

MICHIGAN STATE EMPLOYEES RETIREMENT SYSTEM
ANNUAL ACTUARIAL VALUATION REPORT
SEPTEMBER 30, 2008

April 30, 2009

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, 2008

Dear Board Members:

The results of the 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 and to determine the employer contribution for the next fiscal year.

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. 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. 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 results summarized in this report involve 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 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 of calculations to facilitate the modeling of future events. We may also exclude factors or data that we deem to be immaterial.

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

Sincerely,



Alan Sonnanstine, ASA, MAAA



Louise Gates, ASA, MAAA

AES/LG:mrh

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EXECUTIVE SUMMARY/BOARD SUMMARY

1. Required Employer Contributions to Support Retirement Benefits

The computed employer contribution for the fiscal year beginning October 1, 2008 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 \$
\$351,646,663

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	9/30/2007	9/30/2008
Contribution \$	\$308,019,761	\$351,646,663

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.

There were no benefit changes reported to the actuary for the year ended September 30, 2008. There were no material assumption changes. Experience for the year ended September 30, 2008 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	
	2007	2008
(1) Total Normal Cost of Benefits (as a % of member pay)	8.25%	8.27%
(2) Member Contribution %	<u>0.00%</u>	<u>0.00%</u>
(3) Employer Normal Cost % = (1) - (2)	8.25%	8.27%
(4) Projected Active Member Payroll for Coming Year	\$ 1,833,593,470	\$ 1,764,974,477
(5) Employer Normal Cost \$ = (3) x (4)	151,271,461	145,963,389
(6) Total Accrued Liability	13,161,655,709	13,765,638,070
(7) Funding Value of Assets	<u>11,343,529,393</u>	<u>11,402,861,293</u>
(8) Unfunded Actuarial Accrued Liabilities (UAAL) = (6) - (7)	\$ 1,818,126,316	\$ 2,362,776,777
(9) Amortization Period	29	28
(10) Amortization Factor (level dollar payments)	11.59901773	11.48745217
(11) Amortization Payment/(Credit) = (8) / (10)	\$ 156,748,300	\$ 205,683,274
(12) Total Computed Employer Contribution = (5) + (11)	\$ 308,019,761	\$ 351,646,663

Computed Employer Contributions

Based on the assumptions outlined in Section E, the long term contribution rate for the Michigan State Employees Retirement System is expected to be 8.27% of payroll (the employer normal cost rate) until the last active member retires. However, for the current year there is also a contribution needed to fund the unfunded actuarial accrued liability (UAAL). The sum of these two contributions is the recommended employer contribution.

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 8.27%. Applying the employer normal cost contribution rate of 8.27% to the projected payroll for the coming fiscal year, produces annual employer normal cost contributions of \$145,963,389. The amortization payment for funding the UAAL, \$205,683,274, when added to the normal cost contributions produces a total employer contribution of \$351,646,663.

DISCUSSION OF CHANGES

Revisions in Benefits

There have been no revisions in plan benefits.

Revisions in Actuarial Assumptions or Methods

There have been no material revisions in actuarial assumptions.

Actuarial Experience

Actuarial Experience was less favorable than that anticipated by the actuarial assumptions. The total actuarial loss was approximately \$437 million. The loss was primarily due to lower than expected recognized investment return and fewer deaths than expected among retirees and inactive vested members.

Comment on the Investment Markets

Investment markets have been very volatile, both preceding the September 30, 2008 valuation date and since that date. 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, 2008 the actuarial value of assets was 117% 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, 2008 valuation results were based on market value instead of smoothed funding value, the funded percent of the plan would be 71.1% (instead of 82.8%), and the employer contribution requirement would be \$492,811,354 (instead of \$351,646,663). If the investment markets do not turn around, 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 is 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 Liability	% of AAL Covered by Assets
9/30/2008	\$11,402,861,293	\$13,765,638,070	82.8%
9/30/2007	11,343,529,393	13,161,655,709	86.2

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	Normal Cost	Amortization Payment	Total Contribution
9/30/2008	\$145,963,389	\$205,683,274	\$351,646,663
9/30/2007	151,271,461	156,748,300	308,019,761

A major factor affecting the stability of the contribution requirements just shown 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)
9/30/2008	\$(436,904,064)
9/30/2007	181,987,270

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, 2008**

	<u>All Divisions</u>
A. Accrued Liability	
1. For retirees and beneficiaries	\$ 8,360,525,097
2. For vested terminated members	520,668,586
3. For present active members	
a. Value of expected future benefit payments	5,655,838,247
b. Value of future normal costs	<u>771,393,860</u>
c. Active member accrued liability: (a) - (b)	<u>4,884,444,387</u>
4. Total accrued liability	13,765,638,070
B. Present Assets (Funding Value)	<u>11,402,861,293</u>
C. Unfunded Accrued Liability: (A.4) - (B)	<u><u>2,362,776,777</u></u>
D. Funding Ratio: (B) / (A.4)	<u><u>82.8%</u></u>

EXPERIENCE GAIN/(LOSS)

A. Derivation of Actuarial Gain/(Loss):	
1. Unfunded Actuarial Accrued Liability (UAAL) - Previous Valuation	\$1,818,126,316
2. Total Normal Cost (employer plus member) for Year Ending 9/30/2008	151,271,461
3. Total Contributions (employer plus member) for Year Ending 9/30/2008	361,375,920
4. Interest at 8% on:	
a. UAAL: .08 x (1)	145,450,105
b. Normal Cost and Contributions: .04 x [(2) - (3)]	(8,404,178)
c. Net Total: (a) + (b)	137,045,927
5. Change in UAAL due to Benefit Changes	0
6. Change in UAAL due to Assumption Changes	0
a. Change in UAAL due to Data Changes	180,804,929
7. Expected UAAL Current Year:	
(1) + (2) - (3) + (4c) + (5) + (6) + (6a)	1,925,872,713
8. Actual UAAL Current Year	2,362,776,777
9. Experience Gain/(Loss): (7) - (8)	(436,904,064)
B. Approximate Portion of Gain/(Loss) due to Investments	(357,935,204)
C. Approximate Portion of Gain/(Loss) due to Liabilities: (A.9) - (B)	(78,968,860)

The schedule above shows the net, aggregate experience for the System. The next page shows this experience in detail. The data change (item 6a) was to zero out the reported future benefit reduction for equated option retirees and beneficiaries who have already attained age 65.

DETAILED EXPERIENCE GAIN/(LOSS)

**Gains/(Losses) during the Year Ended September 30, 2008
Resulting from Differences between Assumed and Actual Experience**

TYPE OF ACTIVITY	<u>Gain/(Loss)</u>
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.	\$ (5,096,183)
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.	20,076,547
3. Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(14,661,117)
4. Investment Income. If there is greater investment income than assumed, there is a gain. If less income, a loss.	(357,935,204)
5. Death After Retirement. If retirants and inactive vested members live longer than assumed, there is a loss. If not as long, a gain.	(38,477,272)
6. Rehires. Rehires into the System will generally result in an actuarial loss.	(1,849,864)
7. Other. Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	<u>(38,960,971)</u>
8. Composite Gain/(Loss) During Year.	(436,904,064)

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
2008	\$(436,904)	\$ (357,935)	\$11,402,861	(3.14)%
2007	181,987	189,882	11,343,529	1.67
2006 ¹		779,267		
2006	26,951	(73,434)	10,110,658	(0.73)
2005	(600,525)	(583,958)	9,896,760	(5.90)
2004	(560,154)	(538,728)	10,149,275	(5.31)

¹ Assets reset to market value on September 30, 2006.

Plan Year Ending September 30	Gain/(Loss) Due to Liabilities	Actuarial Accrued Liability	Liability Gain/(Loss) as % of Accrued Liability
2008	\$ (78,969)	\$13,765,638	(0.57)%
2007	(7,895)	13,161,656	(0.06)
2006	100,385	12,798,520	0.78
2005	(16,567)	12,400,361	(0.13)
2004	(21,426)	12,003,995	(0.18)

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
1993 ¹	\$ 6,172,846	\$ 5,043,880	81.7%	\$ 1,128,966	\$2,261,476	49.9%
1994 ²	6,559,708	5,475,533	83.5	1,084,175	2,350,649	46.1
1995	6,861,422	6,090,002	88.8	771,420	2,430,733	31.7
1996	7,147,279	6,678,011	93.4	469,268	2,515,420	18.7
1997	8,213,429	7,515,869	91.5	697,560	2,273,203	30.7
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

¹ Revised asset valuation method.

² Revised actuarial assumptions.

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
1996	1995	10.38 %	\$2,528,503,514	\$262,458,665	\$285,766,953
1997	1996	9.93	2,458,227,626	244,102,003	288,366,799
1998	1997	10.51	2,282,056,831	239,844,173	-
1998	1997 ³	5.56	2,282,056,831	126,882,360	145,734,677
1999	1998	5.41	2,125,707,551	115,000,779	-
1999	1998 ²	5.29	2,125,707,551	112,449,929	121,119,857
2000	1999	5.46	2,153,964,222	117,606,447	121,817,366
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 ⁵
2003	2002	8.63	1,859,884,999	160,508,075	61,927,219 ⁵
2004	2003	14.12	1,759,588,178	248,453,851	128,326,810 ⁵
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 ⁷	1,783,386,714	380,308,846	-
2007	2006 ⁴	N/A	1,783,386,714	382,729,234	-
2007	2006 ¹	N/A	1,783,386,714	316,138,419	-
2007	2006 ⁸	N/A	1,783,386,714	238,929,773	192,162,537 ⁹
2008	2007	N/A	1,775,357,906	308,019,761	355,732,115
2009 ⁶	2008	N/A		351,646,663	

¹ Revised asset valuation method.

² Revised actuarial assumptions.

³ Revised actuarial assumptions and asset valuation method.

⁴ Revised benefit provisions.

⁵ Net after transfer was made to the Health Advance Funding Subaccount from employer contributions.

⁶ For the year ending September 30, 2009 the actual payroll and actual contributions are not yet known.

⁷ For the 2006 and later valuations a contribution percentage is not computed because the Retirement System is closed.

⁸ Interest-only funding adopted for one year only.

⁹ 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)			Valuation Assets (\$ in Millions)	Portion of Actuarial Accrued Liability Covered by Assets			
	(1) Active Members	(2) Retirants and Beneficiaries	(3) Active and Inactive Members (Employer Financed Portion)		(1)	(2)	(3)	(4) ³
	Contributions							
1993 ¹	\$ 72	\$2,561	\$3,540	\$ 5,043	100%	100%	68.1 %	81.7 %
1994 ²	73	2,778	3,709	5,476	100	100	70.8	83.5
1995	72	2,751	4,038	6,090	100	100	80.9	88.8
1996	55	2,844	4,248	6,678	100	100	89.0	93.4
1997	3	4,300	3,910	7,516	100	100	82.2	91.5
1997 ⁴	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	79.0
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

¹ Revised asset valuation method.

² Revised actuarial assumptions.

³ Percent funded on a total valuation asset and total actuarial accrued liability basis.

⁴ Revised actuarial assumptions and asset valuation method.

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

Valuation September 30	Valuation Assets ³	Termination Indicator		Experience Indicator
		Actuarial Present Value of Vested Benefits ³	Funded Ratio	Actuarial Gain/(Loss)
1994	\$ 5,514,735	\$ 4,731,537	116.6 %	\$23,872
1994 ²	5,514,735	5,066,906	108.8	23,872
1995	6,132,233	5,255,984	116.7	333,511
1996	6,678,011	5,337,969	125.1	308,146
1997	7,515,869	6,528,114	115.1	279,245
1997 ⁴	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)

¹ Revised asset valuation method.

² Revised actuarial assumptions.

³ Includes dental and vision benefit liabilities and assets prior to 1996.

⁴ Revised actuarial assumptions and asset valuation method.

SECTION C
FUND ASSETS

PLAN NET ASSETS (ASSETS AT MARKET OR FAIR VALUE)

	September 30	
	2007	2008
Cash	\$ 27,259,395	\$ 119,727,173
Total Receivables	92,984,884	98,772,611
Short Term Investment Pools	183,233,342	75,016,370
Fixed Income Pools	1,988,414,292	1,704,093,157
Domestic Equity Pools	5,688,380,454	4,268,485,841
Real Estate Pool	1,163,702,848	1,189,365,529
Alternative Investment Pools	1,579,357,778	1,808,061,487
International Equities Pools	1,383,468,408	919,511,865
Securities Lending Collateral less Obligations	0	(398,614,566)
Total Assets	12,106,801,401	9,784,419,467
Other Assets (Liabilities)	(3,744,750)	(3,180,809)
Net Assets Held in Trust for Pension Benefits	\$12,103,056,651	\$9,781,238,658

Note: Asset amounts exclude assets held for health benefits.

RECONCILIATION OF PLAN ASSETS

	September 30, 2007	September 30, 2008
Market Value, Beginning of Year	\$10,889,925,227	\$12,103,056,651
Additions		
Member Contributions	19,696,132	5,643,805
Employer Contributions	192,162,537 ¹	355,732,115
Net Investment Income	1,802,354,022	(1,845,408,441)
Adjustments	0	0
Total Additions	\$ 2,014,212,691	\$(1,484,032,521)
Deductions		
Benefit Payments	795,842,013	832,553,176
Contribution Refunds/Transfers	124,028	183,559
Administrative Expenses	5,115,226	5,048,737
Total Deductions	801,081,267	837,785,472
Market Value, End of Year	\$12,103,056,651	\$9,781,238,658

¹ Includes transfers from the Health Advance Funding Subaccount.

DEVELOPMENT OF VALUATION ASSETS

	2008	2009	2010	2011	2012
1. Beginning of Year Assets					
a. Market Value	\$ 12,103,056,651				
b. Valuation Assets	11,343,529,393				
2. End of Year Assets at Market Value	9,781,238,658				
3. Net Additions to Market Value					
a. Member Contributions	5,643,805				
b. Employer Contributions	355,732,115				
c. Investment Income	(1,845,408,441)				
d. Benefit Payments	(832,553,176)				
e. Contribution Refunds/Transfers	(183,559)				
f. Administrative Expenses	(5,048,737)				
g. Transfer (to) from Stabilization Subaccount	0				
h. Adjustment from Prior Year	0				
i. Total Additions to Market Value	(2,321,817,993)				
4. Summary of Net Additions to Market Value					
a. Net Contributions = 3a + 3b + 3e + 3g	361,192,361				
b. Net Investment Income = 3c + 3f	(1,850,457,178)				
c. Benefit Payments = 3d	(832,553,176)				
d. Adjustment from Prior Year = 3h	0				
e. Total Additions to Market Value	(2,321,817,993)				
5. Average Valuation Assets =					
1b + .5 x (4a + 4c + 4d)	11,107,848,986				
6. Imputed Income at Valuation Rate = 8.00% x 5	888,627,919				
7. Gain (Loss) from investments = 4b - 6	(2,739,085,097)				
8. Portion of Gains (Losses) recognized from prior years					
a. From this year = .2 * 7	(547,817,019)				
b. From one year ago	189,881,815	\$ (547,817,019)			
c. From two years ago	0	189,881,815	\$ (547,817,019)		
d. From three years ago	0	0	189,881,815	\$ (547,817,019)	
e. From four years ago	0	0	0	189,881,813	\$ (547,817,021)
f. Total	(357,935,204)	(357,935,204)	(357,935,204)	(357,935,206)	(547,817,021)
9. Change in Valuation Assets = 4a + 4c + 4d + 6 + 8f	59,331,900				
10. End of Year Assets					
a. Market Value = 2	9,781,238,658				
b. Valuation Assets = 1b + 9	11,402,861,293				
11. Actuarial Rate of Return	4.78%				
12. Market Rate of Return	(15.59)%				

SERS Annual Actuarial Valuation

DEVELOPMENT OF VALUATION ASSETS (CONTINUED)

	2003	2004	2005	2006	2007
1. Beginning of Year Assets					
a. Market Value	\$ 8,274,112,215	\$ 8,924,266,601	\$ 9,428,463,524	\$ 10,130,839,539	\$ 10,889,925,227
b. Valuation Assets	10,616,278,373	10,440,610,630	10,149,275,470	9,896,760,033	10,889,925,227
2. End of Year Assets at Market Value	8,924,266,601	9,428,463,524	10,130,839,539	10,889,925,227	12,103,056,651
3. Net Additions to Market Value					
a. Member Contributions	80,185,475	37,682,883	30,583,004	9,434,310	19,696,132
b. Employer Contributions	79,291,845	103,873,294	254,160,400	270,705,017	150,858,506
c. Investment Income	1,215,018,189	1,073,759,972	1,168,692,345	1,248,722,460	1,802,354,022
d. Benefit Payments	(701,664,432)	(731,009,109)	(746,470,156)	(767,000,706)	(795,842,013)
e. Contribution Refunds/Transfers	(120,026)	(157,200)	(291,593)	(133,474)	(124,028)
f. Administrative Expenses	(5,192,039)	(4,316,433)	(4,297,985)	(4,628,043)	(5,115,226)
g. Transfer (to) from Stabilization Subaccount	(17,364,626)	24,363,516	0	0	41,304,031
h. Adjustment from Prior Year	0	0	0	1,986,124	0
i. Total Additions to Market Value	650,154,386	504,196,923	702,376,015	759,085,688	1,213,131,424
4. Summary of Net Additions to Market Value					
a. Net Contributions = 3a + 3b + 3e + 3g	141,992,668	165,762,493	284,451,811	280,005,853	211,734,641
b. Net Investment Income = 3c + 3f	1,209,826,150	1,069,443,539	1,164,394,360	1,244,094,417	1,797,238,796
c. Benefit Payments = 3d	(701,664,432)	(731,009,109)	(746,470,156)	(767,000,706)	(795,842,013)
d. Adjustment from Prior Year = 3h	0	0	0	1,986,124	0
e. Total Additions to Market Value	650,154,386	504,196,923	702,376,015	759,085,688	1,213,131,424
5. Average Valuation Assets =					
1b + .5 x (4a + 4c + 4d)	10,336,442,491	10,157,987,322	9,918,266,297	9,654,255,669	10,597,871,541
6. Imputed Income at Valuation Rate = 8.00% x 5	826,915,399	812,638,986	793,461,304	772,340,454	847,829,723
7. Gain (Loss) from investments = 4b - 6	382,910,751	256,804,553	370,933,056	471,753,963	949,409,073
8. Portion of Gains (Losses) recognized from prior years					
a. From this year = .2 * 7	76,582,150	51,360,911	74,186,611	873,617,768 ¹	189,881,815
b. From one year ago	(369,913,970)	76,582,150	51,360,911	74,186,611	0
c. From two years ago	(416,174,097)	(369,913,970)	76,582,150	51,360,911	0
d. From three years ago	119,417,476	(416,174,097)	(369,913,970)	76,582,150	0
e. From four years ago	147,177,063	119,417,476	(416,174,097)	(369,913,970)	0
f. Total	(442,911,378)	(538,727,530)	(583,958,395)	705,833,469	189,881,815
9. Change in Valuation Assets = 4a + 4c + 4d + 6 + 8f	(175,667,743)	(291,335,160)	(252,515,436)	993,165,194	453,604,166
10. End of Year Assets					
a. Market Value = 2	8,924,266,601	9,428,463,524	10,130,839,539	10,889,925,227	12,103,056,651
b. Valuation Assets = 1b + 9	10,440,610,630	10,149,275,470	9,896,760,033	10,889,925,227	11,343,529,393
11. Actuarial Rate of Return	3.72 %	2.70 %	2.11 %	15.31 %	9.79 %
12. Market Rate of Return	15.13 %	12.38 %	12.66 %	12.58 %	16.96 %

¹ After adjusting to market value as of September 30, 2006.

HISTORY OF APPROXIMATE INVESTMENT RETURN RATES

Plan Year Ending September 30	Approximate Rate of Return ¹	
	Market	Actuarial
2000	13.48 %	10.77 %
2001	(11.46)	6.49
2002	(10.71)	3.00
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
Average Returns:		
Last five years:	7.07 %	6.82 %
Last nine years:	4.24 %	6.44 %

¹ Approximate return based on ratio of total investment return to average asset value, using an assumed mid-year timing of 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			Market Value of Assets
	Member Contributions	Employer Contributions	Net Investment Income ¹	Retirement Benefits	Return of Contributions and Transfers	Administrative Expenses	
1989	\$ 3,065,894	\$151,962,306	\$ 290,586,797 ³	\$178,660,567	\$ 204,889	\$2,461,919	\$ 3,628,643,382
1990	2,733,598	178,236,399	240,341,012 ³	176,932,766	125,828	2,993,159	3,869,902,638
1991	4,416,336	141,476,780	276,782,381 ³	190,723,340	126,406	4,339,321	4,097,389,068
1992	4,810,700	192,117,873	244,287,508	226,130,628	123,792	5,223,109	4,307,127,620
1993	4,068,696	265,867,853	332,767,025 ³	260,340,711	99,369	4,198,410	4,645,192,704
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 ²	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) ²	5,115,226	12,103,056,651
2008	5,643,805	355,732,115	(1,845,408,441)	832,553,176	183,559	5,048,737	9,781,238,658

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 Financial Services.

SECTION D
CENSUS DATA

SUMMARY OF PARTICIPANT DATA BY CATEGORY

	<u>2007</u>	<u>2008</u>
Retirees and beneficiaries currently receiving benefits:		
Regular benefits	36,963	37,984
Survivor benefits	6,308	6,499
Disability benefits	<u>3,615</u>	<u>3,595</u>
Total	46,886	48,078
Current Employees:		
Vested	29,991	27,995
Non-vested	<u>873</u>	<u>573</u>
Total	30,864	28,568
Inactive employees entitled to benefits and not yet receiving them:	<u>6,663</u>	<u>6,912</u>
Total Participants	<u><u>84,413</u></u>	<u><u>83,558</u></u>

RETIREES AND BENEFICIARIES – HISTORICAL COMPARISON

Year Ended September 30	Number Added	Number Removed	Rolls End of Year		% Increase in Annual Benefits	Average Annual Benefit
			Number	Annual Benefit ¹		
1989			24,187	\$168,795	13.1 %	\$ 6,979
1990			24,863	180,696	7.1	7,268
1991			25,566	194,928	7.9	7,625
1992			28,856	243,612	25.0	8,442
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

¹ Amounts shown in thousands of dollars.

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

**RETIREES AND BENEFICIARIES
AS OF SEPTEMBER 30, 2008
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	543	260	200	12	49	0	10	1	11
201 - 400	2,784	1,643	599	10	335	0	67	1	129
401 - 600	4,932	2,745	680	301	701	16	180	8	301
601 - 800	5,074	2,955	641	8	831	1	256	33	349
801 - 1,000	4,412	2,637	482	9	725	2	221	70	266
1,001 - 1,200	3,965	2,497	338	9	613	0	209	98	201
1,201 - 1,400	4,037	2,886	322	5	424	0	168	96	136
1,401 - 1,600	3,918	3,016	294	2	238	0	123	157	88
1,601 - 1,800	3,379	2,769	179	2	120	0	78	190	41
1,801 - 2,000	3,025	2,582	127	0	59	0	45	191	21
Over 2,000	12,009	10,355	260	2	49	0	92	1,209	42
Totals	48,078	34,345	4,122	360	4,144	19	1,449	2,054	1,585

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	543	129	156	182	4	51	9	11	1
201 - 400	2,784	1,053	741	613	37	217	60	61	2
401 - 600	4,932	2,102	1,306	763	80	414	111	152	4
601 - 800	5,074	2,036	1,366	846	82	492	95	151	6
801 - 1,000	4,412	1,833	1,186	792	83	337	59	116	6
1,001 - 1,200	3,965	1,787	1,141	644	101	174	44	69	5
1,201 - 1,400	4,037	1,873	1,206	668	84	108	49	47	2
1,401 - 1,600	3,918	1,624	1,237	753	120	106	36	37	5
1,601 - 1,800	3,379	1,342	1,070	633	144	81	58	43	8
1,801 - 2,000	3,025	1,169	858	553	165	133	64	63	20
Over 2,000	12,009	4,085	3,257	2184	783	871	285	425	119
Totals	48,078	19,033	13,524	8,631	1,683	2,984	870	1,175	178

*** 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, 2007	September 30, 2008
Conservation Officers		
Number	128	111
Average Age	44.7	44.9
Average Service	15.9	17.9
Reported Payroll	\$ 8,362,824	\$ 8,390,376
Average Annual Payroll	65,335	75,589
Corrections Officers		
Number	8,426	7,777
Average Age	47.9	48.4
Average Service	18.5	19.3
Reported Payroll	\$ 511,141,882	\$ 493,060,455
Average Annual Payroll	60,662	63,400
All Other		
Number	22,310	20,680
Average Age	52.0	52.6
Average Service	23.1	23.9
Reported Payroll	\$1,306,384,704	\$1,262,221,167
Average Annual Payroll	58,556	61,036
Total		
Number	30,864	28,568
Average Age	50.8	51.4
Average Service	21.8	22.7
Reported Payroll	\$1,825,889,410	\$1,763,671,998
Average Annual Payroll	59,159	61,736

ACTIVE MEMBERS

**Members in Active Service as of September 30, 2008
by Age and Years of Service**

Age	Years of Service							Total Count	Total Pay	Average Pay
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & up			
20 - 24	1							1	\$ 35,368	\$35,368
25 - 29	3		1					4	178,402	44,601
30 - 34	13	50	142	3				208	11,898,660	57,205
35 - 39	13	74	1,092	312	18			1,509	90,954,467	60,275
40 - 44	11	70	1,027	1,418	777	12		3,315	202,494,203	61,084
45 - 49	11	57	825	1,604	2,159	657	108	5,421	332,171,986	61,275
50 - 54	18	69	642	1,356	2,009	1,958	2,032	8,084	494,345,145	61,151
55 - 59	29	60	487	984	1,425	1,394	2,399	6,778	424,131,594	62,575
60 - 64	16	41	244	429	544	411	891	2,576	164,642,155	63,914
65 - 69	9	9	49	66	86	61	232	512	32,900,214	64,258
70 & up	13	6	17	16	8	6	94	160	9,919,804	61,999
Total	137	436	4,526	6,188	7,026	4,499	5,756	28,568	\$ 1,763,671,998	\$61,736

**ACTIVE AND INACTIVE MEMBERS REPORTED FOR VALUATION
HISTORICAL COMPARISON**

Valuation Date September 30	Number of Inactive Vested Members	Active Members					
		Number	Reported Payroll ¹	Average			Years of Service
				Annual Pay	% Increase	Age	
1989	753	66,388	\$1,996,039	\$30,066	2.6 %	40.9	10.7
1990	2,458	69,558	2,227,755	32,027	6.5	41.2	10.9
1991	3,030	65,595	2,236,336	34,093	6.5	42.1	11.9
1992	4,367	64,248	2,189,752	34,083	0.0	42.2	11.9
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

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 for most decrements 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.

Normal Cost contributions for death and disability benefits were determined using the term cost method. This method produces normal cost contributions that are expected to be sufficient to fund the value of both pre-retirement death and disability benefits likely to be paid during the next year.

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.

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 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, 2004 valuation of the System.

Sample Ages	Salary Increase Assumptions For an Individual Member		
	Merit & Seniority	Base (Economy)	Increase Next Year
20	10.9%	3.5%	14.4%
25	7.2	3.5	10.7
30	3.1	3.5	6.6
35	1.4	3.5	4.9
40	0.9	3.5	4.4
45	0.6	3.5	4.1
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	270		

The charts shown in this section of the report may include a reference number (for example, 270 is used above). These reference numbers are used by GRS to track and identify assumption tables.

VALUATION ASSUMPTIONS

The healthy life mortality table used in this valuation of the System was the 1994 Group Annuity Mortality table set forward one year for both men and women. This assumption was first used for the September 30, 1998 valuation of the System. 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	0.29%	0.16%	29.77	33.94
55	0.49	0.26	25.26	29.24
60	0.90	0.51	21.00	24.70
65	1.62	0.97	17.10	20.46
70	2.60	1.50	13.63	16.54
75	4.09	2.53	10.53	12.90
80	6.86	4.40	7.89	9.71
Ref:	261 x 1.00	262 x 1.00		

This assumption is used to measure the probabilities of each benefit payment being made after retirement. For active members, the probabilities of dying before retirement were based upon the same mortality table as members dying after retirement.

The disabled life mortality table used in this valuation was developed by the prior actuary pursuant to an experience study. 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	2.50%	1.72%	20.94	25.31
55	2.68	2.04	18.48	22.51
60	3.16	2.44	15.95	19.86
65	3.94	2.84	13.51	17.30
70	5.02	3.24	11.24	14.74
75	6.58	3.76	9.15	12.07
80	8.74	5.32	7.26	9.35
Ref:	476 x 1.00	477 x 1.00		

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, 2004 valuation of the System.

Retirement Ages	Percent of Eligible Members Retiring		
	Conservation Officers	Corrections Officers	Others
45	16%		
46	16		
47	16		
48	16		
49	16		
50	16		
51	16	25%	
52	16	18	
53	16	12	
54	16	15	
55	16	15	18%
56	16	25	15
57	15	12	12
58	15	12	12
59	15	12	12
60	18	18	16
61	15	15	14
62	30	30	25
63	22	22	20
64	22	22	20
65	35	35	35
66	25	25	25
67	25	25	25
68	25	25	25
69	25	25	25
70	50	50	50
71	60	60	60
72	70	70	70
73	80	80	80
74	90	90	90
75	100	100	100
Ref	1343	1344	1345

Note: For Conservation Officers, 50% 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, 2004 valuation of the System.

Retirement Age	Percent of Eligible Members Retiring
55	4.5%
56	3.0
57	4.0
58	4.0
59	4.0
Ref	1346

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

VALUATION ASSUMPTIONS

Rates of disability among active members used in the valuation are shown below, and were first used for the September 30, 2004 valuation of the System.

Sample Ages	Percent Becoming Disabled Within Next Year	
	Non-Duty Disability	Duty Disability
25	0.03%	0.05%
30	0.05	0.05
35	0.10	0.05
40	0.20	0.05
45	0.34	0.05
50	0.47	0.05
55	0.62	0.05
60	0.82	0.05
65	1.16	0.05
Ref.	395	396

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

<i>Benefit Service</i>	Exact fractional service is used to determine the amount of benefit payable.
<i>Decrement Operation</i>	Disability and withdrawal decrements do not operate during retirement eligibility.
<i>Decrement Timing</i>	Decrements of all types are assumed to occur mid-year.
<i>Eligibility Testing</i>	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.
<i>Forfeitures</i>	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.
<i>Incidence of Contributions</i>	Contributions are assumed to be received continuously throughout the year.
<i>Liability Adjustments</i>	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.
<i>Marriage Assumption</i>	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.
<i>Normal Form of Benefit</i>	A straight life benefit is the normal form of benefit.
<i>Pay Increase Timing</i>	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.
<i>Service Credit Accruals</i>	Members were assumed to accrue one year of service credit per year.

SECTION F
PLAN PROVISIONS

PLAN PROVISIONS

Our actuarial valuation of the System as of September 30, 2008 is based on the present provisions of Public Act No. 240 of 1943.

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).

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.

Early Retirement (age reduction factor used):

Eligibility - Age 55 with 15 or more years service.

Annual Amount - Computed as regular retirement benefit 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 regular retirement benefit based on service and FAC at termination.

PLAN PROVISIONS

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.

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.

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.

PLAN PROVISIONS

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.

Post Retirement Cost-of-Living Adjustments:

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.

Member Contributions:

None.

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.

SECTION G
GLOSSARY

GLOSSARY

<i>Actuarial Accrued Liability</i>	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.”
<i>Accrued Service</i>	The service credited under the plan which was rendered before the date of the actuarial valuation.
<i>Actuarial Assumptions</i>	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.
<i>Actuarial Cost Method</i>	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.”
<i>Actuarial Equivalent</i>	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.
<i>Actuarial Present Value</i>	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.
<i>Amortization</i>	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.
<i>Experience Gain/(Loss)</i>	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

<i>Normal Cost</i>	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.
<i>Reserve Account</i>	An account used to indicate that funds have been set aside for a specific purpose and is not generally available for other uses.
<i>Unfunded Actuarial Accrued Liability</i>	The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as “unfunded accrued liability.”
<i>Valuation Assets</i>	The value of current plan assets recognized for valuation purposes. Generally based on market value plus a portion of unrealized appreciation or depreciation.