Gabriel Roeder Smith & Company
Consultants & Actuaries

MICHIGAN STATE EMPLOYEES' RETIREMENT SYSTEM

ANNUAL ACTUARIAL VALUATION REPORT

SEPTEMBER 30, 2012

GRS
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May 30, 2013

The Retirement Board
Michigan State Employees' Retirement System
General Office Building, Third Floor
P.O. Box 30171
Lansing, Michigan 48909

Re: Michigan State Employees' Retirement System - Actuarial Valuation as of September 30, 2012

Dear Board Members:

The results of the September 30, 2012 annual actuarial valuation of the Michigan State Employees' Retirement System pension benefits are presented in this report. The purpose of the valuation was to measure the System's funding progress to determine the employer contribution for the 2012-2013 fiscal year, and provide actuarial information in connection with the applicable Governmental Accounting Standards Board Statements. The report should not be relied upon for any other purpose. This report may be provided to parties other than the Office of Retirement Services only in its entirety and only with the permission of the Office of Retirement Services.

The valuation was based upon information, furnished by the Office of Retirement Services, concerning Retirement System benefits, financial transactions, and active members, terminated members, retirees and beneficiaries. Data was checked for internal and year-to-year consistency, but was not otherwise audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided. Year 2005 and prior years' valuation results back to 1993 were not prepared by GRS and are reproduced for comparison with the current year's results.

The valuation summarized in this report involves actuarial calculations that require making assumptions about future events. We believe that the assumptions and methods used in this report are reasonable and appropriate. However, other assumptions and methods could also be reasonable and could result in materially different results. Some of the numbers in this report are rounded. The use of the rounded numbers for plan liabilities should not imply a lack of precision. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications or calculations to facilitate the modeling of future events. We may also exclude factors or data that we deem to be immaterial.

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.

To the best of our knowledge, this report is accurate and fairly presents the actuarial position of the Retirement System. The valuation was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the applicable state statutes. The undersigned are independent of the plan sponsor and are members of the American Academy of Actuaries (MAAA) who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the actuarial assumptions used for the valuation produce results which are reasonable.

Sincerely,

Mita D. Drazilov

Mita D. Drazilov, ASA, MAAA

Louise Gates

Louise M. Gates, ASA, MAAA

MDD/LMG:bd

TABLE OF CONTENTS

EXECUTIVE SUMMARY/BOARD SUMMARY

1. Required Employer Contributions to Support Retirement Benefits

The computed employer contribution for the fiscal year beginning October 1, 2012 is shown below. Computed contributions are displayed as annual dollar amounts. The Retirement System is closed to new members and as a result, contributions expressed as percentages of active member payroll are not useful. We understand that the current policy is to contribute on the basis of the dollar amount shown below.

Contribution $
$611,132,218

2. Contribution Comparison

The chart below compares the results of this valuation of the Retirement System with the results of the prior year's valuation:

Valuation Date	9/30/2011*	9/30/2012
Contribution $	$512,615,918	$611,132,218

* *The valuation results shown above have been adjusted to exclude scheduled ERI payments beginning in Fiscal Year 2013.*

3. Reasons for Change

There are three general reasons why contribution rates change from one valuation to the next. The first is a change in the benefits or eligibility conditions of the plan. The second is a change in the valuation assumptions used to predict future occurrences. The third is the difference during the year between the plan's actual experience and what the assumptions predicted.

The provisions of Public Act 264 of 2011 are reflected in this valuation of the System and decreased the computed employer contribution requirement. Experience for the year ended September 30, 2012 was overall unfavorable and is described in more detail in Section B of this report.

SECTION A

INTRODUCTION

CONTRIBUTION REQUIREMENTS

Development of Employer Contributions for the Indicated Valuation Date

	Contributions for	September 30 2011	September 30 2012
(1)	Total Normal Cost of Benefits (as a % of member pay)	6.97%	7.29%
(2)	Member Contribution %	0.00%	4.00%
(3)	Employer Normal Cost % = (1) - (2)	6.97%	3.29%
(4)	Projected Active Member Payroll for Coming Year	$ 1,272,914,694	$ 1,149,204,051
(5)	Employer Normal Cost $ = (3) x (4)	88,722,154	37,808,813
	a. Tier 2 Employer Normal Cost $	6,556,745	6,465,624
	b. Total Employer Normal Cost $ = (5) + (5a)	$ 95,278,899	$ 44,274,437
(6)	Total Accrued Liability	15,596,983,940	15,654,138,444
(7)	Funding Value of Assets	10,212,036,130	9,447,057,129
(8)	Unfunded Actuarial Accrued Liabilities (UAAL) = (6) - (7)	$ 5,384,947,810	$ 6,207,081,315
	a. Present Value of Budgeted Early Retirement Incentive Payments	69,455,522	144,467,485
	b. Present Value of Remaining Early Retirement Incentive Payments	230,045,497	178,993,615
	c. Present Value of Future Reconciliation Payments	454,553,859	532,817,175
	d. Net UAAL to be Amortized = (8) - (8a) - (8b) - (8c)	$ 4,630,892,932	$ 5,350,803,040
(9)	Amortization Period (years)	25	24
(10)	Amortization Factor (level dollar payments)	11.09629083	10.94450712
(11)	Amortization Payment (Credit) = (8d) / (10)	$ 417,337,019	$ 488,903,062
(12)	Amortization Period for Early Retirement Incentive (years)	4	3
(13)	Amortization Payment (ERI)^	$ 77,954,719	$ 77,954,719
(14)	Total Computed Employer Contribution = (5b) + (11) + (13)	**$ 590,570,637**	**$ 611,132,218**

^ *The first amortization payment for the Early Retirement Incentive (ERI) is assumed to be paid Fiscal Year (FY) 2013 and the last payment is assumed to be paid FY 2017.*

Computed Employer Contributions

Based on the assumptions outlined in Section E, the long term employer contribution rate for Tier 1 members of the Michigan State Employees' Retirement System is expected to be 3.29% of payroll (the employer normal cost rate) until the last active member retires. However, there is also an employer normal cost contribution needed to fund the disability and death-in-service benefits for the growing Tier 2 member population. For the current year, a contribution is also needed to fund the unfunded actuarial accrued liability (UAAL). The sum of these contributions is the recommended employer contribution.

CONTRIBUTION REQUIREMENTS

Determining Employer Dollar Contributions

For any period of time, the percent-of-payroll contribution rate needs to be converted to dollars, then promptly contributed to the Retirement System. The employer normal cost rate (expressed as a % of active member payroll) is 3.29%. Applying the employer normal cost contribution rate of 3.29% to the projected payroll for the coming fiscal year, produces annual employer normal cost contributions of $37,808,813. The Tier 2 annual employer normal cost contributions are $6,465,624. The amortization payment for funding the remaining liability resulting from the ERI is $77,954,719. The amortization payment for funding the UAAL, $488,903,062, when added to the two normal cost contributions and the ERI amortization payment produces a total employer contribution of $611,132,218. This contribution requirement is in addition to the reconciliation payments required by subsection 38(5) of the SERS statute.

Disability and Death-In-Service Benefits for Tier 2 Participants

Section 67a of the SERS statute provides that if a Tier 2 participant (defined contribution plan) becomes disabled or dies in employment, there may be a disability pension or survivor pension payable from the defined benefit plan. The pension amount would be based on the regular disability and death-in-service provisions of the defined benefit plan (Tier 1), but would be reduced to reflect the lump sum payment from the participant's defined contribution account. Beginning with the September 30, 2010 annual actuarial valuation, this Tier 2 benefit provision is included in the calculation of liabilities and the employer contribution requirement. In prior years, there was no advance funding for this benefit provision. When a Tier 2 participant became disabled or died in employment and a defined benefit pension was payable, an actuarial loss occurred and future employer contribution requirements were increased. The new funding method, which was proposed in the recently completed 5-year experience study, will result in more level employer contribution requirements.

DISCUSSION OF CHANGES

Revisions in Benefits

The provisions in Public Act 264 of 2011 are reflected in this valuation of the System.

Revisions in Actuarial Assumptions or Methods

There have been no material revisions in actuarial assumptions or methods.

Actuarial Experience

Actuarial Experience was less favorable than that anticipated by the actuarial assumptions. The net actuarial loss was approximately $808 million. The loss was primarily due to recognized investment losses during the last plan year.

Comment on the Investment Markets

Investment markets continue to be volatile. The actuarial value of assets (funding value), used to determine both the funded status and the required employer contribution, is based on a 5-year smoothed value of assets. This reduces the volatility of the valuation results.

As of September 30, 2012 the actuarial value of assets was 102% of market value. This means that meeting the actuarial assumption in the next few years will require average future market returns that exceed the 8% investment return assumption.

If the September 30, 2012 valuation results were based on market value instead of smoothed funding value, the funded percent of the plan would be 59.2% (instead of 60.3%), and the employer contribution requirement would be $627,096,500 (instead of $611,132,218). If the investment markets do not make up for the losses of the two year period ending September 30, 2009, the funded percent and employer contribution requirement can be expected to head in that direction.

MEASURES OF FINANCIAL SOUNDNESS

The purpose of this section of the report is to provide certain measures which indicate the financial soundness of the program. These measures relate to long term solvency and level funding.

The various percentages listed in this section as of a single valuation date are not overly significant standing alone. What is more significant is the trend of the rates over a period of years. It is also important to keep in mind that each time benefits or assumptions are revised, actuarial liabilities are created or diminished. Any newly created liabilities are financed systematically over a period of future years. All actuarially computed values in this analysis are based on the actuarial assumptions utilized in the respective years' actuarial valuations.

Long Term Solvency

Over the longer term, the solvency of an ongoing plan can be measured by comparing the actuarial value of assets to an amount known as the actuarial accrued liability (AAL) under the Entry Age actuarial cost method. This item has often been called the "past service liability". The AAL may be affected immediately by any revisions in benefits or assumptions. The accumulation of assets to equal the AAL can be considered a long range funding goal. Largely because of periodic benefit increases, very few retirement programs have attained this goal.

Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	% of AAL Covered by Assets
9/30/2012	$ 9,447,057,129	$15,654,138,444	60.3%
9/30/2011	10,212,036,130	15,596,983,940	65.5

The chart above illustrates that the funded percent has decreased over the prior year. Page B-7 of this report shows the funded percent for a longer period and in greater detail. In particular, the funded percent for current benefit recipients is now 81.9% (compared to 90.4% last year). In the absence of experience gains in the near term, higher contributions will be needed to increase the system's funded percent.

MEASURES OF FINANCIAL SOUNDNESS

Level Contributions

The actuarial assumptions and cost methods have been chosen with the intent of producing required employer contributions which remain fairly level. In a closed plan, the normal cost dollar amount will eventually decline as active members retire and terminate employment.

Valuation Date	Employer Normal Cost	Amortization Payment	Total Contribution
9/30/2012 [1]	$ 44,274,437	$566,857,781	$611,132,218
9/30/2011 [1]	95,278,899	495,291,738	590,570,637

[1] *Reflects the amortization of the remaining liability for the ERI.*

A major factor affecting the stability of the contribution requirements shown above is how well the actual plan experience compares to the actuarial assumptions. The value of the difference between what actually occurred and what was assumed to occur is called the actuarial gain or loss. Gains tend to lower the subsequent cost of the program while losses tend to cause subsequent costs to rise.

Year Ending	Actuarial Gain/(Loss)
9/30/2012	$(807,609,758)
9/30/2011	(1,004,765,268)

Analysis of all the benchmarks listed above, over a period of years, will provide an indication of whether the program is becoming financially stronger or weaker.

SECTION B

FUNDING RESULTS

PRESENT VALUE OF FUTURE BENEFITS AND ACCRUED LIABILITY

Determination of Unfunded Accrued Liability
as of September 30, 2012

	All Divisions
A. Accrued Liability	
1. For retirees and beneficiaries	$ 11,392,318,760
2. For vested and other terminated members	507,486,696
3. For other inactive members*	72,748,516
4. For present active members	
a. Value of expected future benefit payments	4,200,891,715
b. Value of future normal costs	519,307,243
c. Active member accrued liability: (a) - (b)	3,681,584,472
5. Total accrued liability	15,654,138,444
B. Present Valuation Assets (Funding Value)	9,447,057,129
C. Unfunded Accrued Liability: (A.5) - (B)	6,207,081,315
D. Funding Ratio: (B) / (A.5)	60.3%

* *Liability for 516 employees who transferred to the DC pension plan during 2012 in connection with PA 264 of 2011.*

EXPERIENCE GAIN/(LOSS)

A. Derivation of Actuarial Gain/(Loss):	
1. Unfunded Actuarial Accrued Liability (UAAL) - Previous Valuation	$5,384,947,810
2. Total Normal Cost (employer plus member) for Year Ending 9/30/2012	95,278,899
3. Total Contributions (employer plus member) for Year Ending 9/30/2012	453,217,781
4. Interest at 8% on:	
a. UAAL: .08 x (1)	430,795,825
b. Normal Cost and Contributions: .04 x [(2) - (3)]	(14,317,555)
c. Net Total: (a) + (b)	416,478,270
5. Change in UAAL due to Benefit Changes	(44,015,641)
6. Change in UAAL due to Assumption Changes	0
7. Expected UAAL Current Year: (1) + (2) - (3) + (4c) + (5) + (6)	5,399,471,557
8. Actual UAAL Current Year	6,207,081,315
9. Experience Gain/(Loss): (7) - (8)	(807,609,758)
B. Approximate Portion of Gain/(Loss) due to Investments	(850,815,032)
C. Approximate Portion of Gain/(Loss) due to Liabilities: (A.9) - (B)	43,205,274

The schedule above shows the net aggregate experience for the System. The next page shows this experience in detail.

DETAILED EXPERIENCE GAIN/(LOSS)

Gains/(Losses) during the Year Ended September 30, 2012
Resulting from Differences between Assumed and Actual Experience

TYPE OF ACTIVITY

		Gain/(Loss)
1.	**Retirements** (including disability retirement). If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pays, a loss.	$ (4,431,213)
2.	**Withdrawal from Employment** (including death-in-service). If more liabilities are released by withdrawals and deaths than assumed, there is a gain. If smaller releases, a loss.	(1,633,660)
3.	**Pay Increases.** If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	152,179,426
4.	**Investment Income.** If there is greater investment income than assumed, there is a gain. If less income, a loss.	(850,815,032)
5.	**Death After Retirement.** If retirants and inactive vested members live longer than assumed, there is a loss. If not as long, a gain.	(36,066,911)
6.	**Rehires.** Rehires into the System will generally result in an actuarial loss.	(15,044,046)
7.	**Other.** Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	(51,798,322)
8.	**Composite Gain/(Loss) During Year.**	$ (807,609,758)

EXPERIENCE GAIN/(LOSS)

Five-Year History
(Amounts Shown in Thousands)

Plan Year Ending September 30	Experience Gain/(Loss)	Gain/(Loss) Due to Investments	Actuarial Value of Investments	Investment Gain/(Loss) as % of Assets
2012	$ (807,610)	$ (850,815)	$ 9,447,057	(9.01)%
2011	(1,004,765)	(767,318)	10,212,036	(7.51)
2010	(631,285)	(670,791)	10,782,287	(6.22)
2009	(787,953)	(672,967)	11,106,969	(6.06)
2008	(436,904)	(357,935)	11,402,861	(3.14)

Plan Year Ending September 30	Gain/(Loss) Due to Liabilities	Actuarial Accrued Liability	Liability Gain/(Loss) as % of Accrued Liability
2012	$ 43,205	$ 15,654,138	0.28%
2011	(237,447)	15,596,984	(1.52)
2010	39,506	14,860,375	0.27
2009	(114,986)	14,233,710	(0.81)
2008	(78,969)	13,765,638	(0.57)

HISTORICAL FUNDING LEVELS FOR ACTUARIAL ACCRUED LIABILITIES

(Amounts Shown in Thousands)

Valuation Date September 30	Actuarial Accrued Liability	Actuarial Value of Assets	Funded Ratio	Unfunded/(Overfunded) Accrued Liability	Active Member Reported Payroll	Unfunded/(Overfunded) As % of Active Payroll
1997 [3]	$ 8,100,552	$ 8,834,424	109.1%	(733,872)	$ 2,273,203	(32.3) %
1998	8,373,977	9,108,985	108.8	(735,008)	2,107,996	(34.9)
1998 [2]	8,496,974	9,108,985	107.2	(612,011)	2,107,996	(29.0)
1999	9,028,621	9,648,383	106.9	(619,762)	2,213,851	(28.0)
2000	9,473,873	10,336,872	109.1	(863,000)	2,253,818	(38.3)
2001	9,878,161	10,632,677	107.6	(754,516)	2,230,562	(33.8)
2002	10,752,684	10,616,278	98.7	136,406	2,133,477	6.4
2003	11,761,147	10,440,611	88.8	1,320,536	1,859,555	71.0
2004	12,166,603	10,149,275	83.4	2,017,328	1,889,410	106.8
2004 [2]	12,003,995	10,149,275	84.6	1,854,719	1,889,410	98.2
2005	12,400,361	9,896,760	79.8	2,503,601	1,880,179	133.2
2006	12,798,520	10,110,658	79.0	2,687,861	1,847,653	145.5
2006 [1]	12,798,520	10,889,925	85.1	1,908,595	1,847,653	103.3
2007	13,161,656	11,343,529	86.2	1,818,126	1,825,889	99.6
2008	13,765,638	11,402,861	82.8	2,362,777	1,763,672	134.0
2009	14,233,710	11,106,969	78.0	3,126,741	1,734,325	180.3
2010	14,527,692	10,782,287	74.2	3,745,405	1,621,709	231.0
2010 [2]	14,860,375	10,782,287	72.6	4,078,088	1,621,709	251.5
2011	15,596,984	10,212,036	65.5	5,384,948	1,276,058	422.0
2012	15,654,138	9,447,057	60.3	6,207,081	1,155,591	537.1

[1] *Revised asset valuation method.*
[2] *Revised actuarial assumptions and/or methods.*
[3] *Revised actuarial assumptions and asset valuation method.*

RECOMMENDED AND ACTUAL STATE CONTRIBUTIONS HISTORICAL COMPARISON

Fiscal Year Ending September 30	Valuation Date September 30	Contribution Rates As Percents of Valuation Payroll	Actual Payroll	Employer Contribution for Fiscal Year	
				Computed	Actual
2001	2000	4.57 %	$ 2,204,452,791	$ 100,743,493	$ 112,299,808
2002	2001	5.00	2,165,589,882	108,279,494	0 [4]
2003	2002	8.63	1,859,884,999	160,508,075	61,927,219 [4]
2004	2003	14.12	1,759,588,178	248,453,851	128,326,810 [4]
2005	2004	17.30	1,844,786,278	319,148,026	-
2005	2004 [2]	16.31	1,844,786,278	300,884,642	254,160,400
2006	2005	19.50	1,789,601,622	348,972,316	270,705,017
2007	2006	N/A	1,783,386,714	380,308,846	-
2007	2006 [3]	N/A [6]	1,783,386,714	382,729,234	-
2007	2006 [1]	N/A	1,783,386,714	316,138,419	-
2007	2006 [7]	N/A	1,783,386,714	238,929,773	192,162,537 [8]
2008	2007	N/A	1,775,357,906	308,019,761	355,732,115
2009	2008	N/A	1,698,833,836	351,646,663	343,787,486
2010	2009	N/A	1,603,842,498	418,427,738	369,952,868
2011	2010	N/A	1,321,472,297	467,008,177	-
2011	2010 [2]	N/A	1,321,472,297	447,924,105	424,546,805
2012	2011	N/A	1,155,756,859	512,615,918	419,926,997
2013 [5]	2012 [3]	N/A		611,132,218	

[1] *Revised asset valuation method.*
[2] *Revised actuarial assumptions and/or methods.*
[3] *Revised benefit provisions.*
[4] *Net after transfer was made to the Health Advance Funding Subaccount from employer contributions.*
[5] *For the year ending September 30, 2013 the actual payroll and actual contributions are not yet known.*
[6] *For the 2006 and later valuations a contribution percentage is not computed because the Retirement System is closed.*
[7] *Interest-only funding adopted for one year only.*
[8] *Includes transfer from the Health Advance Funding Subaccount.*

HISTORICAL FUNDING LEVELS FOR PRIORITIZED ACTUARIAL ACCRUED LIABILITY

Valuation Date September 30	Actuarial Accrued Liability ($ in Millions) (1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active and Inactive Members (Employer Financed Portion)	Valuation Assets ($ in Millions)	Portion of Actuarial Accrued Liability Covered by Assets (1)	(2)	(3)	(4) [4]
1997 [3]	$ 3	$ 4,300	$ 3,798	$ 8,834	100%	100%	119.3%	109.0%
1998	27	4,360	3,987	9,109	100	100	118.4	108.8
1998 [2]	27	4,484	3,986	9,109	100	100	115.4	107.2
1999	35	4,538	4,456	9,648	100	100	113.9	106.9
2000	29	4,659	4,786	10,337	100	100	118.0	109.1
2001	34	4,677	5,167	10,633	100	100	114.6	107.6
2002	123	5,512	5,118	10,616	100	100	97.3	98.7
2003	57	7,386	4,318	10,441	100	100	69.4	88.8
2004	78	7,503	4,586	10,149	100	100	56.0	83.4
2004 [2]	78	7,503	4,423	10,149	100	100	58.1	84.5
2005	97	7,607	4,696	9,896	100	100	46.7	79.8
2006	107	7,607	5,085	10,111	100	100	47.1	79
2006 [1]	107	7,607	5,085	10,890	100	100	62.5	85.1
2007	116	7,847	5,199	11,344	100	100	65.0	86.2
2008	119	8,361	5,286	11,403	100	100	55.3	82.8
2009	127	8,681	5,426	11,107	100	100	42.4	78.0
2010	138	9,151	5,239	10,782	100	100	28.5	74.2
2010 [2]	138	9,265	5,457	10,782	100	100	25.3	72.6
2011	93	11,197	4,307	10,212	100	90.4	0.0	65.5
2012	121	11,392	4,141	9,447	100	81.9	0.0	60.3

[1] *Revised asset valuation method.*
[2] *Revised actuarial assumptions and/or methods.*
[3] *Revised actuarial assumptions and asset valuation method.*
[4] *Percent funded on a total valuation asset and total actuarial accrued liability basis.*

FINANCIAL OBJECTIVE ACHIEVEMENT INDICATORS – HISTORICAL COMPARISON (DOLLAR AMOUNTS IN THOUSANDS)

		Termination Indicator		Experience Indicator
Valuation September 30	Valuation Assets	Actuarial Present Value of Vested Benefits	Funded Ratio	Actuarial Gain/(Loss)
1997 [3]	$ 8,834,424	$ 6,528,114	135.3 %	$ 279,245
1998	9,108,985	6,607,380	137.9	(8,425)
1998 [2]	9,108,985	6,696,390	136.0	(8,425)
1999	9,648,383	7,351,103	131.3	6,923
2000	10,336,872	7,535,245	137.2	252,243
2001	10,632,677	7,917,271	134.3	(106,544)
2002	10,616,278	8,861,608	119.8	(553,528)
2003	10,440,611	10,146,046	102.9	(460,905)
2004	10,149,275	10,513,034	96.5	(560,154)
2004 [2]	10,149,275	10,503,835	96.6	(560,154)
2005	9,896,760	10,886,913	90.9	(600,525)
2006	10,110,658	12,122,695	83.4	26,951
2006 [1]	10,889,925	12,122,695	89.8	806,218
2007	11,343,529	12,516,362	90.6	181,987
2008	11,402,861	13,144,428	86.8	(436,904)
2009	11,106,969	13,638,715	81.4	(787,953)
2010	10,782,287	13,976,277	77.1	(631,285)
2010 [2]	10,782,287	14,361,594	75.1	(631,285)
2011	10,212,036	15,193,088	67.2	(1,004,765)
2012	9,447,057	15,318,309	61.7	(807,610)

[1] *Revised asset valuation method.*
[2] *Revised actuarial assumptions and/or method.*
[3] *Revised actuarial assumptions and asset valuation method.*

SECTION C

FUND ASSETS

STATEMENT OF PLAN NET ASSETS (ASSETS AT MARKET OR FAIR VALUE)

	September 30	
	2011	**2012**
Cash	$ 109,883,089	$ 47,324,980
Total Receivables	140,541,828	97,510,704
Short Term Investment Pools	230,165,937	306,459,846
Fixed Income Pools	1,346,896,066	1,265,876,835
Domestic Equity Pools	2,488,929,889	2,556,831,888
Real Estate Pool	953,882,306	1,017,621,627
Alternative Investment Pools	1,972,488,594	2,006,272,117
International Equity Pools	1,119,962,835	1,365,903,759
Absolute Return Pools	541,542,313	821,799,066
Securities Lending Collateral less Obligations	(247,272,046)	(208,142,397)
Total Assets	8,657,020,811	9,277,458,425
Other Liabilities	(2,446,146)	(5,122,495)
Net Assets Held in Trust for Pension Benefits	$8,654,574,665	$9,272,335,930

Note: Asset amounts exclude assets held for health benefits.

RECONCILIATION OF NET PLAN ASSETS

	September 30, 2011	September 30, 2012
Market Value, Beginning of Year	$8,940,141,973	$8,654,574,665
Additions		
Member Contributions	25,830,556	33,290,784
Employer Contributions	424,546,805	419,926,997
Net Investment Income	360,430,046	1,330,021,741
Audit Adjustment	0	0
Total Additions	810,807,407	$1,783,239,522
Deductions		
Benefit Payments	1,089,822,880	1,156,035,451
Contribution Refunds/Transfers	472,818	188,926
Administrative Expenses	6,079,017	9,253,880
Total Deductions	1,096,374,715	1,165,478,257
Market Value, End of Year	$8,654,574,665	$9,272,335,930

DEVELOPMENT OF VALUATION ASSETS

	2012	2013	2014	2015	2016
1. Beginning of Year Assets					
a. Market Value	$ 8,654,574,665				
b. Valuation Assets	10,212,036,130				
2. End of Year Assets at Market Value	9,272,335,930				
3. Net Additions to Market Value					
a. Member Contributions	33,290,784				
b. Employer Contributions	419,926,997				
c. Investment Income	1,330,021,741				
d. Benefit Payments	(1,156,035,451)				
e. Contribution Refunds/Transfers	(188,926)				
f. Administrative Expenses	(9,253,880)				
g. Transfer (to) from Stabilization Subaccount	0				
h. Audit Adjustment	0				
i. Total Additions to Market Value	617,761,265				
4. Summary of Net Additions to Market Value					
a. Net Contributions = 3a + 3b + 3e + 3g	453,028,855				
b. Net Investment Income = 3c + 3f	1,320,767,861				
c. Benefit Payments = 3d	(1,156,035,451)				
d. Audit Adjustment = 3h	0				
e. Total Additions to Market Value	617,761,265				
5. Average Valuation Assets = 1b + .5 x (4a + 4c) + 4d	9,860,532,832				
6. Imputed Income at Valuation Rate = 8.00% x 5	788,842,627				
7. Gain (Loss) from Investments = 4b - 6	531,925,234				
8. Portion of Gains (Losses) Recognized from Prior Years					
a. From this year = .2 * 7	106,385,047				
b. From one year ago	(96,527,032)	$ 106,385,047			
c. From two years ago	2,175,737	(96,527,032)	$ 106,385,047		
d. From three years ago	(315,031,763)	2,175,737	(96,527,032)	$ 106,385,047	
e. From four years ago	(547,817,021)	(315,031,764)	2,175,738	(96,527,033)	$ 106,385,046
f. Total	(850,815,032)	(302,998,012)	12,033,753	9,858,014	106,385,046
9. Change in Valuation Assets = 4a + 4c + 4d + 6 + 8f	(764,979,001)				
10. End of Year Assets					
a. Market Value = 2	9,272,335,930				
b. Valuation Assets = 1b + 9	9,447,057,129				
11. Actuarial Rate of Return	(0.63)%				
12. Market Rate of Return	15.91%				

DEVELOPMENT OF VALUATION ASSETS (CONTINUED)

	2007	2008	2009	2010	2011
1. Beginning of Year Assets					
a. Market Value	$ 10,889,925,227	$ 12,103,056,651	$ 9,781,238,658	$ 8,583,154,616	$ 8,940,141,973
b. Valuation Assets	10,889,925,227	11,343,529,393	11,402,861,293	11,106,969,100	10,782,286,541
2. End of Year Assets at Market Value	12,103,056,651	9,781,238,658	8,583,154,616	8,940,141,973	8,654,574,665
3. Net Additions to Market Value					
a. Member Contributions	19,696,132	5,643,805	6,994,975	26,055,668	25,830,556
b. Employer Contributions	150,858,506	355,732,115	343,787,486	369,952,868	424,546,805
c. Investment Income	1,802,354,022	(1,845,408,441)	(678,455,022)	883,646,242	360,430,046
d. Benefit Payments	(795,842,013)	(832,553,176)	(870,278,863)	(917,328,820)	(1,089,822,880)
e. Contribution Refunds/Transfers	(124,028)	(183,559)	(272,631)	(265,155)	(472,818)
f. Administrative Expenses	(5,115,226)	(5,048,737)	(4,865,232)	(5,073,446)	(6,079,017)
g. Transfer (to) from Stabilization Subaccount	41,304,031	0	0	0	0
h. Audit Adjustment	0	0	5,005,245	0	0
i. Total Additions to Market Value	1,213,131,424	(2,321,817,993)	(1,198,084,042)	356,987,357	(285,567,308)
4. Summary of Net Additions to Market Value					
a. Net Contributions = 3a + 3b + 3e + 3g	211,734,641	361,192,361	350,509,830	395,743,381	449,904,543
b. Net Investment Income = 3c + 3f	1,797,238,796	(1,850,457,178)	(683,320,254)	878,572,796	354,351,029
c. Benefit Payments = 3d	(795,842,013)	(832,553,176)	(870,278,863)	(917,328,820)	(1,089,822,880)
d. Audit Adjustment = 3h	0	0	5,005,245	0	0
e. Total Additions to Market Value	1,213,131,424	(2,321,817,993)	(1,198,084,042)	356,987,357	(285,567,308)
5. Average Valuation Assets = 1b + .5 x (4a + 4c) + 4d	10,597,871,541	11,107,848,986	11,147,982,022	10,846,176,381	10,462,327,373
6. Imputed Income at Valuation Rate = 8.00% x 5	847,829,723	888,627,919	891,838,562	867,694,110	836,986,190
7. Gain (Loss) from Investments = 4b - 6	949,409,073	(2,739,085,097)	(1,575,158,816)	10,878,686	(482,635,161)
8. Portion of Gains (Losses) Recognized from Prior Years					
a. From this year = .2 * 7	189,881,815	(547,817,019)	(315,031,763)	2,175,737	(96,527,032)
b. From one year ago	0	189,881,815	(547,817,019)	(315,031,763)	2,175,737
c. From two years ago	0	0	189,881,815	(547,817,019)	(315,031,763)
d. From three years ago	0	0	0	189,881,815	(547,817,019)
e. From four years ago	0	0	0	0	189,881,813
f. Total	189,881,815	(357,935,204)	(672,966,967)	(670,791,230)	(767,318,264)
9. Change in Valuation Assets = 4a + 4c + 4d + 6 + 8f	453,604,166	59,331,900	(295,892,193)	(324,682,559)	(570,250,411)
10. End of Year Assets					
a. Market Value = 2	12,103,056,651	9,781,238,658	8,583,154,616	8,940,141,973	8,654,574,665
b. Valuation Assets = 1b + 9	11,343,529,393	11,402,861,293	11,106,969,100	10,782,286,541	10,212,036,130
11. Actuarial Rate of Return	9.79 %	4.78 %	1.96 %	1.82 %	0.67 %
12. Market Rate of Return	16.96 %	(15.59)%	(7.17)%	10.56 %	4.11 %

HISTORY OF APPROXIMATE INVESTMENT RETURN RATES

Plan Year Ending September 30	Approximate Rate of Return [1] Market	Approximate Rate of Return [1] Actuarial
2003	15.13 %	3.72 %
2004	12.38	2.70
2005	12.66	2.11
2006	12.58	7.24
2006 [2]	12.58	15.31 [2]
2007	16.96	9.79
2008	(15.59)	4.78
2009	(7.17)	1.96
2010	10.56	1.82
2011	4.11	0.67
2012	15.91	(0.63)
Average Returns:		
Last five years:	0.89 %	1.70 %
Last ten years:	7.21 %	4.13 %

[1] *Approximate return based on ratio of total investment return to average asset value, using an assumed beginning-of-year timing of audit adjustments (if any) and an assumed mid-year timing of other asset flows (see previous two pages).*

[2] *After adjusting to market value as of September 30, 2006.*

HISTORICAL GROWTH OF ASSETS AT MARKET VALUE

Fiscal Year Ended September 30	Revenues by Source			Expenses by Type			
	Member Contributions	Employer Contributions	Net Investment Income [1]	Retirement Benefits	Return of Contributions and Transfers	Administrative Expenses	Market Value of Assets
1993	$ 4,068,696	$ 265,867,853	$ 332,767,025 [3]	$ 260,340,711	$ 99,369	$ 4,198,410	#############
1994	2,257,216	248,562,234	325,436,846 [3]	273,332,603	92,153	5,101,169	4,942,923,075
1995	2,260,511	256,845,912	405,103,276 [3]	289,266,598	80,453	5,547,632	5,312,238,091
1996	2,619,067	285,766,953	1,939,209,206 [3]	321,314,081	30,082	3,489,761	7,214,999,393
1997	12,144,153	288,590,215	1,677,780,071	382,866,379	7,848,649	5,247,943	8,797,550,861
1998	5,158,744	147,599,551	702,058,316	429,879,875	134,533,763	4,297,092	9,083,656,742
1999	6,186,018	121,119,857	1,465,196,232	446,219,254	728,366	4,330,623	10,224,880,606
2000	4,606,662	121,817,366	1,359,608,718	458,803,774	222,163	3,954,992	11,247,932,423
2001	3,341,381	112,299,808	(1,264,290,456)	478,525,328	91,699	4,149,284	9,616,516,845
2002	173,232,835	87,486,128	(1,005,732,436)	503,453,879	87,504,459	6,432,819	8,274,112,215
2003	80,185,475	79,291,845	1,215,018,189	701,664,432	17,484,652 [2]	5,192,039	8,924,266,601
2004	37,682,883	103,873,294	1,073,759,972	731,009,109	(24,206,316) [2]	4,316,433	9,428,463,524
2005	30,395,040	256,433,052	1,168,692,344	746,673,263	187,049	4,297,985	10,132,825,663
2006	9,434,310	270,705,017	1,248,722,460	767,000,706	133,474	4,628,043	10,889,925,227
2007	19,696,132	150,858,506	1,802,354,022	795,842,013	(41,180,003)	5,115,226	12,103,056,651
2008	5,643,805	355,732,115	(1,840,403,196)	832,553,176	183,559	5,048,737	9,786,243,903
2009	6,994,975	343,787,486	(678,455,022)	870,278,863	272,631	4,865,232	8,583,154,616
2010	26,055,668	369,952,868	883,646,242	917,328,820	265,155	5,073,446	8,940,141,973
2011	25,830,556	424,546,805	360,430,046	1,089,822,880	472,818	6,079,017	8,654,574,665
2012	33,290,784	419,926,997	1,330,021,741	1,156,035,451	188,926	9,253,880	9,272,335,930

[1] *Includes miscellaneous income.*

[2] *Includes transfers to/from the Health Advance Funding Subaccount.*

[3] *Includes other changes in net assets/reserves/fund balances and, in 1996, a $990,253,705 cumulative adjustment due to GASB Statement Nos. 25 and 26.*

Note: Data for the year 2007 and prior years was provided by the State of Michigan Department of Technology, Management and Budget - Financial Services.

SECTION D

CENSUS DATA

SUMMARY OF PARTICIPANT DATA BY CATEGORY

	As of September 30	
	2011	**2012**
Retirees and beneficiaries currently receiving benefits:		
Regular benefits	45,338	45,886
Survivor benefits	6,783	6,884
Disability benefits	3,527	3,518
Total	55,648	56,288
Group 1	55,648	56,288
Group 2	0	0
Group 3	0	0
Total	55,648	56,288
Current Employees:		
Vested	19,080	17,401
Non-vested	570	459
Total	19,650	17,860
Group 1	19,650	17,547
Group 2	0	313
Total	19,650	17,860
Inactive participants entitled to benefits and not yet receiving them:	6,094	6,271
Group 1	6,094	5,755
Group 2	0	0
Group 3	0	516
Total	6,094	6,271
Total Participants	81,392	80,419

RETIREES AND BENEFICIARIES – HISTORICAL COMPARISON

Year Ended September 30	Number Added	Number Removed	Rolls End of Year Number	Rolls End of Year Annual Benefit [1]	% Increase in Annual Benefits	Average Annual Benefit
1993			29,175	$ 257,193	5.6 %	$ 8,816
1994	1,888	1,101	29,962	273,387	6.3	9,124
1995	1,566	966	30,562	290,694	6.3	9,512
1996	1,595	1,064	31,093	307,933	5.9	9,904
1997	6,098	1,068	36,123	421,060	36.7	11,656
1998	1,279	1,217	36,185	432,456	2.7	11,951
1999	1,409	1,248	36,346	444,167	2.7	12,221
2000	1,540	1,181	36,705	463,969	4.5	12,640
2001	1,648	1,242	37,111	471,407	1.6	12,703
2002	3,806	1,251	39,666	546,968	16.0	13,789
2003	6,448	623	45,491	708,607	29.6	15,577
2004	1,561	1,433	45,619	729,087	2.9	15,982
2005	1,542	1,360	45,801	747,428	2.5	16,319
2006	1,728	1,549	45,980	769,096	2.9	16,727
2007	2,206	1,300	46,886	802,018	4.3	17,106
2008	2,653	1,461	48,078	842,612	5.1	17,526
2009	2,423	1,472	49,029	880,763	4.5	17,964
2010	2,937	1,504	50,462	934,092	6.1	18,511
2011 [2]	6,656	1,470	55,648	1,113,963	19.3	20,018
2012	2,186	1,546	56,288	1,143,400	2.6	20,313

[1] *Amounts shown in thousands of dollars.*
[2] *ERI.*

Note: Data related to additions and removals before 1994 is not available.

RETIREES AND BENEFICIARIES AS OF SEPTEMBER 30, 2012 BY TYPE OF RETIREMENT AND SELECTED OPTION

Amount of Monthly Benefit	Number of Retirees	Type of Retirement* 1	2	3	4	5	6	7	8
$ 1 - 200	437	254	127	5	34	0	9	1	7
201 - 400	2,179	1,423	405	11	216	1	42	2	79
401 - 600	3,983	2,417	625	28	549	1	138	9	216
601 - 800	4,965	2,836	634	189	726	16	236	27	301
801 - 1,000	4,614	2,800	554	7	678	1	214	91	269
1,001 - 1,200	4,241	2,585	409	18	634	1	204	145	245
1,201 - 1,400	4,213	2,760	364	9	532	0	191	204	153
1,401 - 1,600	4,363	3,088	365	11	344	0	151	289	115
1,601 - 1,800	4,178	3,234	287	5	192	1	95	302	62
1,801 - 2,000	3,921	3,094	221	7	119	0	77	357	46
Over 2,000	19,194	16,053	470	3	105	0	141	2,355	67
Totals	56,288	40,544	4,461	293	4,129	21	1,498	3,782	1,560

Amount of Monthly Benefit	Number of Retirees	Selected Option** Reg.	Opt. A	Opt. B	Opt. C	Opt. E	Opt. E1	Opt. E2	Opt. E3
$ 1 - 200	437	116	134	128	5	37	7	10	0
201 - 400	2,179	852	588	469	43	144	38	43	2
401 - 600	3,983	1,565	1,134	676	87	293	89	128	11
601 - 800	4,965	2,043	1,266	792	105	464	117	174	4
801 - 1,000	4,614	1,786	1,204	748	116	484	93	171	12
1,001 - 1,200	4,241	1,787	1,210	646	126	265	65	129	13
1,201 - 1,400	4,213	1,881	1,241	645	125	186	50	76	9
1,401 - 1,600	4,363	1,921	1,336	704	177	129	54	39	3
1,601 - 1,800	4,178	1,730	1,310	764	200	84	49	32	9
1,801 - 2,000	3,921	1,594	1,191	671	254	86	65	43	17
Over 2,000	19,194	7,230	5,133	3,458	1,399	997	341	468	168
Totals	56,288	22,505	15,747	9,701	2,637	3,169	968	1,313	248

*** Type of Retirement**

1 – Normal retirement for age & service
2 – Survivor payment – normal or early retirement
3 – Duty disability retirement (incl. survivors)
4 – Non-duty disability retirement (incl. survivors)
5 – Survivor payment – duty death in service
6 – Survivor payment – non-duty death in service
7 – Retirees with supplemental benefits for early retirement incentive factors
8 – Retirees with reduced benefits for early retirement reduction factors

**** Selected Option**

Reg. – Straight life allowance
Opt. A – 100% survivor option
Opt. B – 50% survivor option
Opt. C – 75% survivor option
Opt. E – Social Security equated
Opt. E1 – Social Security equated w/100% survivor option
Opt. E2 – Social Security equated w/50% survivor option
Opt. E3 – Social Security equated w/75% survivor option

ACTIVE MEMBERS BY CLASSIFICATION

	September 30, 2011	September 30, 2012
Conservation Officers		
Number	90	64
Average Age	46.1	46.6
Average Service	19.0	19.5
Reported Payroll	$ 6,554,011	$ 4,475,475
Average Annual Payroll	72,822	69,929
Corrections Officers		
Number	5,821	5,088
Average Age	49.5	49.8
Average Service	21.6	22.3
Reported Payroll	$ 379,448,958	$ 331,141,328
Average Annual Payroll	65,186	65,083
All Other		
Number	13,739	12,708
Average Age	53.0	53.6
Average Service	24.0	24.9
Reported Payroll	$890,054,598	$819,974,153
Average Annual Payroll	64,783	64,524
Total		
Number	19,650	17,860
Average Age	51.9	52.5
Average Service	23.3	24.2
Reported Payroll	$1,276,057,567	$1,155,590,956
Average Annual Payroll	64,939	64,703

ACTIVE MEMBERS

Members in Active Service as of September 30, 2012 by Age and Years of Service

Age	Years of Service 0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & up	Total Count	Total Pay[1]	Average Pay
Less than 30	1							1	$ 26,187	$26,187
30 - 34	3	5	4	3				15	826,997	55,133
35 - 39	31	38	92	198	31			390	24,282,168	62,262
40 - 44	48	46	139	1,114	480	37		1,864	119,357,826	64,033
45 - 49	44	34	119	989	1,506	864	33	3,589	232,289,214	64,723
50 - 54	37	36	118	804	1,535	1,624	683	4,837	311,074,368	64,311
55 - 59	37	34	89	592	1,045	1,051	1,672	4,520	290,697,329	64,314
60 - 64	17	23	52	278	419	403	895	2,087	137,892,720	66,072
65 - 69	6	11	15	51	74	64	206	427	30,660,048	71,803
70 & up	5	3	4	8	21	9	80	130	8,484,099	65,262
Total	229	230	632	4,037	5,111	4,052	3,569	17,860	$1,155,590,956	$64,703

[1] *Total payroll for Group 1 active members is $1,135,985,750. Total payroll for Group 2 actives members is $19,605,206.*

ACTIVE AND INACTIVE MEMBERS REPORTED FOR VALUATION
HISTORICAL COMPARISON

Valuation Date September 30	Number of Inactive Vested Members	Active Members					
				Average			
		Number	Reported Payroll [1]	Annual Pay	% Increase	Age	Years of Service
1993	4,359	63,906	$ 2,185,036	$ 34,191	0.3 %	42.6	12.1
1994	4,540	64,923	2,271,158	34,982	2.3	43.1	12.6
1995	5,276	65,133	2,348,534	36,058	3.1	43.2	12.7
1996	6,667	63,807	2,515,420	39,422	9.3	43.8	13.0
1997	7,656	55,434	2,273,203	41,007	4.0	43.7	13.1
1998	8,021	49,717	2,107,996	42,400	3.4	44.8	14.8
1999	7,376	49,612	2,213,851	44,623	5.2	45.9	15.8
2000	7,556	47,778	2,253,818	47,173	5.7	46.7	16.7
2001	8,809	45,852	2,230,562	48,647	3.1	47.4	17.7
2002	7,917	43,064	2,133,477	49,542	1.8	48.0	18.6
2003	7,528	36,536	1,859,555	50,897	2.7	47.7	17.9
2004	7,397	34,749	1,889,410	54,373	6.8	48.4	19.0
2005	7,200	33,770	1,880,179	55,676	2.4	49.3	20.0
2006	7,217	32,575	1,847,653	56,720	1.9	50.1	21.0
2007	6,663	30,864	1,825,889	59,159	4.3	50.8	21.8
2008	6,912	28,568	1,763,672	61,736	4.4	51.4	22.7
2009	6,613	27,455	1,734,325	63,170	2.3	52.1	23.5
2010	6,243	25,478	1,621,709	63,651	0.8	52.6	24.1
2011	6,094	19,650	1,276,058	64,939	2.0	51.9	23.3
2012	6,271	17,860	1,155,591	64,703	(0.4)	52.5	24.2

[1] *Amounts shown in thousands of dollars.*

SECTION E

METHODS AND ASSUMPTIONS

VALUATION METHODS

Actuarial Cost Method - Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an Individual Entry-Age Actuarial Cost Method having the following characteristics:

(i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement;

(ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Actuarial gains (losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

Financing of Unfunded Actuarial Accrued Liabilities - Unfunded actuarial accrued liabilities (full funding credit if assets exceed liabilities) were amortized by level (principal and interest combined) dollar contributions over a reasonable period of future years.

Present value of future reconciliation payments – Subsection 38(5) of the SERS statute provides for a process to reconcile actual employer contributions to the actuarially computed contribution requirements. In order to avoid duplication of the employer contributions, the present value of future reconciliation payments is subtracted from the unfunded actuarial accrued liability. The net unfunded actuarial accrued liability is then amortized, resulting in the required amortization payment. Please refer to page A-1.

Actuarial Value of System Assets - The actuarial value of assets recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased in over a closed five-year period. During periods when investment performance exceeds the assumed rate, actuarial value of assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, actuarial value of assets will tend to be greater than market value. The actuarial value of assets was reset to market value as of September 30, 2006, with five-year smoothing restarted at that time.

VALUATION ASSUMPTIONS

The rate of investment return was 8.0% a year, compounded annually net of investment and administrative expenses.

The assumed real return is the rate of return in excess of wage inflation. Considering other assumptions used in the valuation, the 8.0% nominal rate translates to a net real return of 4.5% a year.

The rates of pay increase used for individual members are in accordance with the table below. This assumption is used to project a member's current pay to the pay upon which System benefits will be based. These rates were first used for the September 30, 2010 valuation of the System.

	Salary Increase Assumptions For an Individual Member		
Sample Ages	**Merit & Seniority**	**Base (Economy)**	**Increase Next Year**
20	9.0%	3.5%	12.5%
25	6.0	3.5	9.5
30	2.6	3.5	6.1
35	1.2	3.5	4.7
40	0.8	3.5	4.3
45	0.5	3.5	4.0
50	0.4	3.5	3.9
55	0.4	3.5	3.9
60	0.0	3.5	3.5
65	0.0	3.5	3.5
Ref	326		

The charts shown in this section of the report may include a reference number (for example, 326 is used above). These reference numbers are used by GRS to track and identify assumption tables.

VALUATION ASSUMPTIONS

The healthy life post-retirement mortality table used in this valuation of the System was the RP-2000 Combined Healthy Mortality Table, adjusted for mortality improvements to 2020 using projection scale AA. For men, 100% of the table rates for ages 0-79 and 104-110, and 81% of the table rates for ages 80-103 were used, set forward 2 years. For women, 107% of the table rates were used. The final rates used include no margin for future mortality improvement. This assumption was first used for the September 30, 2010 valuation of the System. Sample rates of mortality and years of life expectancy are shown below. This assumption is used to measure the probabilities of each benefit payment being made after retirement.

Sample Attained Ages	Probability of Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	0.18%	0.13%	31.51	34.01
55	0.33	0.25	26.84	29.28
60	0.65	0.49	22.37	24.73
65	1.24	0.94	18.25	20.46
70	2.02	1.62	14.48	16.55
75	3.61	2.56	11.11	13.00
80	5.55	4.27	8.42	9.82
Ref:	781 x 1.00 sf2	455 x 1.07		

For active members the probabilities of dying before retirement were based upon the RP-2000 Combined Healthy Mortality Table, adjusted for mortality improvements to 2020 using projection scale AA. For men, 150% of the male table rates were used. For women, 115% of the female table rates were used. This assumption was first used for the September 30, 2010 valuation of the System. Sample rates of mortality and years of life expectancy are shown on the following page.

VALUATION ASSUMPTIONS

Sample Attained Ages	Probability of Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women
20	0.04%	0.02%	58.21	62.72
25	0.05	0.02	53.31	57.77
30	0.06	0.02	48.45	52.83
35	0.10	0.04	43.62	47.91
40	0.14	0.06	38.87	43.02
45	0.17	0.09	34.14	38.17
50	0.22	0.14	29.45	33.36
55	0.37	0.27	24.81	28.64
60	0.73	0.53	20.38	24.11
65	1.44	1.01	16.28	19.88
Ref:	454 x 1.50	455 x 1.15		

For Conservation Officers, 80% of active member deaths are assumed to be non-duty deaths and 20% of the deaths are assumed to be duty related. For Correction Officers, 70% of active member deaths are assumed to be non-duty deaths and 30% of the deaths are assumed to be duty related. For all others, 90% of active member deaths are assumed to be non-duty deaths and 10% of the deaths are assumed to be duty related.

The disabled life mortality table used in this valuation was developed by the prior actuary pursuant to an experience study. Beginning with the September 30, 2010 valuation, 101% of the male table rates and 105% of the female table rates were used. For disabled retirees, the sample rates of mortality and years of life expectancy are shown below.

Sample Attained Ages	Probability of Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	2.53%	1.81%	20.83	24.70
55	2.71	2.14	18.37	21.95
60	3.19	2.56	15.85	19.36
65	3.98	2.98	13.43	16.86
70	5.07	3.40	11.17	14.35
75	6.65	3.95	9.08	11.73
80	8.83	5.59	7.21	9.05
Ref:	476 x 1.01	477 x 1.05		

VALUATION ASSUMPTIONS

The rates of regular retirement used to measure the probability of eligible members retiring with an unreduced benefit during the next year are shown below. This assumption was first used for the September 30, 2010 valuation of the System.

Retirement Ages	Percent of Eligible Members Retiring: Conservation Officers	Corrections Officers	Others
45	28%		
46	28		
47	28		
48	28		
49	28		
50	28		
51	28	27%	
52	28	21	
53	28	14	
54	28	16	
55	28	16	15%
56	28	22	14
57	28	15	10
58	28	12	10
59	28	12	11
60	28	18	14
61	28	18	13
62	50	32	22
63	40	24	19
64	40	22	16
65	60	16	25
66	50	22	22
67	50	30	21
68	50	40	20
69	50	50	22
70	100	100	50
71	100	100	60
72	100	100	70
73	100	100	80
74	100	100	90
75	100	100	100
Ref	1603	1604	1605

Note: For Conservation Officers, 40% are assumed to retire in their first year of eligibility for unreduced benefits (completion of 25 years of service).

VALUATION ASSUMPTIONS

The rates of early retirement used to measure the probability of eligible members retiring with reduced retirement benefits during the next year are shown below. These rates were first used for the September 30, 2010 valuation of the System.

Retirement Ages	Percent of Eligible Members Retiring
55	5.5%
56	8.0
57	7.0
58	7.0
59	7.0
Ref	1606

The rates of separation from active membership used in the valuation are shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment, and was first used for the September 30, 2004 actuarial valuation of the System.

Sample Ages	Years of Service	Percent Separating Within Next Year
All	0	12.00%
	1	8.50
	2	6.50
	3	5.00
	4	4.00
20	5 & Over	4.00
25		3.50
30		3.00
35		2.50
40		2.25
45		2.00
50		1.75
55		1.75
60		1.75
Ref	405	794

VALUATION ASSUMPTIONS

Rates of disability among active members used in the valuation are shown below, and were first used for the September 30, 2010 valuation of the System.

Sample Ages	Percent Becoming Disabled Within Next Year	
	Non-Duty Disability	Duty Disability
25	0.03%	0.00%
30	0.05	0.01
35	0.10	0.01
40	0.20	0.02
45	0.34	0.04
50	0.47	0.06
55	0.92	0.08
60	2.10	0.11
65	2.30	0.16
Ref.	571	14 x .20

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Benefit Service	Exact fractional service is used to determine the amount of benefit payable.
Decrement Operation	Disability and withdrawal decrements do not operate during retirement eligibility.
Decrement Timing	Decrements of all types are assumed to occur mid-year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Forfeitures	For vested separations from service, it is assumed that 0% of members separating will withdraw their contributions and forfeit an employer financed benefit. It was further assumed that the liability at termination is the greater of the vested deferred benefit (if any) or the member's accumulated contributions.
Incidence of Contributions	Contributions are assumed to be received continuously throughout the year.
Liability Adjustments	Retirement liabilities were increased by 1% to account for unused vacation time. Inactive vested member liabilities were increased by 2% to reflect the value of the death benefit provision.
Marriage Assumption	75% of males and 60% of females were assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Normal Form of Benefit	A straight life benefit is the normal form of benefit.
Pay Increase Timing	Pay increases were assumed to be at the beginning of the fiscal year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Service Credit Accruals	Members were assumed to accrue one year of service credit per year.

SECTION F

PLAN PROVISIONS

PLAN PROVISIONS AS OF SEPTEMBER 30, 2012

On December 15, 2011, the Governor signed Public Act 264 of 2011 into law. The legislation granted members a one time opportunity to choose their future retirement plan which resulted in three distinct benefit groups within the State Employees Retirement System defined benefit (DB) pension plan.

Group 1: DB Classified: Members who elected to remain in the DB plan for future years of service and contribute 4% of their annual compensation to the pension fund until they terminate state employment. The 4% member contributions began on April 1, 2012.

Group 2: DB 30: Members who elected to remain in the DB plan for future years of service and contribute 4% of pay until they complete 30 years of service. When they complete 30 years of service, they will switch to the State's defined contribution (DC) pension plan. The 4% member contributions began on April 1, 2012, and will continue until they switch to the DC plan or terminate state employment, whichever comes first.

Group 3: DB/DC Blend: Members who chose not to pay the 4% contributions and therefore became active participants in the DC pension plan for future years of service beginning April 1, 2012.

Group 2 and Group 3 members may be eligible to receive a pension benefit from the SERS DB plan based on service, compensation and the retirement benefit formula in effect as of their date of transfer into the DC plan. This benefit is payable upon meeting the retirement or other eligibility conditions of the DB plan.

Regular Retirement (no reduction factor for age):

Eligibility - Age 55 with 30 years of service; or age 60 with 10 or more years service. Corrections Officers may retire at age 51 with 25 or more years service; or age 56 with 10 or more years service. Conservation Officers may retire after 25 years of service regardless of age.

Final Average Compensation - Regular retirement benefit is based on final average compensation (FAC), which is usually the average of highest 3 consecutive years (2 years for Conservation Officers).

PLAN PROVISIONS AS OF SEPTEMBER 30, 2012

Annual Amount - Total service times 1.5% of FAC. For members with 20 or more years of service, a $3,000 minimum annual benefit is payable. Corrections Officers receive an additional temporary supplement to age 62 equal to the product of supplemental service times 0.5% of FAC. Conservation Officers retiring after 25 years receive a benefit equal to 60% of FAC. For eligible Group 2 and Group 3 members, the benefit amount (regular retirement and any supplemental benefit) is determined as of the date of transfer to the DC pension plan, based on FAC and service at the time of transfer.

Early Retirement (age reduction factor used):

Eligibility - Age 55 with 15 or more years of service.

Annual Amount - Computed as described above under "regular retirement" but reduced by ½ % for each month under age 60.

Deferred Retirement (vested benefit):

Eligibility - 10 years service (5 years for unclassified persons in the executive or legislative branch). Benefit commences at age 60.

Annual Amount - Computed as described above under "regular retirement" based on service and FAC at termination of State employment for Group 1.

Duty Disability Retirement:

Eligibility - No age or service requirement.

Annual Amount - Disability age 60+: Computed as regular retirement benefit with minimum benefit based on 10 years service. Disability prior to age 60: To age 60, benefit is computed as a regular retirement benefit using service at the time of disability retirement with a minimum benefit of $6,000 per year. Additional limitation such that benefit plus workers' compensation does not exceed final compensation. At age 60, benefit is recomputed as a regular retirement benefit with service granted for period in receipt of disability benefit before age 60. If the member dies before age 60, benefits are payable to a surviving spouse computed as a regular retirement benefit but based on service at time of disability retirement plus elapsed time between date of retirement and age 60. Eligible Group 2 and Group 3 members may elect this benefit in lieu of the Frozen DB plan benefit (established on their transfer date) and their DC plan account balance.

PLAN PROVISIONS AS OF SEPTEMBER 30, 2012

Non-Duty Disability Retirement:

Eligibility - 10 years of service.

Annual Amount - Computed as regular retirement benefit based on service and FAC at time of disability. Minimum annual benefit is $600. Eligible Group 2 and Group 3 members may elect this benefit in lieu of the Frozen DB plan benefit (established on their transfer date) and their DC plan account balance.

Duty Death Before Retirement:

Eligibility - No age or service requirement.

Annual Amount - Surviving spouse receives annual benefit computed as a regular retirement benefit as if the deceased member retired the day before date of death and elected Option A. Benefit is based on member's service at time of death, or 10 years of service, whichever is greater. A minimum benefit of $6,000 per year is payable. Children under age 21 each receive an equal share of 1/2 of the benefit payable (surviving spouse receives the other 1/2), to a maximum of 1/2 for all children. A given child's share of benefits terminates upon the child's marriage, death or attainment of age 21. In the event that there is no surviving spouse, the benefit is allocated equally among all children subject to the limitations described above. In the event that there is no surviving spouse or eligible children, benefits may be paid to an eligible, dependent parent. Benefits end upon the marriage or death of the surviving parent. Additional limitation such that benefit plus workers' compensation does not exceed final compensation. Eligible Group 2 and Group 3 members may elect this benefit in lieu of the Frozen DB plan benefit (established on their transfer date) and their DC plan account balance.

Non-Duty Death Before Retirement:

Eligibility - 10 years of service. In the case of a deceased vested former member, the survivor benefit commences when the deceased former member would have attained age 60.

Annual Amount - Computed as a regular retirement benefit but reduced in accordance with a 100% Joint and Survivor form of payment. Eligible Group 2 and Group 3 members may elect this benefit in lieu of the Frozen DB plan benefit (established on their transfer date) and DC plan account balance.

PLAN PROVISIONS AS OF SEPTEMBER 30, 2012

Post Retirement Cost-of-Living Adjustments (COLA):

One-time upward adjustments have been made in 1972, 1974, 1976, 1977, and 1987. Beginning in 1983 some benefit recipients share in a distribution of a portion of investment income earned in excess of 8% annually (supplemental payment). Beginning in 1988 all benefit recipients are eligible for automatic 3% annual (non-compounded) benefit increases, with a maximum $300 annual increase. Eligibility for the above benefits:

Retired before October 1, 1987 - Greater of supplemental payment or the combination of the 1987 one-time adjustment and the automatic increases.

Retired on or after October 1, 1987 - Automatic increases only.

Eligible members of Groups 1, 2 and 3 receive automatic post retirement COLA.

Member Contributions:

Group 1 Members: 4% of annual pay effective April 1, 2012.

Group 2 Members: 4% of annual pay effective April 1, 2012 until the date of transfer to DC pension plan.

Group 3 Members: N/A

Defined Contribution Legislation (Public Act 487 of 1996):

New state employees hired on or after March 31, 1997 become participants in Tier 2 (*i.e.*, a defined contribution plan) rather than Tier 1 (*i.e.*, the above described defined benefit plan).

Active members on March 30, 1997 could irrevocably elect to terminate membership in Tier 1 and become participants in Tier 2. Elections had to be in writing and submitted between January 2, 1998 and April 30, 1998. Such members became Tier 2 participants on June 1, 1998, and had the actuarial present value of their Tier 1 accrued benefit transferred into Tier 2 by November 30, 1998.

A defined benefit disability pension or death-in-service pension may be payable if a Tier 2 participant becomes disabled or dies in service.

SECTION G

GLOSSARY

GLOSSARY

Actuarial Accrued Liability The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Accrued Service The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Amortization Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

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 valuation dates, in accordance with the actuarial cost method being used.

GLOSSARY

Normal Cost — The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Reserve Account — An account used to indicate that funds have been set aside for a specific purpose and is not generally available for other uses.

Unfunded Actuarial Accrued Liability — The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets — The value of current plan assets recognized for valuation purposes. Generally based on market value plus a portion of unrealized appreciation or depreciation.