for Combined Service Annuity* was 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:	6.50% compounded annually post-retirement. 8.50% compounded annually pre-retirement.
Benefit increases after retirement	Payment of 2.0% annual benefit increases after retirement are accounted for by using the 6.5% post-retirement assumption, as required by statute.
Salary increases	Reported salary for prior fiscal year, with new hires annualized, increased to current fiscal year and annually for each future year according to the rates in the rate table.
Mortality	
Healthy Pre-retirement	RP 2000 non-annuitant generational mortality, white collar adjustment, set forward three years for males and set back one year for females.
Healthy Post-retirement	RP 2000 annuitant generational mortality, white collar adjustment, with no setbacks for males or females. The RP 2000 non-annuitant 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 non-annuitant mortality table for annuitants younger than age 50. Similarly, the SOA's white collar adjustment is published for ages 30 to 70 for non-annuitants and ages 50 to 95 for annuitants; we have applied the age 30 adjustment to active members younger than 30 and made no adjustment for annuitants past age 95
Disabled	RP 2000 disabled mortality, with no setback for males and a five year set forward for females.
Retirement	Members retiring from active status are assumed to retire according to the age related rates as shown in rate table. Members who have attained the highest assumed retirement age are assumed to retire in one year.
Withdrawal	Select and ultimate rates based on actual plan experience. Ultimate rates after the third year are shown in the rate table. Select rates are as follows: 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 actual experience; see table of sample rates.
Payroll growth	3.75% per year.
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 members having eligibility for a Combined Service Annuity.

Actuarial Basis

Summary of actuarial assumptions *(continued)*

Administrative expenses	Prior year administrative expenses expressed as percentage of prior year payroll.
Return of contributions	All employees withdrawing after becoming eligible for a deferred benefit are assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit.
Commencement of deferred benefits	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at age 65.
Percentage married *Age of spouse*	85% of active male members are assumed to be married and 70% of active female members are assumed to be married. Actual marital status is provided for members in payment status. 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 form of annuity as follows: Males: 25% elect Straight Life 15% elect 50% Joint & Survivor option 10% elect 75% Joint & Survivor option 50% elect 100% Joint & Survivor option Females: 60% elect Straight Life 15% elect 50% Joint & Survivor option 0% elect 75% Joint & Survivor option 25% elect 100% Joint & Survivor option Members receiving deferred annuities (including current terminated deferred members) are assumed to elect a life annuity.

Actuarial Basis

Summary of actuarial assumptions *(continued)*

Unknown data for certain members	To prepare this report, Mercer has used and relied on participant data supplied by the Fund. Although Mercer has reviewed the data in accordance with Actuarial Standards of Practice No. 23, Mercer 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 38 members reported with zero salary and 8 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 858 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 (819 members), we assumed a value of $30,000. If termination date was not reported (54 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 (1 member), we assumed a value of 7.5 years. <u>Data for members receiving benefits:</u> There were nine 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	Salary scale was changed from an age related table to a service related table that generally reflects lower expected salary increases. The payroll growth assumption was changed from 4.50% to 3.75% per year.

Actuarial Basis

Summary of actuarial assumptions *(continued)*

Summary of Rates

Mortality Rates (%)

	Healthy Pre-Retirement *		Disabled	
Age	**Male**	**Female**	**Male**	**Female**
20	0.0251%	0.0173%	2.2571%	0.7450%
25	0.0296%	0.0183%	2.2571%	0.7450%
30	0.0455%	0.0233%	2.2571%	0.7450%
35	0.0717%	0.0389%	2.2571%	0.7450%
40	0.0995%	0.0508%	2.2571%	0.7450%
45	0.1433%	0.0781%	2.2571%	1.1535%
50	0.1920%	0.1198%	2.8975%	1.6544%
55	0.2969%	0.1958%	3.5442%	2.1839%
60	0.4827%	0.3232%	4.2042%	2.8026%
65	0.7300%	0.5153%	5.0174%	3.7635%
70	2.2619%	0.7746%	6.2583%	5.2230%
75	4.1579%	2.1491%	8.2067%	7.2312%

** Rates shown are RP 2000 non-annuitant mortality, projected to 2011, white collar adjustment, set forward three years for males and set back one year for females. The generational mortality tables assumed for pre-retirement and post-retirement mortality incorporate improvements in mortality in each future year.*

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	Ultimate Withdrawal		Disability	
Age	**Male**	**Female**	**Male**	**Female**
20	6.90%	8.55%	0.010%	0.010%
25	5.90	7.80	0.010	0.010
30	4.90	7.05	0.010	0.010
35	3.90	5.10	0.030	0.030
40	3.20	4.38	0.080	0.080
45	2.70	3.75	0.130	0.130
50	2.20	3.05	0.288	0.288
55	0.00	0.00	0.504	0.432
60	0.00	0.00	0.780	0.624
65	0.00	0.00	0.000	0.000
70	0.00	0.00	0.000	0.000

Actuarial Basis

Summary of actuarial assumptions *(continued)*

Summary of Rates

	Retirement		Salary Scale	
Age	**Rule of 90 Eligible**	**All Others**	**Service Years**	**Salary Increase**
55	20%	5%	1	10.75%
56	15	5	2	8.35
57	15	5	3	7.15
58	15	5	4	6.45
59	20	6	5	5.95
60	20	7	6	5.55
61	22	12	7	5.25
62	40	22	8	4.95
63	30	16	9	4.75
64	30	18	10	4.65
65	40	40	11	4.45
66	30	30	12	4.35
67	25	25	13	4.25
68	25	25	14	4.05
69	25	25	15	3.95
70	30	30	16	3.85
71+	100	100	17+	3.75

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. Moreover, these plan provisions may be susceptible to different interpretations, each of which could be reasonable, and that the different interpretations could lead to different valuation results.

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 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 requirements	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 requirements

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 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 18 full months as of December 31 will receive a full increase. Members receiving benefits for at least six full months but less than 18 full months will receive a pro rata increase.

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 MPRIF. 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.

Actuarial Basis

Summary of plan provisions *(continued)*

Disability	
<u>*Disability Benefit*</u>	
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.
<u>*Retirement after Disability*</u>	
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.
<u>*Form of Payment*</u>	Same as for retirement.
<u>*Benefit Increases*</u>	Same as for retirement.
Death	
<u>*Surviving spouse optional benefit*</u>	
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. 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.

Actuarial Basis

Summary of plan provisions *(continued)*

Death *(continued)*	
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 to surviving spouse 100% joint and survivor annuity 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 *(continued)*

Termination *(continued)*	
<u>*Deferred benefit*</u>	
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; and (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; and (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 25 (as amended by GASB 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)
07/01/1991	$ 2,304,311	$ 2,883,603	$ 579,292	79.91%	$ 1,370,964	42.25%
07/01/1992	2,613,472	3,125,299	511,827	83.62%	1,409,108	36.32%
07/01/1993	2,905,578	3,563,492	657,914	81.54%	1,482,005	44.39%
07/01/1994	3,158,068	3,876,584	718,516	81.47%	1,536,978	46.75%
07/01/1995	3,462,098	3,795,926	333,828	91.21%	1,514,177	22.05%
07/01/1996	3,975,832	4,087,273	111,441	97.27%	1,560,369	7.14%
07/01/1997	4,664,519	4,519,542	(144,977)	103.21%	1,568,747	(9.24%)
07/01/1998	5,390,526	5,005,165	(385,361)	107.70%	1,557,880	(24.74%)
07/01/1999	5,968,692	5,464,207	(504,485)	109.23%	1,649,469	(30.58%)
07/01/2000	6,744,165	6,105,703	(638,462)	110.46%	1,733,054	(36.84%)
07/01/2001	7,366,673	6,573,193	(793,480)	112.07%	1,834,042	(43.26%)
07/01/2002	7,673,028	7,340,397	(332,631)	104.53%	1,915,350	(17.37%)
07/01/2003	7,757,292	7,830,671	73,379	99.06%	2,009,975	3.65%
07/01/2004	7,884,984	7,878,363	(6,621)	100.08%	1,965,546	(0.34%)
07/01/2005	8,081,736	8,455,336	373,600	95.58%	1,952,320	19.14%
07/01/2006	8,486,756	8,819,161	332,405	96.23%	2,016,588	16.48%
07/01/2007	8,904,517	9,627,305	722,788	92.49%	2,095,310	34.50%
07/01/2008	9,013,456	9,994,602	981,146	90.18%	2,256,528[2]	43.48%
07/01/2009	9,030,401	10,512,760	1,482,359	85.90%	2,329,499[3]	63.63%
07/01/2010	8,960,391	10,264,071	1,303,680	87.30%	2,327,398[3]	56.01%
07/01/2011	9,130,011	10,576,481	1,446,470	86.32%	2,440,580[4]	59.27%

[1] *Information prior to 2008 provided by The Segal Company.*
[2] *Equal to actual earning for active members as of the valuation date (annualized for members with less than one year of service).*
[3] *Equal to actual earnings for active members as of the valuation date.*
[4] *Assumed equal to actual member contributions divided by 5.00%.*

Plan Accounting Under GASB 25 (as amended by GASB 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[3]	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[4]	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[5]	10.11%	2,095,310	89,447	122,389	86,492	70.67%
2008[6]	11.76%[7]	2,256,528[8]	99,280	166,088	96,746	58.25%
2009[9]	12.39%	2,329,499[10]	108,866	179,759	107,211	59.64%
2010[11]	14.85%	2,327,398[10]	115,180	230,439	113,716	49.35%
2011[12]	10.99%	2,440,580[13]	122,029	146,191	118,563	81.10%
2012[14]	11.03%	N/A	N/A	N/A	N/A	N/A

[1] *Information prior to 2008 provided by The Segal Company.*
[2] *Includes contributions from other sources (if applicable).*
[3] *Actuarially Required Contribution Rate prior to change in Actuarial Assumptions and Asset Valuation Method is 5.72%.*
[4] *Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 7.22%.*
[5] *Actuarially Required Contribution Rate prior to change in employee contribution rates is approximately 10.06%.*
[6] *Actuarially Required Contribution Rate prior to change in Asset Valuation Method is 10.61%.*
[7] *Actuarially Required Contribution Rate provided by The Segal Company.*
[8] *Equal to actual earnings for active members as of the valuation date (annualized for members with less than one year of service).*
[9] *Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 13.77%.*
[10] *Equal to actual earnings for active members as of the valuation date.*
[11] *Actuarially Required Contribution Rate prior to change in Asset Valuation Method is 15.88%*
[12] *Actuarially Required Contribution Rate prior to change in Amortization Period, Actuarial Assumptions and Plan Provisions is 18.33%.*
[13] *Assumed equal to actual member contributions divided by 5.00%.*
[14] *Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 11.60%.*

Glossary

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

Actuarial Cost Method. Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the Annual Required Contribution (ARC) calculated for plan financial reporting is established by the actuarial cost method and comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Annual Pension Cost. A measure of the periodic cost of an employer's participation in a defined benefit pension plan.

Annual Required Contribution (ARC). The employer's recommended annual contribution to a defined benefit pension plan, calculated in accordance with the parameters of GASB 25 (as amended by GASB 50) or GASB 27. The ARC for a given fiscal reporting period is affected by the specific actuarial cost method selected by the plan sponsor.

ASA. Associate of the Society of Actuaries.

Augmentation. Annual increases to deferred benefits.

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

EA. Enrolled Actuary.

FSA. Fellow of the Society of Actuaries.

MAAA. Member of the American Academy of Actuaries.

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

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

Statement No. 25 of the Governmental Accounting Standards Board (GASB 25). The accounting standard governing the financial reporting for defined benefit pension plans and note disclosures for defined contribution plans.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27). The accounting standard governing a state or local governmental employer's accounting for pensions.

Statement No. 50 of the Governmental Accounting Standards Board (GASB 50). The accounting standard amending both GASB 25 and GASB 27 to require a schedule of funding progress under the Entry Age Normal method for plans that use the aggregate funding method to determine the Annual Required Contribution.

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